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## **Chapter 13**

# **Archaeological and Cultural Heritage**

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## 13 ARCHAEOLOGICAL AND CULTURAL HERITAGE

### 13.1 Introduction

This chapter of the Environmental Effect Assessment Report (EIAR) identifies, describes and presents an assessment of the likely significant effects of the N2 Slane Bypass and Public Realm Enhancement Scheme (hereafter referred to as ‘the Proposed Scheme’) on Archaeological and Cultural Heritage. The assessment examines the potential effects during the construction and operational phases of the Proposed Scheme as outlined in **Chapter 4 – Description of the Proposed Scheme** and **Chapter 5 – Description of the Construction Phase**. Cultural Heritage aspects of relevance to this assessment include a wide range of tangible and intangible cultural considerations including settlements, former designed landscapes, buildings and structures, folklore, townland and place names, and historical events, as well as traditions and traditional practices. Other aspects relevant to the Cultural Heritage are addressed in the specific chapters of the EIAR, namely:

- **Chapter 12 – Landscape and Visual:** Predicted visual intrusion and landscape effects;
- **Chapter 14 – Architectural Heritage:** Predicted effects on the architectural heritage of Slane and the surrounding environs; and
- **Appendix 13.1 – Heritage Impact Assessment (HIA):** Assessment of the effect, if any, of the development on the UNESCO World Heritage Property (WHP) at Brú na Bóinne.

### 13.2 Methodology

The methodology for archaeological and cultural heritage assessment has been designed to provide a full understanding of the potential likely effect on archaeological and cultural heritage assets and on the character of the historic landscape. In so doing, it has allowed the character of the immediate and wider historic environment to be described. It has also facilitated the identification of individual heritage assets and locations where there is the potential to reveal subsurface archaeological features.

Cultural heritage is part of our cultural identity and contributes to defining a sense of place. A historic landscape character (HLC) approach was undertaken for the Proposed Scheme. This involved an assessment of individual heritage assets, as well as how these heritage assets present in the landscape, and consideration of their connectivity to and relationship with other heritage features. These were analysed through mapping, documentary sources and site inspection.

By using different information sources and data sets, an understanding of the historic landscape character that surrounds and is part of the Proposed Scheme has been developed. The modern landscape is a result of numerous modifications over time. Understanding how these processes occur, and how they are represented in today’s landscape, is critical in providing an insight into the layering and development of the cultural heritage environment. It also facilitates an appreciation of an area’s unique character. The process is concerned with identifying the dominant historic influences which have formed and define the present landscape.

By using existing data sets, such as the Record of Protected Structures (RPS), Record of Monuments and Places (RMP), National Inventory of Architectural Heritage (NIAH) for example, coupled with the use of Geographical Information Systems (GIS) and Computer Aided Design (CAD), dominant clusters of monuments, buildings and cultural heritage features begin to emerge. Published and unpublished documentary sources, historical maps, and field walkover surveys of the Proposed Scheme and in the area around Slane, were used to further enhance the understanding of the existing environment. As part of the work undertaken for this EIAR chapter, the inter-relationships between architectural heritage, archaeology, landscape and visual aspects, and key viewpoints, were also considered. The chapter also addresses both terrestrial and underwater cultural heritage, with the River Boyne forming a focal aspect of the assessment.

The locations of the relevant archaeological and cultural heritage assets identified as part of this assessment are shown on **Figure 13.32(a)-(f)** in **Section 13.3.1**.

### 13.2.1 World Heritage Property HIA

In accordance with the 1972 World Heritage Convention, a HIA was carried out in relation to the Brú na Bóinne World Heritage Property (WHP). This includes analysis of how the wider setting of the WHP around Slane currently supports its Outstanding Universal Value (OUV)<sup>1</sup> and how changes resulting from construction of the Proposed Scheme could affect Outstanding Universal Value (OUV). The HIA fully assesses and addresses the effect of the Proposed Scheme on the OUV of the WHP. The HIA forms part of and compliments the wider study carried out in relation to cultural heritage for the EIAR.

The HIA report presents the results of an assessment of the predicted effect of the proposed N2 Slane Bypass on the OUV of Brú na Bóinne World Heritage Property, with three main objectives:

- To analyse how the setting of the World Heritage Property around Slane currently supports OUV, and how changes resulting from construction of the bypass could affect OUV;
- To explain how the design of the bypass has evolved in order to avoid or minimise these potential adverse effects on OUV; and
- To assess how the bypass, as now proposed, would affect OUV.

The programme of work reported on in the HIA commenced in 2017 and therefore the majority of it was undertaken before publication of the UNESCO 2022 *Guidance and Toolkit for Impact Assessments in a World Heritage Context*. As a result, it followed the earlier good practice guidance published by ICOMOS in 2011: *Guidance on Heritage Impact Assessments for Cultural World Heritage Properties*. As noted in the Foreword to the UNESCO 2022 guidance, the 2022 document incorporates and replaces the ICOMOS 2011 guidance.

Comparison of the two guidance documents does not reveal any change in advice regarding the basic principles of impact assessment in the context of world heritage, with a continuing focus on understanding the OUV of a World Heritage Property and the predicted impact of a proposal on that OUV. The 2022 document is wider ranging as it offers guidance relevant to both cultural and natural heritage; it is also a longer and more-detailed document.

It was concluded that the assessment carried out in the HIA remains in accordance with the up-dated guidance and this guidance does not undermine the relevance or reliability of the assessment work carried out before 2022. All earlier assessment work has therefore been retained without material revision in the final HIA report although some of the vocabulary used in the earlier reports has been updated to conform with that used in the 2022 guidance. However, in order to demonstrate how the 2022 guidance has been adopted, the text on 'impact assessment methods' (**Section 13-3**) is presented using the main steps of the assessment process now recommended in the 2022 guidance (UNESCO 2022, Figure 5.1, page 24). The methodology outlined below is taken from the HIA report which is contained in **Appendix 13.1** of this chapter.

#### 13.2.1.1 Programme of Work

The HIA report contains the findings of a programme of work extending over five years from October 2017 that has contributed to Phases 2 and 3 of the project. The aim of this programme has been to ensure that the project to design a bypass for Slane is fully informed about the World Heritage Property and the potential for development to adversely affect its OUV and to ensure that same is designed against and/or any such adverse impacts avoided or mitigated. Early engagement by the project team with this matter has allowed the evolving project design to take account of the World Heritage Property and therefore to avoid or minimise any adverse impacts on its OUV. Opportunities for enhancement of the World Heritage Property have also been examined as part of the project.

Option Selection (Phase 2 of the TII Project Management Guidelines, TII 2016) involved two main tasks:

<sup>1</sup> To be included on the World Heritage List, sites must be of outstanding universal value and meet at least one out of ten selection criteria (<https://whc.unesco.org/en/criteria/>). Brú na Bóinne meets three of the criteria: (i) The Brú na Bóinne monuments represent the largest and most important expression of prehistoric megalithic plastic art in Europe; (iii) The concentration of social, economic and funerary monuments at this important ritual centre and the long continuity from prehistory to the late medieval period make this one of the most significant archaeological sites in Europe; (iv) The passage grave, here brought to its finest expression, was a feature of outstanding importance in prehistoric Europe and beyond.

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- Analysis of OUV and its relationship to the wider setting of the World Heritage Property, leading to a detailed understanding of how the landscape potentially affected by the bypass supports OUV; and
- Appraisal of route options for the bypass, leading to conclusions regarding likely impacts on OUV and recommendations to the project team for the selection of a preferred route option that would avoid or minimise adverse impacts on OUV.

Both tasks benefited from consultation with relevant stakeholders, including meetings to discuss the project with the International Council on Monuments and Sites (ICOMOS) (Ireland) and the National Monuments Service, Department of Housing, Local Government and Heritage (DHLGH).

The results of the option selection work are presented in two reports<sup>2</sup>. The first, dated February 2019, considers the predicted impacts of nine route options for the N2 bypass to the west and east of Slane along with ‘Do-Nothing’ and ‘Do-Minimum’ scenarios. The second report, dated July 2019, is a supplement to the first report. It considers the predicted impacts of six route options for a N51 bypass to the north of Slane in combination with what was then the emerging preferred option for the N2 bypass (Route E/G).

Design and Environmental Evaluation (Phase 3 of the TII Project Management Guidelines, TII 2016) also involved two main tasks:

- Advice to the project team regarding the detailed design of the Proposed Scheme, including landscape mitigation, in order to minimise adverse impacts on OUV; and
- Assessment of the predicted impact of the finalised project design on OUV to inform the environmental impact assessment reporting for the Proposed Scheme.

ICOMOS (Ireland), the National Monuments Service and other stakeholders were again consulted during this work. The results of the final assessment are presented in the HIA report in **Appendix 13.1**.

### 13.2.1.2 Impact Assessment Methods

The programme of work was undertaken using methods that follow the approach to impact assessment for World Heritage now promoted by UNESCO in its 2022 guidance. The impact assessment process recommended in Chapter 4 of the guidance involves 11 steps with two additional activities taking place throughout the assessment. Steps 3-8 and the two continuing activities (A & B) are the responsibility of the project’s impact assessment team (UNESCO 2022, Figure 5.1) and the methods employed for each of these activities are described below.

#### 13.2.1.2.1 Activities throughout assessment

##### **A Participation**

Participation, as defined in the UNESCO guidance, is referred to as ‘consultation’ in the present project. Consultation is an essential part of the decision making associated with EIA. This includes not only the statutory consultation associated with the application but also, at pre-planning stage, the early involvement of the public and other stakeholders to ensure that the views of stakeholders are taken into consideration throughout the preparation of the EIA Report.

Stakeholder consultation has been a feature of the project development for the Proposed Scheme. Details of the consultation carried out by the project team and the responses from consultees are set out in **Chapter 6** of the EIA Report. Consultation commenced in Q3 of 2017 as part of the process of defining the study area and potential constraints and has continued throughout the development of the Proposed Scheme.

Stakeholders consulted as part of this process with particular interest in the World Heritage Property include: Local residents and landowners; International Council on Monuments and Sites (ICOMOS) Ireland; National Monuments Service and Built Heritage & Architectural Advisory Unit of the DHLGH; Royal Irish Academy; University College Dublin; Dundalk Institute of Technology; and Meath Archaeological and Historical Society.

##### **B. Proactive problem solving**

Guidance (UNESCO 2022, s.6.3) notes that impact assessment provides an opportunity to think creatively about the Proposed Scheme and potentially contribute to sustainable development. This problem-solving

<sup>2</sup> Both reports are titled *N2 Slane Bypass Route Options Study. Assessment of Predicted Impacts on the Brú Na Bóinne World Heritage Property*.

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approach can be taken throughout the assessment and includes identifying broader alternatives for the Proposed Scheme as well as more specific mitigation measures.

This approach has been incorporated into the present project through the early engagement of a consultant with relevant World Heritage experience as part of the project team. This ensures that the need to protect OUV remained at the forefront of considerations during development of the Proposed Scheme and that all opportunities have been and are being taken to minimise any predicted adverse impacts.

As noted above (Programme of Work) this approach has been applied both in the 'Option Selection' and 'Design and Environmental Evaluation' phases of the project. The results of this approach, in terms of avoidance or reduction in adverse impacts on OUV, are described in Section 6 of the HIA report in **Appendix 13.1**.

### 13.2.1.2.2 Steps of impact assessment

#### *Step 3. Baseline*

The need to analyse and understand the current baseline is addressed in the HIA report through an analysis of the OUV of the World Heritage Property, focussing on the ways in which the wider setting around Slane supports OUV. This is dealt with in Sections 4 and 5 of the HIA report in Appendix 13.1.

Section 4 contains a summary of existing publications that are relevant to an analysis of the setting of the World Heritage Property. This provides the evidence base for Section 5, which contains a Statement of Significance, explaining how that part of the wider setting around Slane supports the OUV of the World Heritage Property.

#### *Step 4. Proposed action and alternatives*

A detailed description of the Proposed Scheme is provided in **Chapter 4** of the EIAR. **Chapter 3** of the EIAR describes how alternatives to the Proposed Scheme were considered as part of the project.

Alternative proposals were considered in Phase 2 of the project (Option Selection). Detailed analysis and assessment of the impact of alternative proposals on OUV were undertaken and are reported on in two reports titled N2 Slane Bypass Route Options Study. Assessment of Predicted Impacts on the Brú Na Bóinne World Heritage Property (dated respectively February and July 2019).

The conclusions reached in these two reports regarding the World Heritage Property in isolation fed into the N2 Slane Bypass Option Selection Report (May 2020), which brought together findings from all relevant disciplines to reach an integrated conclusion on the preferred route option for the bypass.

All three reports should be read to gain a full understanding of the analysis and decision-making process that led ultimately to a preferred route option.

#### *Step 5/6. Identifying, predicting and evaluating impacts*

The Proposed Scheme would be located in the wider setting of the World Heritage Property and would lead to permanent change in that setting. The identification of impacts on OUV requires the assessment of whether and how predicted changes in the setting would affect the ways in which that setting supports OUV (as identified in the baseline study).

Analysis of the changes that would occur in the wider setting of the World Heritage Property is based on field work in order to understand how the Proposed Scheme would be experienced on the ground. This has been informed by predicted visibility mapping and the production of photomontages that illustrate the predicted appearance of the bypass from selected viewpoints relevant to the experience and appreciation of the World Heritage Property.

An assessment of the predicted impact of the Proposed Scheme is presented in Section 7 of the HIA report in **Appendix 13.1** and includes separate consideration of construction and operation phase impacts. It also assesses the potential for cumulative impacts that would result from the Proposed Scheme in combination with other approved projects and with other projects constructed since designation of the site as a World Heritage Property in 1993.

The predicted impact of the Proposed Scheme on OUV is assessed using the various categories of impact significance recommended in the UNESCO guidelines (2022, page 84):

- Neutral: Research into the potential impact reveals that no change would occur to the attribute.
- Minor: Research into the potential impact shows that the change would be negligible.

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- Moderate: Research into the potential impact shows that there would be some change to the attribute.
- Major: Research into the potential impact shows that there would be large change to the attribute.

‘Change’ to an attribute is understood to mean the magnitude of change (positive or negative) in OUV. ‘Attribute’ is understood to include elements of the World Heritage Property itself that convey OUV as well as elements of the buffer zone or wider setting that support OUV.

### *Step 7. Mitigation and enhancement*

Steps taken to mitigate any predicted adverse impacts and, where possible, enhance OUV are described in Section 6 of the HIA report in Appendix 13.1. Mitigation of adverse effects has been achieved in two phases of the project:

Option selection: comparison of the nature and magnitude of impact of the available route options on OUV, leading to an informed choice of preferred route for the bypass; and

Design and Environmental Evaluation: advice to the project design team (including interaction with the landscape and visual specialist) based on an understanding of OUV, leading to a detailed design proposal that incorporates all opportunities to minimise adverse impacts on OUV from the preferred route of the bypass.

In both phases, the proposed mitigation measures have been embedded in the design of the project. As a result, it is logical to present an account of the embedded mitigation in Section 6 of the HIA report in Appendix 13.1, before the results of the impact assessment at Section 7 of same.

### *Step 8. Reporting*

Information relevant to consideration of the World Heritage Property may be found in the three route option reports referenced in Step 4 above (as listed in Section 3.30 of the HIA report, Appendix 13.1) and in the HIA report contained in **Appendix 13.1**.

## 13.2.2 Legislation, Policy and Guidance

The following legislation, policy standards and guidelines were consulted to inform the assessment:

### 13.2.2.1 Legislation

- National Monuments Acts, 1930 to 2014;
- Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act, 1999;
- Planning and Development Acts, 2000 – 2022, as amended; and
- Heritage Act, 1995, as amended.

#### Codes

- Code of Practice for Archaeology (2017) agreed between the Minister for Arts, Heritage, Regional, Rural and Gaeltacht Affairs and Transport Infrastructure Ireland, 2017.

#### Conventions

- The European Landscape Convention (ELC), ratified by Ireland 2002 European Landscapes Convention 2010. (The Department of the Environment, Heritage and Local Government ‘Landscape and Landscape Assessment Guidelines’ have been in draft form since 2000, however the Draft National Landscape Strategy (NLS) was launched in July 2014);
- Council of Europe (2005). Framework Convention on the Value of Cultural Heritage for Society, ‘Faro Convention’;
- Council of Europe (1992). European Convention on the Protection of the Archaeological Heritage (ratified by Ireland 1992), ‘Valetta Convention’;
- Council of Europe (1985). Convention for the Protection of the Architectural Heritage of Europe (ratified by Ireland 1997), ‘Granada Convention’; and
- The UNESCO World Heritage Convention, 1972.

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Excerpts from the relevant legislation are contained in **Appendix 13.2** of this chapter.

### 13.2.2.2 Policy

- Meath County Development Plan, Meath County Council 2021-2027.

### 13.2.2.3 Guidance and Strategies

- Historic England (2017) The Setting of Heritage Assets, Historic Environment Good Practice Advice in Planning Note 3 (Second Edition);
- Department of Arts, Heritage and the Gaeltacht (2015) National Landscape Strategy for Ireland 2015-2025, Department of Arts, Heritage and the Gaeltacht;
- International Council on Monuments and Sites (ICOMOS) (2011) Guidance on Heritage Impact Assessments for Cultural World Heritage Properties – A publication of the International Council on Monuments and Sites;
- The Heritage Council (2013) Historic Landscape Characterisation in Ireland: Best Practice Guidance;
- The Burra Charter (2013), the Australia ICOMOS Charter for Places of Cultural Significance;
- The Heritage Council (2010) Proposals for Irelands Landscapes;
- Historic Scotland (2010) Managing Change in the Historic Environment;
- NRA (2006) Guidelines for the Testing and Mitigation of the Wetland Archaeological Heritage for National Road Schemes;
- National Roads Authority (NRA) (2005). Guidelines for the Assessment of Archaeological Heritage Effect of National Road Schemes;
- Draft TII guidelines for Cultural Heritage Impact Assessment of TII Projects;
- ICOMOS Xi'an Declaration on the Conservation of the Setting of Heritage Structures, Sites and Areas, 2005; and
- Department of Arts, Heritage, Gaeltacht and Islands (1999) Frameworks and Principles for the Protection of the Archaeological Heritage.

### 13.2.3 Zone of Influence

The area examined for the study includes the full extent of the Proposed Scheme. A 500m wide corridor (250m either side of the Proposed Scheme) was assessed in order to identify the known and recorded archaeological and cultural heritage assets and to provide an understanding of the archaeological and historic development of the wider landscape. This allowed an assessment of the likely significant effects on archaeological and cultural heritage arising from the construction and operation of the Proposed Scheme.

Professional judgement has been used to determine where the assessment corridor should be extended to take into account archaeological sites / monuments and their settings that lie beyond the proposed effect assessment corridor. As required and where appropriate, the relationship(s) of structures, sites, monuments and complexes that fall outside this corridor were considered and evaluated. This was the case, for example, with regard to Brú na Bóinne World Heritage Property, which was considered in its wider setting, and to the Hill of Slane and Knowth, both of which are national monuments in prominent locations.

The significance and type of effects experienced by archaeological monuments and complexes and other cultural heritage features located within the assessment corridor were then evaluated for the construction and operation phases of the project.

Potential surviving buried foundations associated with features/ structures shown on the 1st edition Ordnance Survey (OS) six-inch mapping (1836) are also included in this evaluation, where they fall within (or partly within) the proposed Lands Made Available (LMA) of the Proposed Scheme. Such features, should they survive below ground, can be of interest from an archaeological perspective as the remains of more recent social and cultural history in this area.

## 13.2.4 Sources of Information to Inform the Assessment

### 13.2.4.1 Desktop Study

The desktop study availed of the following sources:

- UNESCO World Heritage Properties (WHP) and those monuments on the World Heritage Tentative list;
- National Monuments in State care and, as listed by the National Monuments Service (NMS) of the Department of Housing, Local Government and Heritage (DHLGH);
- Sites with Preservation Orders;
- Sites listed in the Register of Historic Monuments;
- Record of Monuments and Places (RMP) and the Sites and Monuments Record (SMR) from the Archaeological Survey of Ireland (DHLGH);
- The topographical files of the National Museum of Ireland and Newgrange Environs Surface Collection Survey, Dr Conor Brady (1998-2000);
- Archaeological Inventory of County Meath;
- Excavations Bulletins; archaeological assessment reports within the study area;
- The Hill of Slane Archaeological Project;
- Meath County Development Plan 2021-2027 and relevant published information;
- Meath Industrial Heritage Survey (MIHS) (paper survey only);
- Meath Field Names Project (MFNP);
- Townland names and toponomy (loganim.ie);
- National Folklore Collection (Duchas.ie);
- Museums, Collections and Archives database (Heritage Council of Ireland);
- Boat and Maritime Collections (2013; Heritage Council of Ireland);
- N2 Slane Bypass Cultural Heritage Constraints Study Report prepared by Courtney Deery Heritage Consultants - Appendix xx to the Constraints Report contained within the Options Selection Report (RPS and MCC, 2020);
- N2 Slane Bypass Cultural Heritage Route Selection Study Report prepared by Courtney Deery Heritage Consultants - Appendix A1 to the N2 Slane Bypass Options Selection Report (RPS and MCC, 2020);
- Cartographic sources and aerial imagery; and
- Reports produced for the previous N2 scheme (see references section).

Further detail on the methodology is contained in **Appendix 13.3** and as stated above the methodology used for the WHP HIA is detailed in **Appendix 13.1**.

### 13.2.4.2 Field Walkover Survey

The Proposed Scheme was inspected at various intervals, from December 2017 (along with all other route options, as part of the route selection process) to December 2021. The purpose of the field survey was to verify the nature, location, extent and condition of known archaeological and cultural heritage features. It also sought to identify potential archaeological sites /areas / features and structures / features of industrial and cultural heritage merit that may be subject to direct or indirect effects as a result of the Proposed Scheme. Site work was carried out on a field-by-field basis and all lands that are traversed by the Proposed Scheme were visited in the field. Field work was assisted by a review of detailed aerial photography and of historic map sources. The locations of all potential cultural heritage sites detected by using these techniques were visited in the field and assessed. The type of terrain and ground visibility was noted.

An account of the field work is detailed in the field survey record sheets contained in **Appendix 13.4**. A historic landscape approach was used in order to characterise the receiving cultural heritage environment

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and to this end, an account of the field work is detailed in the record sheets under the following headings: physical environment, cultural landscape and archaeological potential. Each section of the Proposed Scheme is discussed on an individual field and townland basis in the field survey reports. Photographs were taken along the route and relevant images are included as plates to accompany the entries in the inventory of archaeological and cultural heritage receptors in **Appendix 13.5**. The results of the field work were used to inform these entries. Field numbers associated with the survey are shown on **Figure 13.32(a)-(f)** of this chapter.

As part of the field survey, the wider landscape, including the Hill of Slane and the WHP, was assessed through a combination of drive-through and site-specific visits, to allow consideration of the views and settings of the relevant national and recorded monuments.

### 13.2.4.3 Geophysical Survey

The results of geophysical surveys undertaken as part of the previous N2 Bypass scheme from 2005 to 2010 have been considered and the relevant sites incorporated into this assessment (GSB Ltd 2005, 2006, 2009; Leigh 2010a and 2010b).

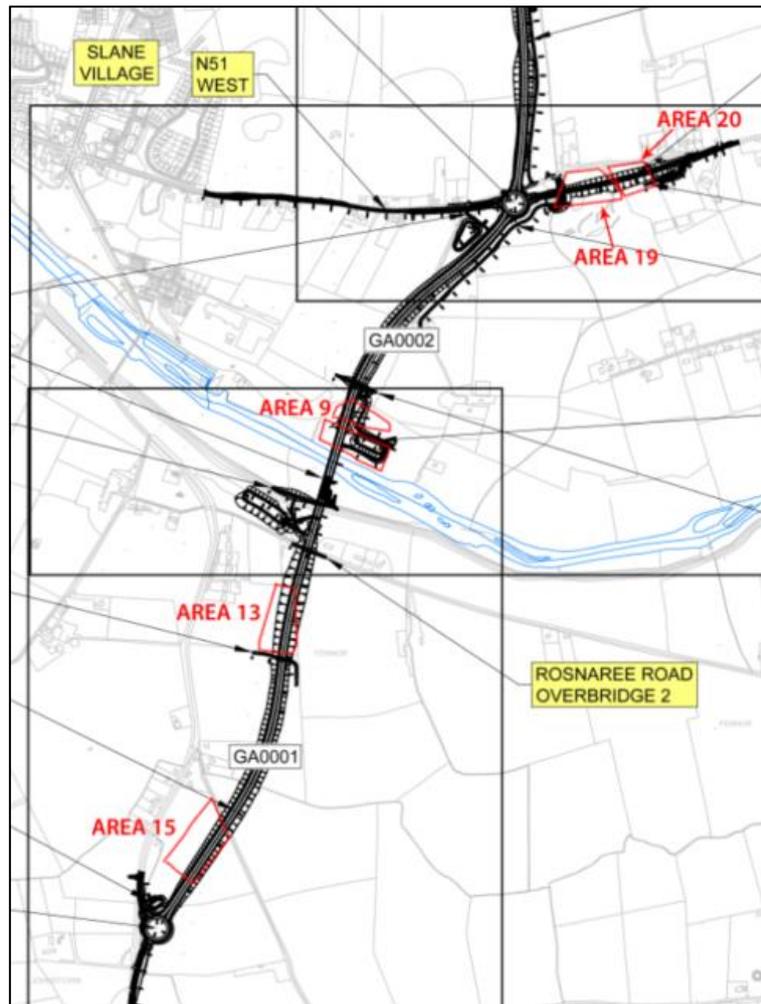
Additional geophysical survey was undertaken in 2020 along the emerging preferred route by Earthsound Geophysics (Licence No. 20R0238), to cover fields not previously surveyed (Gimson 2020).

A geophysical survey was carried out by Target Archaeological Geophysics Ltd in March 2018, as part of the route selection process, at various locations identified as areas of archaeological potential (Nicholls 2018). While none of these areas lie within the Proposed Scheme, any potential sites identified within the study area have been incorporated into this assessment. The relevant survey results are discussed in **Section 13.3.1.2.2**.

### 13.2.4.4 Archaeological Test Excavation

Targeted archaeological test excavation was undertaken in October/ November 2021 to inform the EIAR (Licence No. 21E0348). The testing focused on three sites of archaeological interest and a further three sites of possible archaeological interest that were identified by geophysical survey in 2020 within the emerging preferred route. The results of the archaeological testing largely confirmed those of the geophysical survey. Archaeological sites were confirmed in Areas 13 and 20.

The less definite geophysical anomalies that had been identified in the geophysical survey as only being of possible archaeological interest were confirmed to have been of geological rather than archaeological origin in Areas 9, 15 and 19. The locations of these areas are shown on **Figure 13.1** and the testing results are discussed in detail in **Section 13.3.1.2.2**.



**Figure 13.1: Location of Areas 9, 13, 15, 19 and 20**

Archaeological test excavation had previously been undertaken in 2006 (Licence No. 06E0341) to investigate two archaeological sites that had been identified by the 2005 geophysical survey, undertaken in advance of the previously proposed Slane Bypass. This confirmed the presence of an early medieval enclosure (since designated SMR ME019-085), which lies partly within the Proposed Scheme (**Section 13.3.1.2.2.3**).

#### 13.2.4.5 LiDAR Survey

A light detection and ranging (LiDAR) survey was undertaken by Dr Stephen Davis as part of the route selection process (Davis 2018). The survey results were examined in order to assess for potential archaeological sites which may be affected by the Proposed Scheme. The relevant results summarised in **Section 13.3.1.2** and detail of potential sites within the study area are included in the Archaeological and Cultural Heritage Inventory in **Appendix 13.5**.

#### 13.2.4.6 Viewshed Analysis

During the Constraints Phase of the Proposed Scheme, viewsheds were generated from the principal sites within the WHP (Knowth, Dowth, Newgrange) and from the Hill of Slane (car park and summit), which is a prominent National Monument.

The LiDAR survey data was used to produce multiple viewshed analysis within the WHP (Davis 2018). Two versions were produced from the data, a digital terrain model (DTM) and a digital surface model (DSM). A DTM comprises a bare earth model without the addition of vegetation etc. and when used for viewshed analysis indicates the maximum visible areas from observation points. A DSM incorporates existing vegetation (as it was when the data was produced) and would, therefore, allow for the screening effect

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provided by vegetation cover. The models produced by Davis focused on the visibility of the various route options from within the WHP (Davis 2018).

More specific viewsheds and wireframe images were generated by the Project Team in relation to the OUV of the World Heritage Property, for the purposes of the HIA. These were utilised for the route selection stage, with additional wireframes and photomontages produced at EIAR stage. These focused on protected views and other important views identified during the course of the assessments (refer to **Appendix 3.1 – Option Selection Report** and the HIA report in **Appendix 13.1** to this chapter).

### 13.2.4.7 Mapping and Datasets

The mapping and data analysis for the project is managed through ArcGIS (a geographical information programme). Information was structured by the identification of heritage assets as point data on the programme at Constraints Stage. The GIS for the project forms a permanent renewable database, which was added to during the route selection and EIAR assessment process. The key data sets accessed for this study are outlined in **Section 13.2.4.1**.

## 13.2.5 Key Parameters for Assessment

The key aspects of the Proposed Scheme that have potential to affect archaeology and cultural heritage are activities that will disturb ground / buildings, such as site investigations, site enabling works, demolition, and excavation for construction.

### 13.2.5.1 Potential Construction Phase Effects

Effects on heritage assets during construction can include, but are not limited to, the following:

- The removal or part removal of a heritage asset due to construction activities;
- Ground disturbance and excavation, caused by construction activities, which may lead to the damage, destruction or removal of recorded or previously unknown (newly revealed) heritage assets; and
- The degradation of the setting and amenity of a monument or the severance/ fragmentation of interrelated features.

### 13.2.5.2 Potential Operational Phase Effects

Examples of possible operational phase effects include:

- Maintenance works, though the effect risk to recorded or previously identified archaeological features or cultural heritage assets is considered to be low;
- A change that negatively effects on a sense of place (i.e. detracts from the setting of historic features) and that cannot be mitigated has the potential to be considered a significant or profound effect throughout the operational life of the Proposed Scheme;
- Potential visual effects on archaeological and cultural heritage features due to a change in the character of the receiving historic environment. This change may have a positive or negative affect on the heritage asset.
- Effects on the setting of heritage assets describe how the presence of a development (e.g. the Proposed Scheme) changes the surroundings of a heritage asset (archaeological or cultural heritage sites) in such a way that it affects (positively or negatively) the significance of that asset. Visual effects are most commonly encountered but other environmental factors such as noise, light or air quality can be relevant in some cases. Such effects may be encountered at all stages in the life cycle of a development from construction to decommissioning but they are only likely to be considered significant during the prolonged operational life of the development; and
- Potential vibration effects as a result of vehicles in close proximity to or above archaeological and cultural heritage structures.

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The primary aim for archaeological remains is preservation in situ (in accordance with the *Frameworks and Principles for the Protection of the Archaeological Heritage*, 1999). The main way to ensure preservation in situ is avoidance through the Route Selection / Emerging Preferred Route process.

Where a known or recorded site or monument cannot be avoided, then it is assessed to determine a) if it is a potential national monument, b) whether it can be preserved within the LMA of a Proposed Scheme, or c) whether a programme of preservation by record (recorded excavation) will be acceptable mitigation.

For the purposes of assessment and mitigation, most sites that lie within the LMA are usually subject to preservation by record. This means that subsequent maintenance or other activities will not risk effecting on scattered remains that may have been preserved in situ.

### 13.2.6 Assessment Criteria and Significance

Archaeological and cultural heritage sites are considered to be a non-renewable resource and cultural heritage material assets are generally considered to be location sensitive. In this context, any change to their environment, such as construction activity and ground disturbance works, could adversely affect these sites. The likely significance of all effects is determined in consideration of the magnitude of the effect and the baseline rating upon which the effect has an effect (i.e. the sensitivity or value of the cultural heritage asset). Having assessed the potential magnitude of effect with respect to the sensitivity / value of the asset, the overall significance of the effect is then classified as not significant, imperceptible, slight, moderate, significant, very significant, or profound. The criteria used for the assessment are presented in **Table 13-1** to **Table 13-3** and **Figure 13.2**.

The assessment methodology has regard to the EPA assessment criteria (EPA *Guidelines on Information to be Contained in Environmental Impact Assessment Reports 2022*) and to the National Roads Authority (NRA) Guidelines for the Assessment of Archaeological Heritage Impact of National Road Schemes (NRA 2005). The assessment was also cognisant of the draft TII guidelines for Cultural Heritage Impact Assessment of TII Projects.

A glossary of impact assessment terms, including the criteria for the assessment of effect significance, is contained in **Appendix 13.3** (Glossary of Impacts and Assessment Methodology) of this EIAR.

**Table 13-1: Significance / Sensitivity Criteria**

Sensitivity / Significance	Criteria
<b>Very High</b>	Sites of international significance: World Heritage Properties and sites on the UNESCO World Heritage Tentative List.
<b>High</b>	National Monuments. Recorded Monuments (RMP sites & SMR sites scheduled for inclusion in the next revision of the RMP), where these are considered to be of national importance. Protected Structures (assessed by the NIAH to be of national importance), where these are also National Monuments. Undesignated archaeological and cultural heritage sites.
<b>Medium</b>	Recorded Monuments (RMP sites & SMR sites scheduled for inclusion in the next revision of the RMP), not considered to be of national importance. Protected Structures / NIAH sites (assessed by the NIAH to be of regional importance), where these are also Recorded Monuments. Newly identified archaeological sites, confirmed through archaeological investigation, to be added to the SMR. Undesignated archaeological and cultural heritage sites.
<b>Low</b>	Sites listed in the Meath Industrial Heritage Survey (MIHS) and National Inventory of Architectural Heritage (NIAH) Building Survey for which there are no upstanding remains. Undisturbed greenfield areas and riverine environs, which have an inherent archaeological potential. Undesignated archaeological and cultural heritage sites.
<b>Negligible</b>	Assets with very little or no surviving archaeological and / or cultural heritage interest.

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Table 13-2: Magnitude of Effect Criteria

Effect Magnitude	Criteria
<b>High</b>	These effects arise where an archaeological / cultural heritage asset is completely and irreversibly destroyed by a proposed development. A change such that the value of the asset is totally altered or destroyed, leading to a complete loss of character, integrity and data about the site.
<b>Medium</b>	<p>An effect which, by its magnitude, duration or intensity alters an important / significant aspect of the environment. An effect like this would be where an archaeological / cultural heritage asset would be affected upon leading to a significant loss of character, integrity and data about the site.</p> <p>Or an effect which by its magnitude results in the partial loss of a historic structure (including fabric loss or alteration) or grounds including the part removal of buildings or features or part removal of demesne land (e.g. severance, visual intrusion or degradation of setting and amenity).</p> <p>A permanent positive effect that enhances or restores the character and / or setting of a cultural heritage site or upstanding archaeological heritage site in a clearly noticeable manner.</p>
<b>Low</b>	<p>A low effect arises where a change to the site is proposed which though noticeable is not such that the archaeological / cultural heritage character / integrity of the site is significantly compromised, and where there is no significant loss of data about the site.</p> <p>A positive effect that results in partial enhancement of the character and / or setting of a cultural heritage site or upstanding archaeological heritage site in the medium to long-term.</p>
<b>Negligible</b>	An effect which causes very minor changes in the character of the environment and does not directly effect an archaeological / cultural heritage asset, or affect the appreciation or significance of the asset. There would be very minor changes to the character and integrity of the asset and no loss of data about the site.

Table 13-3: Defining Significance of Effects

Effect Significance	Criteria
<b>Imperceptible</b>	An effect capable of measurement but without noticeable consequences.
<b>Not Significant</b>	An effect which causes noticeable changes in the character of the environment but without significant consequences.
<b>Slight</b>	An effect which causes minor changes in the character of the environment and does not affect an archaeological / cultural heritage asset in a moderate or significant manner.
<b>Moderate</b>	A moderate effect arises where a change to the site is proposed which though noticeable, does not lead to a significant loss of character, integrity and data about the archaeological / cultural heritage asset.
<b>Significant</b>	An effect which, by its magnitude, duration or intensity, alters an important aspect of the environment. An effect like this would be where part or all of a site would be permanently effected upon, leading to a significant loss of character, integrity and data about the archaeological / cultural heritage asset.
<b>Very Significant</b>	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
<b>Profound</b>	Applies where mitigation would be unlikely to remove adverse effects. Reserved for adverse, negative effects only. These effects arise where an archaeological / cultural heritage asset is completely and irreversibly destroyed by a proposed development.

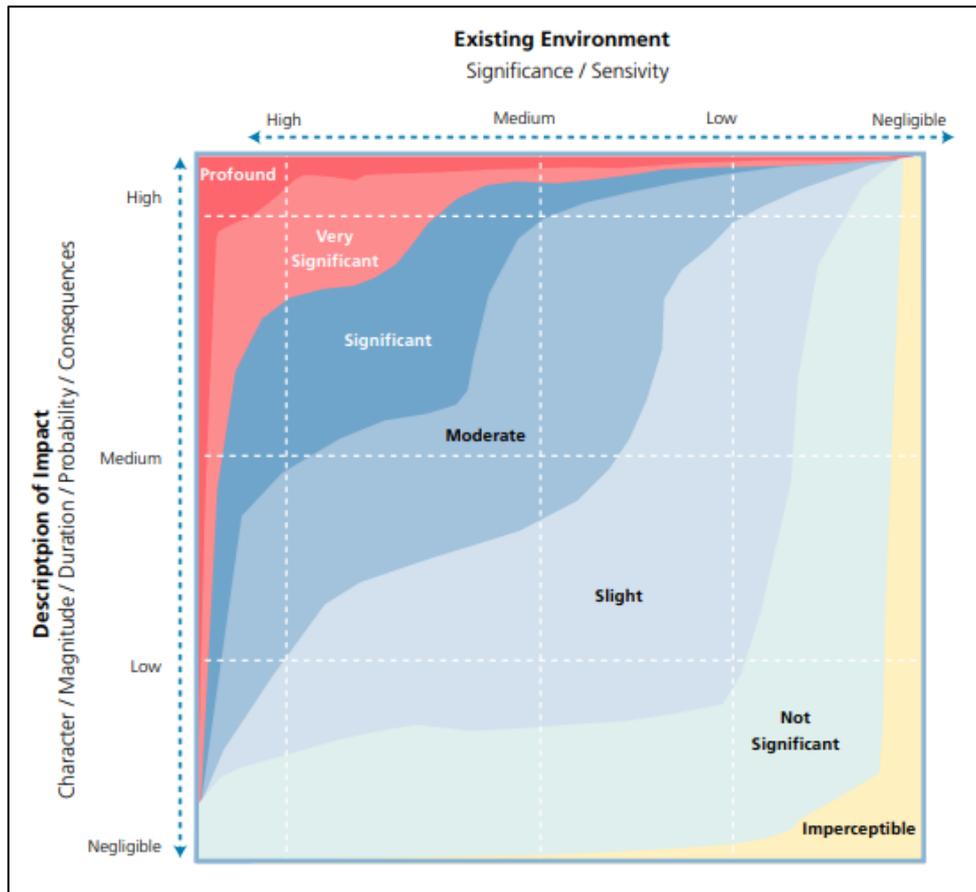


Figure 13.2: EPA Chart Showing Typical Classifications of the Significance of Effects<sup>3</sup>

## 13.3 Description of Existing Environment (Baseline Scenario)

### 13.3.1 Current Baseline Environment

#### 13.3.1.1 Archaeological and Historical Background

The landscape of Meath once formed part of *Máigh mBrég* (Plain of Brega) and archaeological evidence indicates that it has been occupied since the earliest of times. The attractions for human settlement are clear, with excellent agricultural lands within an accessible low-lying landscape that had navigable river systems. The study area has a rich and well-documented archaeological and cultural heritage record; the type and nature of the sites within it are described below.

##### 13.3.1.1.1 Prehistoric Period

Evidence for prehistoric activity in River Boyne catchment area is represented by ritual, assembly and settlement sites.

###### 13.3.1.1.1.1 Mesolithic (c. 7000 to c. 4000 BC)

The transitory hunter-gatherer groups of this period were sustained by the post-glacial climate and were attracted to dense woodland cover and a large population of wild fauna, whilst predominantly exploiting river valleys. Given its natural resources and the evidence for Mesolithic coastal communities nearby in Dublin and Louth, there is every reason to believe that there was a sizeable hunter-gatherer community in the Bend of the Boyne (Stout 2002). Mesolithic cultural remains have left no lasting legible trace and have no visible

<sup>3</sup> From the EPA Guidelines on Information to be Contained in EIAR (EPA 2022; Figure 3.4)

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dominance in the modern-day landscape (Courtney and Goucher 2009). Evidence for Mesolithic activity is principally ephemeral archaeological remains, such as lithic finds and scatters and shell middens (mounds sometimes referred to as kitchen middens, comprising accumulated discarded shells, animal bones, flint implements, and occasional occupation debris). Intensive field-walking studies have led to the discovery of Mesolithic material, including a number of butt-trimmed flakes from fields to the north of the Brú Na Bóinne World Heritage Property (WHP) (Cooney and Brady 1998; Cooney 2000; Brady 2007). In addition, excavations at Newgrange unearthed flint, including a Bann Flake, that is characteristic of the later Mesolithic (O’Kelly 1968).

### 13.3.1.1.1.2 Neolithic (c. 4000 to c. 2500 BC)

The Neolithic period saw the transition from a hunter-gatherer lifestyle to a farming economy, with the introduction of cattle, sheep, wheat and barley, and perhaps the introduction of new peoples. This period was characterised by land clearance and the establishment of field systems and settlement sites further inland along river valleys. It also saw new developments in ritual activity, with the first permanent monuments (megalithic tombs) built in the Irish landscape, representing a complex and well-structured social hierarchy.

There is evidence for an early Neolithic population dating from between 3900BC and 3500BC. The area had developed into an open farmed landscape with evidence of domestic houses and occupation scattered throughout. As observed by Stout (2002), these were early pioneering communities exploiting the rich environment of the Boyne Valley. At Knowth, clusters of stake holes representing circular house sites were excavated (ME019-030019 to -030032) with hearths and pits found close by. As many as fourteen houses were revealed, representing an early and later phase of activity which was defined by decorated and undecorated pottery types (RMP file; Stout 2002). Pre-tomb settlement activity was also identified on the summit of the ridge shared with Newgrange, where habitation material was identified beneath two small passage tombs.

The construction of the passage tomb cemetery at Brú na Bóinne commenced in the valley sometime around 3300BC. The megalithic tradition is dominated by the three large passage tombs of Knowth (ME019-030), Newgrange (ME019-045) and Dowth (ME020-017), with all three occupying commanding positions overlooking the course of the River Boyne. In close proximity to the main tombs, and in the wider catchment of the river in the Boyne Valley, there are up to 40 satellite tombs. This staggering number of sites testifies to a sizeable, structured and culturally sophisticated local population in the region.

Human remains were usually found in the chamber areas of each tomb, they were predominantly cremations and were usually accompanied by grave goods, such as decorated pottery, pestle pendants, mushroom-headed pins, and mace heads.

The Brú na Bóinne complex, particularly Knowth, contains the largest assemblage of megalithic art in Western Europe. Many of the faces of the kerb stones, lintels and orthostats of the tombs are decorated with geometric designs consisting of spirals (a uniquely Irish motif), circles, triangles, zig-zags, lozenges and serpentine forms. This artwork was also reflected in artefacts and pottery.

The winter solstice phenomenon at Newgrange is renowned internationally. The tomb builders had a detailed understanding of the movement of the sun before the passage tomb was constructed. The tomb was orientated to capture the sunlight from the rising sun where it breaks the Red Mountain horizon on the southern bank of the Boyne, shining directly through the roof box feature above the tomb entrance, to illuminate the chamber at the end of the passage.

There is a passage tomb (ME025-006) in Ardmulchan townland over 5km west of Slane, on the south bank of the River Boyne, where two stones bearing megalithic art were identified during the construction of a house. It is very much an outlier to the large complex downstream, but its presence indicates a potential that further megalithic sites may be located outside the WHP along the river valley.

Systematic ploughzone field-walking indicates that the prehistoric activity in and around Brú na Bóinne extended beyond the core area of the Brú na Bóinne complex and was represented by more ephemeral surviving remains. West of the WHP, Conor Brady, identified a lithic scatter (ME026-024) in Newtown townland in 2000, c. 2km south-east of the Proposed Scheme. Excavations (Licence No. 00E0613) of the flint scatter followed the discovery of a transverse arrowhead. This scatter was believed to date to the Late Neolithic and the test pits revealed evidence for intense burning (Brady 2000).

Other scatters were located on the floodplain itself in Rossnaree townland, and another group on the eastern slope of the Cullen Ridge (Brady 2002). These findings represent tool production and re-touching activity from the Neolithic Period. Similarly, to the east of the WHP core area, in Oldbridge, field-walking on the site

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of the Battle of the Boyne (ME020-025001) in level and open fields revealed a number of notable flint concentrations (ME020-025019 to –025022). The material collected here, broadly dated to the Neolithic and Early Bronze age periods, were '*small clusters representing discrete episodic events*' (Cooney et al. 2001). Similar lithic scatters were made in Staleen (ME020-077). Brady's work beyond the core area and the work within the WHP (Cooney 2000; Brady 2007a, b) indicate the importance of ploughzone archaeology within the Boyne Valley and in the understanding of the earliest communities that lived there.

By the late Neolithic period (3000-2500 BC) there was a significant shift in ritual practice. A new phase of monument building was introduced, and structures built primarily of earth, stone and timber were used for ritual and ceremonial purposes and for great public assemblies. At Newgrange and Dowth, sites include henges which were built on river terraces below the tomb sites (ME019-094, ME026-033 and ME020-010), ceremonial cursus monuments (narrow U-shaped earthworks) (ME019-044001, ME019-129) and a pit circle (ME026-033). In addition, there are three embanked enclosures, which are also ceremonial / ritual monuments, dating to the Late Neolithic / Early Bronze Age (c. 2800-1700 BC), and may be a variant of the henge (ME019-049002, ME026-006 in Newgrange, and ME019-103 in Dowth).

One of the most enigmatic sites recently discovered is a rectangular palisade enclosure (a hybrid cursus monument) (ME019-129), c.200m south of the Newgrange passage tomb. It included a large rectilinear space (Width. 45m) defined by two ditches 28m apart, with an entrance causeway in the east extending 101m on an east / west axis. A central pathway formed by two parallel pit / post alignments runs from the entrance causeway for the full length of the enclosed space. Either side of the central pathway is a further alignment of larger pits, each 2m to 4m in diameter and 2.5m to 4m apart. Excavation (Licence No. 18E0369) by Geraldine Stout of a section of the northern half of the site confirmed the sub-surface presence of the two outer ditches, four rows of internal pits, and an axial mound at the centre. A charcoal sample from the basal fill of the outer ditch fill produced a C14 date of 2632–2472 BC (calibrated). Artefacts identified include a chert platform core, a possible bipolar core, a scraper fragment, and a possible broken barbed and tanged arrowhead (RMP files).

There are also possible prehistoric ritual ponds located within the floodplain (ME019-067003 and ME026-021002) to the south of Newgrange.

This phase of activity has recently emerged through the discovery of a remarkable concentration of cropmarks on the river terrace to the south of Newgrange (**Plate 1**), representing previously unknown sites and providing further definition on known sites (which had been discovered through aerial photography, LiDAR and geophysical surveys).



**Plate 1: Sites Discovered in Brú na Bóinne During an Unprecedented Period of Drought in 2018)<sup>4</sup>**

<sup>4</sup> Extracted from Conduit and Keegan, 2018 (Figure 122). Image credits © DCHG; base image © Bluesky International Ltd; open source LiDAR data from <https://dncr.maps.arcgis.com>.

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The sites were identified during drone and aerial imagery taken during drought conditions in 2018, initially by drone surveys carried out by members of the public.<sup>5</sup> Identifying the opportunity, the National Monuments Service (DCHG, now DHLGH) commissioned a detailed survey of the area and a remarkable number of new sites and in particular henge sites were revealed on the river terrace to the south of Newgrange beyond what is recorded in the RMP (Condit and Keegan 2018). This new information will transform our understanding of the prehistoric landscape within the bend of the Boyne.

### 13.3.1.1.1.3 Bronze / Iron Ages (c. 2500 BC - AD 400)

Burial sites comprise a large portion of the Bronze Age archaeological evidence, particularly for the early part of the period. Unlike funerary practices in the Neolithic, Bronze-Age burials are not in the main monumental in character. The construction and style of the grave itself varied and are generally in cist or pit graves, or flat cemeteries. The remains, burnt or as inhumations (buried), were usually placed in a stone cist or a pit, often accompanied by grave goods of semi-precious stones, jewellery or weaponry, and some were marked with a mound of earth or a cairn of stones. Burials often occurred in groups or cemeteries, called barrows or cemetery mounds, being a circular mound used to enclose several burials ranging in date from the Late Neolithic to the Early Iron Age. A second common trait and underlying motif of this phase of burial custom was the inclusion of pottery vessels.

Evidence for burial activity dating to this period indicates a more dispersed pattern along the River Boyne than that of the earlier prehistoric period. However, there was certainly a continuation of ritual activity in the bend of the river, including barrow sites. Barrows usually consist of a circular central area, which may be flat or slightly dished (a ring-ditch), or domed (a ring barrow), and have an enclosing ditch and occasionally an external bank or can be circular or oval earthen or stone mounds with no external features (mound barrows) (Ó Ríordáin S.P. and DeValera 1991; Herity 1996). There is one example of a ring-barrow in Dowth (ME020-803) and seven examples of mound barrows, one at Rossnaree (ME019-059), three in Dowth (ME109-040, -042 and -043) and three in Newgrange (ME019-049001, ME019-051 and ME019-058001). An embanked barrow is recorded in Rossnaree (ME026-004), where a raised circular area is defined by a bank and fosse. There is a concentration of five ring-ditches in Oldbridge (ME020-025002 and -025014 to 02517), as well as examples in Knowth (ME019-029), Newgrange (ME019-067002) and Dowth (ME020-016004), and a further two in Rossnaree (ME019-124). There is also an unclassified barrow at Knowth (ME019-099).

While there are no upstanding Bronze Age or Iron Age monuments along the Proposed Scheme or within 250m of it, barrow sites are known in the wider area (as outlined above), indicating the potential for further unknown sites of this period to be discovered in this landscape. This potential was borne out during archaeological investigations for the Proposed Scheme, whereby a possible ring-ditch (ACH26, **Appendix 13.5**) was identified through geophysical survey in Fennor townland (Gimson 2020) and subsequently confirmed as archaeological by archaeological test excavation (Licence No. 21E0348; Garahy 2021, **Appendix 13.7**). Samples from the testing of this site and a circular enclosure site in Cashel (ACH27, also identified by geophysical survey) were sent for radiocarbon testing and returned an Iron Age date (see **Section 13.3.1**).

In the vicinity of the Proposed Scheme, a mound (ME026-003) is recorded in Johnstown, in a field next to the existing N2. The description in the RMP file of a '*circular flat-topped mound*' measuring 11m in diameter, would suggest that this may have been a barrow. Field inspection undertaken for this assessment found no surface trace of the site.

Folklore holds that a mound in the townland of Rossnaree was the final burial place of Cormac MacAirt who died at *Cleiltech*, an early residence of the kings of Tara, which is thought to be where the present site of Rossnaree House lies (Stout 2002). In this context, the townland name is interesting, it being an anglicisation of the Irish *Ros na Ríogh* meaning '*wood of the Kings*'. A contender for the burial location was traditionally the mound barrow recorded in that townland (ME019-059, over 2km from the Proposed Scheme), though it was found to contain the remains of three adult females and an infant, with one of Iron Age date and another being a possible Viking burial.

There is also possible prehistoric activity in the area west of the Proposed Scheme, at its northern end. The Anglo-Norman motte (ME019-060001; the seat of the Flemings) on Slane Hill may have been constructed on an earlier, possibly prehistoric mound (perhaps a barrow), set within a large enclosure, and may have a ritual significance given its siting in a prominent location (Seaver and Brady 2011).

<sup>5</sup> Anthony Murphy and Ken Williams

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Stray finds possibly dating to the Bronze Age include a copper alloy axe head in the neighbourhood of Fennor, which is recorded in the National Museum of Ireland (NMI) topographical files. A group of six bronze lachets, described as serpentine lachets were discovered by workmen digging a drain in Slane Park in 1779 (Wood-Martin 1903, Wilde 1857; NMI, No register number). A 'club headed' bronze stick pin found 'near Slane' also suggest Bronze Age activity (Brindley 1995).

### Other Bronze Age Activity

Beaker pottery and associated wares found in association with hearths, pits and post-holes were found around the mound of Newgrange passage-tomb (ME019-045004), and at Knowth, five concentrations of Beaker pottery are recorded around Tomb 1C (ME019-030034 to -030036, -030038, -030039). While no house plans were discernible, the sites were interpreted as domestic, and represent evidence for settlement at the heart of the Brú na Bóinne complex around the start of the Bronze Age.

Throughout the Iron Age (c.500 BC – AD 400) there is evidence of sporadic activity, including burials interred close to the main mound at Knowth and on the river terrace at Rosnaree. There are standing stones of Iron Age date at Knowth and Newgrange (ME019-053 and ME019-053). Late Iron Age / Roman items of high value, including coins and jewellery were deposited in the vicinity of Newgrange as votive offerings (Stout 2002).

### 13.3.1.1.2 Early Medieval / Early Christian Period (c. 500 to c. 1100 AD)

Major social, settlement and religious changes occurred at the end of the late Iron Age, most notably the introduction of Christianity and the demise of paganism. In the course of the 6th century AD the sub-kingdom of Brega emerged within the Southern Uí Néill and was controlled by the Sil nÁeda Sláine. Áed Sláine died in 604; he is associated with Brú na Bóinne and it is suggested that his power centre was around Slane. His son Congal (who died in 634) is the first recorded King of Brega (MacCotter 2008). Dynastic conflict led to the battle of Imlech Pich in 688 and the partition of the kingdom into Southern Brega with its royal residence at Lagore and Northern Breaga. The location of the initial North Brega Royal Residence is not known; however, by the 7th century the Fir Chul Breg were at Ráth Airthir beside Teltown and Donaghpatrick. With the coming of the 7th century it appears that the 'capital' of North Brega was transferred from Ráth Airthir to Cnogba (Knowth) (Eogan, 2010). One member of this dynasty, Congalach, became king of Tara and high king of Ireland from 944 to 956.

According to the Saga *Cath Ruis na Ríg for Boinne*, a sequel to the early Irish epic *Táin Bó Cúailgne*, Rosnaree was the site of a battle at the end of the 1st century AD. It describes the triumph of Conchobhor Mac Neassa and his Ulster warriors over the provinces to the south and west of Ireland (Stout 2002, Wadden 2014).

The Vikings raided Brega in the 9th century, with Viking fleets recorded on the Boyne in 837 and 842. In 863 Dublin Vikings plundered several Boyne tumuli (burial sites), an event which seems to have shocked contemporary chroniclers, but there is no evidence that they ever founded a longphort base at the mouth of the Boyne, probably because of the power of the local kings of Knowth.

#### 13.3.1.1.2.1 Settlement Activity

Ringforts functioned as residences and / or farmsteads and broadly date from 500 to 1000 AD. They generally measure c.24m to c. 60m in diameter and are usually enclosed with one or more earthen bank enclosures (known as raths) often topped with a timber palisade or enclosed by stone walls (known as cashels). They were not simply isolated homesteads and should be considered within their contemporary settlement landscape, which would have consisted of unenclosed settlements, farms, fields, and routeways, and would have exploited natural resources. They are associated with an agricultural economy and are predominantly located on the grey podzol clays (Stout 1997 and 1998).

An enclosure site dating to the early medieval period was identified by geophysical survey in the townland of Slane and subsequently confirmed through test excavation (Seaver 2007, Licence No. 06E0341; SMR ME019-085). This site lies partly within the Proposed Scheme. The large sub-rectangular enclosure, surrounded by a wide ditch up to 3.5m wide, has a probable attached field system on the south-west side. Trial test trenching in 2006 (Licence No. 06E0341) revealed a cow atlas dating to 660-820 Cal. AD (UB-7240), indicating that, as suggested by the geophysical survey results, this is an early medieval settlement site. A second enclosure identified by the geophysical survey was a circular feature north-west of the sub-rectangular enclosure, which may be a ploughed-out barrow or ringfort (ME019-088).

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A complex of sites identified through LiDAR (Davis et al. 2010), which includes an enclosure (SMR ME019-102) and a field system (SMR ME019-098), was found in the area between enclosure ME019-085 and two other recorded enclosures (RMP ME019-062 and -063), on Stanley Hill and Gallows Hill. The two enclosures on Stanley Hill and Gallows Hill, overlooking the Proposed Scheme (ME019-062 and 063), each measure approximately 20m diameter. Although previously classified as cashels in the RMP manual (1996), and that remains a possibility, there is not sufficient evidence to identify either site as an early medieval settlement. Another possible early medieval enclosure, of a much larger size was identified close to these two sites. Test excavation in advance of a residential development at Ledwidge Hall, located within the zone of notification associated with the enclosures (to the west of the monuments), identified part of a circular enclosure measuring approximately 52m (Licence No. 07E0804, Kelleher 2008). The interior of the enclosure was not exposed enough to discuss the presence or lack of internal structures, but the enclosure was dated to the early medieval period (see **Section 13.3.1.2.7**).

It is possible that all of these sites were contemporary, representing a concentration of early medieval activity in this location, particularly the field system. There is also the potential that the undated smaller enclosures to the west of the Proposed Scheme (ME019-062, -063 below) are prehistoric in date (possible barrows) and that there was a continuity of activity from the prehistoric period into the early medieval period.

It is notable that a souterrain (ME019-008) is recorded c. 80m north-west of Stanley Hill, as such sites are commonly (though not exclusively) found in association with ringforts, with another (ME019-013) on the opposite side of the N2 road, in the lower slopes of Slane Hill (c. 25m south-east and c. 160m north-west of the Proposed Scheme respectively). Souterrains are subterranean man-made structures consisting of chambers connected by creepways with access to the surface. They may be constructed using different materials, such as stone and wood, and may be tunnelled into rock or utilise a natural cave. They are variously interpreted as places of refuge or storage areas and generally date to the later phase of the early medieval period (8th / 9th century AD).

Such sites proliferate in the wider area, with two in Fennor (ME019-034, ME019-037), another to the north of Slane Hill in Brittown (ME019-072), one each in (Rossnaree ME019-048) and Dowth (ME020-017001), nine in Knowth (ME019-030051 to -030059), a unique concentration, and a site in Balrenny (ME019-003). The latter site which was discovered and excavated in 1977 had a radiocarbon determination 1135 ±70BP and a bronze ringed pin indicating that the souterrain was in use during the latter part of the Early Christian period (Eogan and Bradley 1977). With the exception of the Slane and Brittown examples, the souterrains are located in close proximity to a river and may be suggestive of more extensive settlement activity in their vicinity.

In Crewbane townland, a previously unrecorded souterrain was discovered in 2007, prompting an archaeological and geophysical survey of the souterrain and adjacent area, undertaken in 2010 (designated SMR ME019-081; over 700m southeast of the Proposed Scheme). This programme identified a second potential souterrain, a substantial earthen embankment, a low-relief linear earthwork and a well. In addition to the geophysical evidence there is also a large circular, or sub-circular, enclosure (possibly a ringfort) (ME019-090) and an adjacent field system (ME019-091) (Fenwick et al. 2010 and 2012). Also, in Crewbane townland and close to the souterrain, two enclosure sites were recorded using LiDAR and geophysical survey (Davis et al. 2010). A semi-circular enclosure (ME019-101) on the north bank of the River Boyne, identified in Boyne Valley Research Project, may also date to this period (BVRP Site E4-i, Davis et al. 2010).

Further afield, there is other definitive evidence for early medieval settlement in the area, with two ringforts recorded in Newgrange (ME019-039 and -034) and another in Dowth (ME019-084). In Rossnaree, a substantial multivallate enclosure (ME019-080) close to the 'bend' of the River Boyne was discovered as a result of a sequence of ploughzone field-walking and geophysical survey (Brady 2011). Research excavation revealed a settlement area with associated burial and on basis of the artefactual evidence was early medieval in date. Despite the cuttings being located close to the densest part of the lithic scatter originally identified, no features were prehistoric. The initial prehistoric activity, if present appeared not to involve significant cut features, but it is possible that prehistoric features remain outside the areas of the excavations cuttings and are yet to be found (Brady 2011).

### 13.3.1.1.2.2 Non-secular activity

North Brega also flourished from the ecclesiastical point of view during this period. Important monasteries functioned, and craft work was a distinguishing feature. There are several possible early Irish monastic foundations in the study area which were founded prior to the 12th century, after which there were a great many changes that took place in the Irish church.

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A complex of possible prehistoric, early medieval, and medieval monuments is sited on the Hill of Slane (ME019-060), a place that has long been associated with St Patrick, who, legend has it, founded *Slane Maige Breg* (Gwynn and Hadcock 1988). The 7th century hagiographer, Muirchú, wrote of the saint's journey from the mouth of the River Boyne and told of Patrick lighting the paschal fire at *Fertae Fer Feic* ('grave-mound of the men of Feic') in breach of the High King's decree that no one was to light a fire before he had lit his at Tara. *Fertae Fer Feic* has been linked with the Hill of Slane, and thus announced the arrival of Christianity in Ireland. There are suggestions, however, that the paschal fire might have been lit at Knowth instead (Mitchell 1986, Seaver and Brady 2011).

Slane was the main ecclesiastical centre in the area but there were other early ecclesiastical church sites in the surrounding landscape, including at Dowth (ME020-019) and possibly Knowth (ME019-030066). A church was also reputedly founded on the north bank of the River Boyne (in Slane Castle Demesne) by St Erc, who died in AD 514. The OS first edition six-inch map of 1836 identified this location as the 'Hermitage of Erc' and it is the site of a medieval friary (ME019-026), the remains of which church still survive. At the Suppression in 1540 it was described as a church and chancel with a belfry, a cottage and 1 acre of land (White 1943), but it had no other possessions.

The location of the monastery is uncertain, however, and Manning (2008) posits that it could instead be the church on Slane Hill (ME019-060002). The latter has sandstone stonework on the wider walls at the east end of the nave of the structure, indicating the presence of antae, a projecting feature common on masonry churches from the early 9th century to the 11th century. A shrine thought to be St Erc's burial tomb (ME019-060005), built on the site of the original chapel he established, contained the disarticulated remains of a saint and would have been a focus for devotion at a very early stage in the church's development (Bradley and King 1985). The deaths of abbots from the foundation onwards are recorded in the 8th and 9th centuries. The monastery was attacked by Vikings in 833 and in 950 its round tower (referred to as a belfry) was destroyed. The monastery went into decline after this, but it is probable that it remained the burial place of the kings of north Brega. It was raided again in 1156, 1161 and 1170, by which time it had probably ceased to function (Gwynn and Hadcock 1988, Seaver and Brady 2011).

The townland name Fennor may be derived from *Nechtán*, a pagan deity and guardian of the River Boyne. The church site here (ME019-035), which is adjacent to the existing N2 road, may have early medieval ecclesiastical origins. Neachtan, in a Christian manifestation, was a disciple of St Patrick and a tutor of St Cianán of Duleek (Ó Riain 2011). Abbots of Fennor are recorded from 804 to 1024 (Cogan 1862-70). Slane and Fennor were plundered by Norsemen in 834 and again in 939, when several of the monks were slain. Fennor became a grange of Mellifont after 1142 (Gwynn and Hadcock 1988). In the mid-12th century Brú na Bóinne fell under the sway of Tigernan Ua Ruairc, King of Breifne. His hold on this territory may have been weak, however, explaining the ease with which so much of it was granted to the newly founded Cistercian monastery of Mellifont in 1142.

The place name of Carrickdexter (a townland south-west of Slane Castle), may be derived from the Irish *Carraig Disert*, meaning 'rock of the hermitage'. If so, this would be suggestive of a possible early church site<sup>6</sup>, presumably close to or on the site of the medieval church and graveyard (ME019-031) which is recorded in the townland. However, the tower house at Carrickdexter is associated with the D'Exeter family, who owned land in this area, and it is more likely that the townland name preserves this association.

### 13.3.1.1.3 Medieval Period (late 12th to early 16th centuries)

The Anglo-Normans came to Ireland in the middle of the 12th century, bringing with them new military traditions and fortifications, new languages and new social structures. The present county of Meath formed the eastern half of the Anglo-Norman Liberty of Meath which, in 1172, was granted by Henry II (King of England) to Hugh de Lacy for the service of fifty knights. De Lacy then set about the sub-infeudation of County Meath and these lands were further subdivided into manors by the grantees (Graham 1974). The coming of the Normans brought about little change in the landholding patterns on the north side of the River Boyne, where they respected and maintained the lands forming part of the Cistercian Order's Mellifont estate (Bradley 1997). The barony of Slane was granted to Richard Le Fleming who built a motte (castle) at Dumhach Sláine and one at Knowth (*Cnogba*) (Brady 2011).

<sup>6</sup> [www.monasticon.celt.ie](http://www.monasticon.celt.ie)

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### 13.3.1.1.3.1 Settlement Activity

Among the first fortifications constructed by the Anglo-Normans on their arrival in Ireland is the motte and bailey. Mottes are steep-sided earthen mounds, originally topped with a wooden lookout tower (or bretasche) and often associated with a bailey, a rectangular enclosure defended by a bank, ditch and palisade fencing. These Anglo-Norman fortifications were usually located at defensible vantage points, often overlooking fords on rivers and the main axes of movement along the river valleys or access routes (Graham 1974). The mottes recorded in the wider landscape around the Proposed Scheme, on the Hill of Slane (ME019-060001) and in Thurstianstown townland (ME019-047), had visual presence over the navigable River Boyne valley (as would the possible site in Fennor, as described below). In addition, the substantial upstanding motte with a possible bailey at Thurstianstown is strategically positioned at the side of the old road from Rossnaree to Fennor (now Fennor's Lane). A possible unrecorded motte and bailey may also survive in Fennor townland, within the heavily wooded slopes rising up to the steep cliffs overlooking the River Boyne, in a field named Oldtown in the Slane Castle estate (Carina Conyngham, *pers. comm.* 12/12/2017).

Tower houses belonging to the mid-15th century were the fortified residences of the landholder, either partially or completely enclosed by a bawn, and are usually found adjacent to medieval churches. There is a tower house on Slane Hill (ME019-060010) onto which a chantry college was built in the later 15th century, with three ranges of residential, dining, kitchen and storage buildings around a courtyard (Seaver and Brady 2011). It was rebuilt in the 16th century following a bequest by Christopher Fleming.

Fennor Castle (ME019-036) is situated south of Slane and of the River Boyne, along the existing N2. The settlement at Fennor is indicated on the Down Survey maps of Fennor Parish (1656), which shows amongst the church buildings, a large castle-like structure which is labelled as 'an old stone house', with a 'brick house in repair' marked to the south of it.

There is also evidence for medieval settlement west of Slane village, where the original castle of the Flemings (ME019-121) is thought to have been located on the site of the present Slane Castle. It is depicted on the mid-17th century Down Survey parish map of Slane as a large courtyard, which is described by Westropp as "*a strong square tower with large windows; a short distance to the west, a round tower with pointed roof; then a low range of buildings with a high, square tower, with arched recess, to the south-west. The west side was closed with a battlemented wall, ...*" (Westropp 1901).

A tower house (ME019-033002) is also located at the southern end of Slanecastle Demesne townland, formerly part of Carrickdexter townland, overlooking the River Boyne. It was probably built by a member of the D'Exeter family, of whom there is very little documentary evidence; the D'Exeters had lost their land by the 17th century (Wilde 1850). The remains of a 16th / 17th century gabled house is attached to the northeast side of the tower house (ME019-033001). According to the Civil Survey (1654-6) the Lord of Slane owned 185 acres at Carrick Desert and Piggshills in 1640 and the property included '*a castle, a stone house with a stable, a weare and two mills*' (Simington 1940).

The present thirteen-arched stone bridge that carries the existing N2 road across the river was built c.1776 and was expanded westwards (See ME019-024 in **Appendix 13.5** for a more detailed description of the recorded monument). The original, possible medieval part has three pointed arches at the southern bank, while these same arches are rounded on the expanded western side. The triangular cutwaters suggest a date in the mid-14th century, though it is possible that there was an earlier bridge at the site. Edward Bruce's army crossed the river at Slane in 1317, but it is not known if a bridge facilitated this, and if there was a bridge, it did not survive the flood of 1330. There is a reference to a bridge at Slane in 1599, and the bridge is depicted on the Down Survey (1656) barony and parish maps of Slane. It seems to have been provided with a gate as the Civil Survey (1654) notes "*...a stone bridge with an ould castle thereon*" (Simington 1940). The road south of the river takes a very sharp turn to cross the river at a right angle, before turning northwest again in a zig-zag fashion, which is probably the result of an older road that has been re-orientated to accommodate a newer bridge. It is likely that this alteration occurred when the estate town was constructed in the 1760s.

Slane did not form part of the lands of Mellifont, but the sphere of influence of the Cistercians must have affected the surrounding agricultural land; for example, the order owned a fish weir in Fennor (ME019-083) at the time of its closure in 1539 (Stout 2002 and 1997).

### 13.3.1.1.3.2 Non-secular activity

Early Anglo-Norman land division (c. 1200-1450) resulted in manorial villages becoming by far the most common rural settlement form in medieval Meath. A manorial village is primarily an agricultural settlement

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without borough status but containing a church and usually a castle and mill. Once the manors were established, manorial churches were founded within them, oftentimes in association with a ruined early medieval church. Slane belonged to an intermediate level of smaller unwalled boroughs, which acted as centres for trade, with fairs and markets. The original village at Slane, which was located closer to the river, no longer survives above ground and its exact location is unknown. The village was re-developed at a new location in the 18<sup>th</sup> century (Graham 1976).

The church on Slane Hill became the medieval parish church of St Patrick and remained in use until the 18<sup>th</sup> century when the present Church of Ireland church in the village was constructed in 1712. The nave was probably built in the 13<sup>th</sup> century and the chancel was substantially rebuilt. A rectangular 15<sup>th</sup> century bell tower was added at the west end, which opens into the nave and is vaulted over the third floor.

To the north are the ruins of a cloister called 'the College,' which comprise buildings that surround four sides of a courtyard. In the northern range is the 'priest's house' and the southern range has a two-storeyed hall, refectory and tower house (ME019-060010), which is perhaps the earliest building. Also at the site is a Gatehouse (ME019-060009) and motte (ME019-060001, the seat of the Flemings). As mentioned above, a chantry college was built in the later 15<sup>th</sup> century (ME019-060010; Seaver and Brady 2011, RMP files).

The Hill of Slane Archaeological Project has carried out aerial, topographical and geophysical survey of the site, providing more insight on the features that lie within the site and the significance of the site since prehistoric times (Seaver and Brady 2011). The hill overlooks a key fording point of the River Boyne and has views of Tara, Skryne, Knowth, Newgrange, Mountfortescue and Slieve Breagh.

The medieval church and graveyard in Carrickdexter townland (ME019-031001) may have been founded on an earlier site (though the evidence for this is scant, as noted above). Local tradition regards the graveyard as the burial ground for the Fleming family and it is possible that it served the tower house (ME019-033001), which stands c. 700m to the east, as a private chapel (Moore 1987).

The church at 'Fynowre' (Fennor), on the N2 on the south bank of the River Boyne, is listed in the ecclesiastical taxation (1302-06) of Pope Nicholas IV (Cal. doc. Ire. 5, 252). Ussher in 1622 describes the church and chancel (ME019-035) as ruined (Erlington 1847-64) and according to Dopping's Visitation (1682-5) the church had been a ruin since 1641 and the graveyard was not enclosed (Ellison 1971).

Throughout the medieval period Meath was under English control. Norman strength in Ireland declined after the Bruce invasion of the early 14<sup>th</sup> century and the Black Death of 1348 and for the rest of the Middle Ages the history of the colony was one of steadily accelerating decline. By the end of the 15<sup>th</sup> century, only the eastern parts of Louth, Meath, Kildare and Dublin were left as English land, defined in 1495 as the Pale. They remained continuously within the sphere of English influence throughout the medieval period, with the western fringes always vulnerable to attack by Irish and Anglo-Irish forces (Graham 1975).

### 13.3.1.1.4 Sites of Unknown Date

Sites that have been recorded as mounds, described as artificial elevations of earth or earth and stone, are of unknown date and function and cannot be classified as any other known archaeological monument type on present evidence. There is a mound site recorded in Johnstown (ME026-003; of which there is no above ground trace), the site of which overlooks the point where the Proposed Scheme begins.

### 13.3.1.1.5 Post-Medieval and Early Modern Periods

During the Anglo-Norman occupation, Slane had been given borough status, thus making it a focal point for trade in the area. The le Fleming family had retained their rights throughout the medieval period and in 1640, William le Fleming, 14<sup>th</sup> baron of Slane, held lands from Drumcondrath and Ardagh in the north of the county, across the Boyne to Fennor and Duleek, though not continuously. The family were considered 'Old English' and maintained their loyalty to the crown while joining Irish forces to protect their interests in the rebellion of 1641. William le Fleming played a leading part in the rebellion and, although he died that year, was declared a traitor posthumously and all his lands were seized. William's son Charles continued fighting his cause and died in the service of Louis XIV in Italy in 1661. Charles' brother was restored to his estates as the 16<sup>th</sup> baron. He erected a tomb at St Erc's hermitage to commemorate his wives and daughter. The 17<sup>th</sup> baron was Christopher, son of Penelope, daughter of Henry Moore of Drogheda.

In 1688, the lands were forfeited again, and Christopher sat in James II parliament and fought at the Boyne along with many of the Jacobite aristocracy (see below for an account of Slane during the Williamite war). He then followed James to France in 1708 and was restored to his peerage, but not to his estates; they had

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been disposed of by his trustees. The estate was passed back and forth until 18<sup>th</sup> June, 1703 when Henry Conyngham bought property in the baronies of Slane, upper and lower. Under the Conynghams, a new church was built in Slane Castle Demesne to replace the original on Slane Hill; the font in this church is said to have come from the latter. An effigy of a bishop was brought from another church and installed in a wall here (of 14<sup>th</sup> or 15<sup>th</sup> century date, from Mary's Abbey, Navan). The property remained with the seat of the Marquess Conyngham, until the 19<sup>th</sup> century.

The 18<sup>th</sup> century saw significant changes in the Slane area, notably the establishment of the substantial demesne of Slane Castle, which included extensive lands to the west and north of the village of Slane, and the redesign of many of the townland boundaries shown on the mid-17<sup>th</sup> century Down Survey maps (see **Section 13.3.1.5.1**). The village of Slane was enlarged and rebuilt at this time, while Slane Mill was developed in conjunction with the construction of the Boyne Navigation canal (described below) at Slane Bridge during the 1760s. Further detail on the development of the demesne landscape and of Slane village is contained in **Chapter 14 – Architectural Heritage**.

### 13.3.1.1.5.1 Slane During the Williamites Wars in Ireland (AD 1688-1691)

The nationally important Battle of the Boyne was fought on 1 July 1690, between the forces of King James II of England and William of Orange over a ford of the Boyne at Oldbridge (almost 7km north-east of the Proposed Scheme). The study area forms part of the western flank of the battle's sphere of operations (area over which the movement of troops took place), where the Williamite forces occupied the lands between Slane and Knowth. Slane bridge had been broken down by the King's troops and the Williamites forded the river somewhere between Rossnaree and Slane. Although the exact location of the crossing is unknown, a possible crossing site (ACH19, **Appendix 13.5**) is identified c. 900m east of the Proposed Scheme, in Rossnaree townland. This is based on a contemporary illustration of the battle by George Story in 1693, which shows a ford at Rossnaree on the Slane side of the bend in the river, to the west of Rossnaree House (Stout 2002). Local tradition holds that there were also temporary Jacobean garrisons in the natural dells at Rock Farm, in Slane Castle demesne on the south side of the river.

### 13.3.1.1.5.2 Boyne Navigation

A pre-Norman route way known as the *Slighe Assail* ran from the north of Drogheda through Slane and on to Navan, however it was the River Boyne that was the most important access to the midlands. Navan, Kells, Trim, Slane and Athboy are all situated on the Boyne-Blackwater River network, which in turn links these large Meath towns with Drogheda and the Irish Sea. The navigability of the river system, however, had been badly compromised by milling and fishing constructions along it, which meant that it could not be navigated by larger vessels. To address this the Boyne Navigation Canal began construction in 1748 and was completed to Slane (the Lower part) by the 1760s and to Navan (the Upper part) by 1800. It was the most critical canal system for the industrial and infrastructural development of County Meath. The canal allowed those same mills to thrive and transport their goods and this was particularly true in the case of the Slane Mills (Giacometti *et al.*, 2010).

The navigation channel was the River Boyne itself and a series of canals alongside the river. The Upper Boyne Navigation comprises four long stretches of canal (RPS MH019-223), including one in Slane (MIHS 019-029), and a short stretch at Slane Castle (MIHS 019-014). Other associated features include locks, lock-keeper's houses, milestones, aqueducts, bridges and mooring posts etc. Sections of walls, paths and the foundations of two small structures that are likely to be associated with the Boyne Navigation works were identified during field survey in Fennor townland as part of the route option selection process (CH9 in Crowley 2019), on the south side of the canal. These remains are located beyond the study area for the Proposed Scheme and as such are not included in the assessment of the Proposed Scheme. The Boyne Navigation canal, as a protected structure (RPS MH019-223), is assessed in **Chapter 14 – Architectural Heritage**.

### 13.3.1.1.5.3 Industrial Activity

The development of the extractive industries in Meath was to a large extent dependent on improvements in transport infrastructure, which from the later 18<sup>th</sup> century allowed the cheap transportation of heavy raw materials to elsewhere in the country. As the Boyne Navigation Canal facilitated the extractive industries along its route, demand rose at the end of the 18<sup>th</sup> century, with large civic street paving projects being undertaken in Dublin, and new shipping laws passed requiring stores of ballast at ports (Rynne 2006).

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According to the Meath Industrial Heritage Survey report (Giacometti *et al.*, 2010), quarry pits (for stone, sand or gravel) are the most common industrial feature on the first edition Ordnance Survey six-inch maps for the county. The quarries vary in size and shape and are also located in a relatively consistent manner with respect to the local topography, usually at the edges or corners of fields, on or near higher ground or low rises. A further pattern noted is the location of many quarry pits at townland, parish and barony boundaries. In many cases small tracks lead from the quarries to the main road. Furthermore, the underlying geology does not appear to have been an important factor in quarry location. These small quarries are likely to reflect localised *ad hoc* industry, with the majority of extractive sites representing the small-scale quarrying and building material processing by individual farmers as a means of augmenting agricultural incomes from farmland. In most ways the extractive industries in Meath are strongly related to rural and agricultural developments, rather than the more traditional view of urban-based industrial developments.

Lime-kilns have been described as Ireland's most numerous and widely distributed industrial monument (Rynne 2006) and there are several examples in the landscape around Slane (e.g. at Limekiln Hill on the south side of the N51, within the Proposed Scheme, where there are the remains of a lime-kiln and evidence for considerable quarrying activity; ACH14 in **Appendix 13.5**). Lime-kilns were usually small flared pit ovens constructed from masonry with domed roofs, in which limestone was 'calcined' or heated to produce quicklime, which had a variety of uses. Most lime-kilns were 'intermittent use' kilns, which meant that they had to be cleaned out after each operation (Ibid.). Larger 'continuous-use' lime-kilns which could be operated without requiring cleaning out were also constructed from the later 18th century.

The main uses for quicklime were for laying on fields in order to neutralise overly-acidic soils, or forming the basis for a lime-based mortar by 'slaking' the quicklime in pits of water. Very large quantities of lime were used as fertiliser in Ireland, particularly during the period 1800-1840, partially to counteract natural acidity in the soil (Giacometti *et al.*, 2010). Other uses included the manufacture of soda, and the removal of hair from hides for tanning.

### 13.3.1.1.5.4 Routeways and Communication

Slane village is centred on the junction of the modern N2 and N51 roads and the presence of routeways through this landscape since early times has probably heavily influenced the development of settlement at Slane. As noted above, pre-Norman route way known as the *Slighe Assail* ran from the north of Drogheda through Slane and on to Navan. The progress of Edward Bruce in 1317 indicates a direct route through Slane to Skreen, Ratoath and then Dublin. The thirteen-arched stone bridge present at Slane today with its triangular cutwaters suggests a date in the mid-14th century and there may have been an earlier bridge present at the site. A bridge is depicted crossing the Boyne at Slane on the Down Survey (1656) map of the Barony of Slane and the Civil Survey (1654-1656) notes '*there is alsoe in the said town...a stone bridge with an ould castle thereon*'. Story (1693) notes that the bridge of Slane had been broken before the battle, thus preventing William's forces from crossing there. The line of the road from the bridge was probably altered when the estate town was constructed before 1763.

A route to Drogheda is mentioned in 1654. A road known as the 'ridgeway', mentioned in 1578, led to the Hill of Slane and may have continued along the line of the 18th century coach road to Drogheda and Ardee. The road from Dublin to Slane was straightened at some stage in the early 19th century with work completed by 1812. Prior to these improvements the road passed by Cullen House and this is the route shown on Taylor and Skinner's map of 1783. The grassed-over remains of this old road (ACH03, **Appendix 13.5**) are extant between Fennor and Knockcommon townlands, truncated by the railway to the south. Local tradition holds that the straightening of the road from Dublin to Slane was carried out in order to hasten communications between the Prince Regent in London and his love, the Lady Conyngham, in Slane Castle.

The 19th century also saw the introduction of turn-pike (toll) roads in an attempt at creating a self-financing, quality infrastructure. These new toll roads are recognisable in the countryside because they cut across the existing field and road patterns in straight lines, the product of engineers' rulers rather than the organic growth of the preceding communication network. The construction of the Dublin-Ashbourne-Slane and Drogheda turnpike road was enabled by an act passed in 1827.

### 13.3.1.1.5.5 Slane During the Emergency (1939-45)

In 1939, Ireland passed the Emergency Powers Act to defend its position of neutrality during World War II. This gave sweeping powers to the government, including internment, censorship of the press and correspondence, and control of the economy. During this period, commonly referred to as The Emergency, the main planned line of resistance against a threatened overland invasion by British forces based in

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Northern Ireland was formed by the rivers Boyne and Blackwater. A line of fortifications, comprising blockhouses and machine-gun pits, also known as pillboxes, were built along the riverbanks, mainly on the south side of the Boyne. The pillboxes are squat, concrete, flat-topped structures varying in plan from square to hexagonal; they measure c. 4 m in width and length by 11.8 m high, with a wall thickness from 0.50 m-0.80 m (Stout 2002, Dúchas 2002). There are approximately 20 pillboxes defending southern banks of the River Boyne in the area to the east of the important strategic bridge at Slane. Although the bridge itself does not have a pillbox associated with it, the corner of Fennor Church graveyard wall (AH22 in **Appendix 13.5**) was altered with gunports inserted to cover the bridge and southern N2 road approaches.

One of the pillboxes (currently undesignated) was originally identified during the fieldwork undertaken for the previously proposed Slane Bypass. It was noted again during the field walkover survey for the Proposed Scheme in 2018 at Route Options Selection stage and is located c. 290m east / south-east of the Proposed Scheme (ACH23, **Appendix 13.5**).

### 13.3.1.2 Archaeological Investigations within the Study Area

#### 13.3.1.2.1 Possible Sites identified by LiDAR Survey

A LiDAR survey was undertaken as part of the route selection process in order to assess for potential archaeological and cultural heritage sites which may be affected by the route options. The report was prepared by Dr Stephen Davis of the Department of Archaeology, UCD (Davis 2018). A total area of 50.5km<sup>2</sup> was examined revealing 61 potential archaeological sites within the entire study area for the Route Options Selection assessment (this was a wide study area covering the lands both east and west of Slane village). Degree of confidence of these sites being archaeological is measured on a three-point scale, with 1 indicating a high likelihood to be archaeological, 2 indicating that the site is likely to be of archaeological significance, and 3 representing sites of possible archaeological significance.

None of the 61 sites identified are located within the Proposed Scheme and only three of these lies within the present study area. All three are highly likely to be archaeological: a platform in Slane townland (ACH10) c. 250 m north of the Proposed Scheme, an enclosure in Mooretown townland (ACH15) c. 230 m north-east, and a mound in Cashel townland (ACH13) c. 70 m east.

One site of the sites identified by Davis during the survey, a hollow-way located outside the study area, is a continuation of a linear earthwork identified by previous LiDAR survey in 2010 that was subsequently added to the Sites and Monuments Record (designated SMR ME019-089). The original townland boundary between Slane and Cashel, which was realigned in the 18th / 19th century, can also be seen in the survey.

#### 13.3.1.2.2 Results of Geophysical Survey

##### 13.3.1.2.2.1 Geophysical Survey 2020

Geophysical survey was undertaken in 2020 along the emerging preferred route by Earthsound Geophysics (Licence No. 20R0238), to cover fields not previously surveyed (Gimson 2020; **Appendix 13.6**). Six sites of archaeological interest in Areas 9, 13, 15 and 20 were identified by the survey, within the emerging preferred route:

- A possible ring-ditch (9 m x 12 m) (Geophysical Survey (GS) Site 13-8) in Area 13 (ACH26, **Appendix 13.5**);
- A second possible ring-ditch (7 m x 8 m) was more tentatively identified in Area 13 (GS Site 13-1);
- An enclosure ditch, c. 27 m diameter, containing a pit (GS Sites 20-3 & 20-4) in Area 20 (ACH27, **Appendix 13.5**). The enclosure ditch may contain burnt remains. The northern part of the enclosure is located south of the Proposed Scheme, but part of the enclosure may extend into it;
- A possible large sub-rectangular enclosure (42 m x 32 m) (GS Site 15-7) in Area 15, of which the ditch appeared to contain burnt deposits. This appears to be a continuation of features identified in the 2005 and 2010 surveys to the west and east, and was thought to possible represent a relict field system;
- A possible sub-circular enclosure (21 m x 14 m) (GS Site 9-5) in Area 9; and
- A possible rectilinear enclosure (17 m x 8 m; possible structural remains) (GS Site 9-6) in Area 9.

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Of these, only two proved to be archaeological in nature during subsequent archaeological testing (see **Section 13.3.1**), the ring-ditch in Area 13 (ACH26), which is located partly within the Proposed Scheme, and the enclosure in Area 20 (ACH27), which is located immediately adjacent the Proposed Scheme to the south.

The geophysical survey also included the area to the immediate east of the recorded enclosure site ME019-085, on the other side of the Slane/ Cashel townland boundary (**Figure 13.3**). This early medieval D-shaped enclosure was identified during geophysical survey and confirmed by subsequent testing, undertaken in advance of the previously proposed Slane Bypass (discussed below in **Sections 13.3.1.2.2.3** and **13.3.1.2.3.2**). Although this lies outside the Proposed Scheme, it was included in the survey in order to identify its eastern extent and to investigate the possibility that there were further associated features. The survey results show that the eastern ditch of the main enclosure is located just on the other side of the townland boundary, with a smaller sub-circular enclosure appended to its south-east corner and a series of ditches and other features to the north and east of it.



**Figure 13.3: Recorded Enclosure ME019-085 (in purple) with Proposed Scheme Overlaid (Area 22)**

### 13.3.1.2.2.2 Geophysical Survey 2018

A geophysical survey was carried out by Target Archaeological Geophysics Ltd in March 2018, as part of the route options selection process (Nicholls 2018). The survey was undertaken at various locations (where accessible and / or suitable) that were identified as areas of archaeological potential through field survey, placename evidence, LiDAR survey and proximity to RMP sites. A total of 11.5 ha of magnetic gradiometer survey was conducted along an investigation corridor measuring 100 m in width in available geophysics locations 1 (1a-1b), 6 (6a-6b), 8 (8a-8b) and 9 (9a-9b), to the northwest, southwest, south and east of Slane village, in Britstown, Thurstianstown, Fennor and Slane townlands. While none of these areas lie within the Proposed Scheme, any potential sites identified within the study area have been incorporated into this assessment.

No definitive patterns of archaeological settlement, clearly visible enclosure remains, or concentrations of archaeological activity were recorded from the survey. One feature of possible archaeological potential was identified within the study area, in Area 9b: a possible circular enclosure (ACH11, **Appendix 13.5**), c. 95 m north of the proposed N51 Route Improvements.

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### 13.3.1.2.3 Previous Geophysical Survey (2005, 2008, 2010)

Geophysical surveys were undertaken in 2005, 2008 and 2010 in advance of the previously proposed Slane Bypass (Licence Nos 05R165, 08R322, 10R54, 10R55; GSB Ltd 2005, 2006 & 2009; Leigh 2010a & 2010b). To avoid confusion, reference to the area numbers provided in each survey report will be preceded by the relevant year of survey, e.g. 2005 A1, 2008 A1, etc. The areas surveyed include 22 areas undertaken in 2005, 18 areas surveyed in 2008 and five areas surveyed in 2010. These survey areas cover parts of the Proposed Scheme.

The survey area was evaluated in scanning mode in order to identify areas which merited more detailed survey. Most of the fields along the previously proposed route contained several possible features, with the most significant anomalies occurring in 2005 A10 and 2005 A11 in the townland of Slane, and in 2008 A17 and 2008 A18 in the townland of Cullen. The 2005 areas were further investigated in the extension to the 2005 licence.

Only two definite archaeological sites were identified, both of which were enclosures (subsequently designated SMR ME019-085 & ME019-088). The large sub-rectangular enclosure in the townland of Slane (ME019-085, mentioned above, AH32 in **Appendix 13.5**) was surrounded by a wide ditch up to 3.5 m wide and a probable attached field system on the south-west side, is likely to be an early medieval settlement site (**Figure 13.3**). The archaeological nature and date of the site were confirmed during subsequent archaeological testing; the trial test-trenching in 2006 (Licence No. 06E0341) revealed a cow atlas bone dating to 660-820 Cal. AD (UB-7240) (see also **Section 13.3.1.2.3.2** below). In its plan and date it appears similar to many such sites uncovered across the country through archaeological investigations, both for road schemes and other development. This enclosure is partly located within the Proposed Scheme. The second enclosure identified by the survey was a circular feature north-west of the sub-rectangular enclosure (feature 'H' in **Figure 13.3**), which may be a ploughed-out barrow or ringfort (ME019-088; c. 40 m west of the Proposed Scheme; AH33 in **Appendix 13.5**).

Linear trends identified in Slane townland to the south of the two enclosures were initially thought to represent field drains or a field system, but none of the features from the survey could be located during archaeological testing and it was thought that rock outcropping may have affected the geophysical survey. A faint linear feature that was detected to the west of this, however, also appeared in a LiDAR survey of the area (Davis *et al.* 2010, D3-iii); this earthwork may have functioned as a trackway (designated SMR ME019-092, c. 55 m west of the Proposed Scheme).

A possible oval enclosure measuring c. 30 m by 20 m and possible associated field system (ACH24, **Appendix 13.5**), which is located within the Proposed Scheme (**Figure 13.4**). It may be associated with the enclosure complex to the north (SMR ME019-085). There was limited archaeological testing in this area, which failed to identify the anomalies, possibly the result of soils 'masking' the archaeological features (**Section 13.3.1.2.3.2**).

In addition to the two definite archaeological sites and possible enclosure identified by the surveys, there were other anomalies which may represent archaeological features. These are predominantly possible pits and linear / curvilinear trends, many of which may ultimately prove to be non-archaeological in nature. There are scatterings of these anomalies in seven areas within the Proposed Scheme, in Slane and Fennor townlands (ACH01, ACH07, ACH28-30, 33, 35-37; **Appendix 13.5**). A number of the responses indicated burning, though these may relate to relatively recent agricultural practices, or they may derive from buried ferrous objects. Several anomalies throughout the survey areas are consistent with burnt spreads or *fulachta fia*, but none are in the characteristic horseshoe shape of these features and are all located some distance from known watercourses. They may alternatively be related to material from corn-drying kilns or of modern origin. Examples of removed field boundaries and/or field drains were also identified, as were some features possibly connected with industrial activities.



Figure 13.4: Possible Enclosure ACH24 (feature '14' in figure), with Proposed Scheme overlaid

### 13.3.1.2.3 Results of Archaeological Testing within the Proposed Scheme

#### 13.3.1.2.3.1 Archaeological Testing 2021

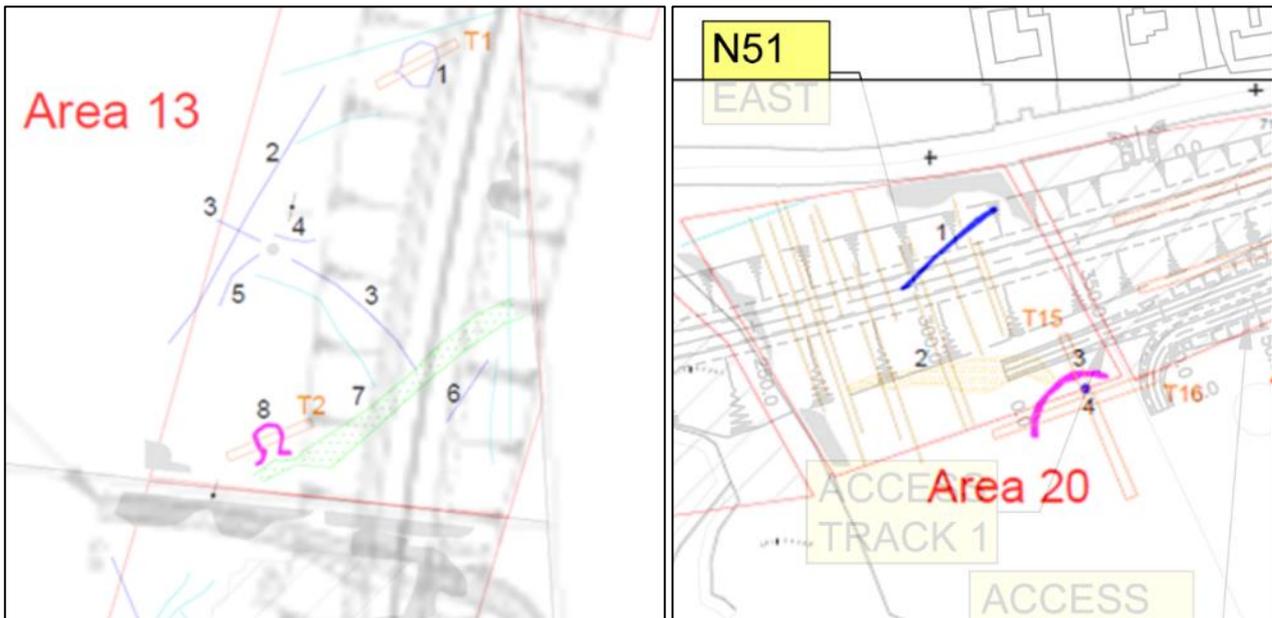
Targeted archaeological test excavation was undertaken in October / November 2021 to inform the EIAR (Licence No. 21E0348, Garahy 2021; the full report is contained in **Appendix 13.5**). The testing focused on three sites of archaeological interest and a further three sites of possible archaeological interest that were identified by geophysical survey in 2020 within the emerging preferred route. As with the testing undertaken in relation to the earlier phases of geophysical survey, in 2006, the testing focused on those sites or features that had the most potential to be archaeological in nature. The results of the archaeological testing in 2021 largely confirmed those of the geophysical survey. Archaeological sites were confirmed in Areas 13 and 20, a possible ring-ditch (ACH26, **Appendix 13.5**) located partly within the Proposed Scheme and a circular enclosure (ACH27, **Appendix 13.5**) which is located immediately adjacent the Proposed Scheme to the south. Both features can be seen in **Figure 13.5**; these are summarised below and described in full in **Appendix 13.5**.

The possible ring-ditch in Area 13 is subcircular- or  $\Omega$ -shape in plan, with an internal diameter of 7 m to 8 m, and the remains of remains of a possible inner bank also identified. No central cremation or burial was found within the ring-ditch in test trench T2. Specialist analysis of a soil sample taken from the single fill on the north-eastern side of the ditch yielded an Iron Age date (377-195 cal BC; radiocarbon dating analysis by BetaAnalytic, 15/04/22).

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The larger, probably circular enclosure in Area 20 has an internal diameter of c. 27m, as identified in the geophysical survey. The curving ditch was identified in Trenches 15 and 16, where it was 2.3m to 2.4m wide and 0.6m to 0.8m deep. No evidence of a possible pit that had been identified within the enclosure on the geophysical survey was found during testing. Soil samples from the lower fill of the ditch also yielded an Iron Age date, albeit it later (120-248 cal AD; radiocarbon dating analysis by BetaAnalytic, 15/04/22). The dating evidence for both sites, although based on a limited sample from targeted testing is interesting, indicating Iron Age activity on both sides of the river in this part of the Boyne valley.

The less definite geophysical anomalies that had been identified in the geophysical survey as only being of possible archaeological interest were confirmed to have been of geological rather than archaeological origin in Areas 9, 15 and 19. In addition, no evidence was found of archaeological features in the test trench placed to investigate another possible ring-ditch that had been tentatively identified by the geophysical survey in Area 13 (test trench T1 across feature 1 in **Figure 13.5**).



**Figure 13.5: Geophysical Survey Results and Location of Test Trenches in Areas 13 and 20, Overlaid onto Proposed Scheme**

### 13.3.1.2.3.2 Archaeological Testing 2006

Preliminary archaeological testing was carried out in advance of the previously proposed Slane Bypass (Licence No. 06E0341; Seaver 2007) to assess geophysical anomalies identified within the then proposed route (2005 A10 and 2005 A11 in **Section 13.3.1.2.2.3** above). The assessment was designed to test the geophysical results and to determine the depth and extent of any archaeological features encountered.

Area 2005 A10 contained a geophysical anomaly suggesting a large rectangular enclosure some 50 m in north-south diameter which did not feature on the 1836 first edition Ordnance Survey map (SMR ME019-085; AH32 in **Appendix 13.5**). Five trenches were excavated to assess this enclosure. The enclosure ditch was revealed in trenches 1, 2 and 3 and was sectioned in the two former trenches. It ranged from 3-3.5m in width and was up to 1.4 m in depth. No artefacts were recovered and the ditch contained largely poorly preserved animal bone. A linear gully, possibly contemporary with the main enclosure ditch, was excavated in trench 1. This contained charred plant remains including wheat, barley and oats which was probably dried in the immediate vicinity. The interior contained relatively few features. Trench five contained a shallow pit with dark deposits containing animal bone and charcoal rich soil. Animal bone from the enclosure was radiocarbon dated and calibrated at two sigma to 660-820 Cal AD (UB-7240). The rectangular enclosure in Area 10 is probably related to settlement remains indicated by the animal bone found within.

Area 2005 A11 contained anomalies suggesting a potential circular enclosure measuring c. 30 m by 20 m associated with a series of linear features, interpreted as a possible associated field system (ACH24, **Appendix 13.5**). The potential site is located in the field to the south of the enclosure complex SMR ME019-085; AH32). The trenching of this area comprised one trench (T7) targeting the possible oval enclosure (anomaly 14) and another (T6) across part of the possible field system (anomaly 13). The testing did not

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confirm the presence of archaeological features corresponding with the geophysical anomalies, with no features of archaeological significance observed in either trench. The testing programme did uncover outcropping bedrock in the north of 2005 A11 which it was thought might account for the geophysical anomalies. It is also possible that the absence of archaeological evidence to explain the anomalies may have been the result of soils ‘masking’ the archaeological features.



**Figure 13.6: Location of test trenches in Areas 2005 A10 and A11 (after Seaver 2007, Figure 3), overlaid onto Proposed Scheme**

### 13.3.1.2.3.3 Further Assessment of Early Medieval Enclosure Site ME019-085

The early medieval enclosure complex was subsequently added to the SMR (as ME019-085) for inclusion in the next revision of the RMP. It was also assessed following the results of the testing and radiocarbon dating to determine whether or not it could be considered a national monument. The assessment concluded that

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the site is not a potential national monument, based on the available information, for the reasons listed below:

- The site is currently not a National Monument nor is it subject to a Preservation Order;
- The site has no significant corpus of written or other information on it;
- The site, through association, is part of a group of high status Early Medieval sites around Slane that were once part of the regionally important Aed Sláine dynasty;
- The site is a truncated Early Medieval D-shaped enclosure of a relatively common site type;
- There are no known historical associations, except with a presumed general association with the contemporary Aed Sláine dynasty;
- While deeper archaeological features such as ditches were uncovered shallower features, apart from a charcoal spread, were not recovered in the tested areas. This is likely to indicate that contemporary ground surfaces had been removed and only the bases of shallow features may survive. The tested area did not reveal a high density of such features. A site containing preserved contemporary ground surfaces and features such as stake holes would have a higher archaeological value;
- The site does not appear to contain highly significant cultural elements in terms of archaeological remains, artefacts or ecofacts;
- The site has no known folklore or traditional merit;
- The landscape setting is locally visible only. The site does not have a visibility relationship with either the wider Boyne Valley or the Brú na Bóinne World Heritage Property;
- The site has no visual prominence;
- The site has an inter-group relationship with a cluster of higher status Early Medieval sites around Slane;
- The site is in a poor condition. All contemporary ground surfaces, all shallow cut features and all upstanding remains appear to have been removed. There are no known sub-surface structures such as stone-lined graves, souterrains or wells indicated in the tested areas;
- The site is not a rare site type. It does not display rare aspects to the relatively common Early Medieval enclosure site type;
- The site would appear to have potential to reveal the range of archaeological remains, artefacts and ecofacts often uncovered at plough damaged ringforts and other rath enclosures; and
- The site has no amenity value.

### 13.3.1.2.3.4 Topsoil Assessment

As part of this testing phase the topsoil that was subject to removal was briefly assessed for any archaeological or modern objects. No obvious archaeological finds were observed. Small, quartz chunks that could potentially have been plough pebbles were noted in Area 13 (**Plate 2**), though quartz chunks of this size and shape are very common. No finds were retained, some were photographed and all were left on site.

Occasional modern pottery fragments and burnt lime fragments were identified in Area 9.

Area 13 was an arable field that had had the crop harvested and the land left as a stubble field. Weeds had grown around the edges of the field but there was a reasonable exposure of uncovered topsoil across an area roughly 150m x 50m. This area was systematically walked in roughly 2m spaced lines and all finds were collected. This field was included in Brady's surface collection survey in 2000 and was recorded as a field with a relatively low density of artefacts, including two probably early prehistoric flint tools (see **Section 13.3.1**). No additional flint was found during the topsoil assessment in Area 13, with the objects recorded including the quartz chunks mentioned above, building material of slate and red brick, and domestic waste such as clay tobacco pipes, glass bottles and modern pottery. This material presumably arrived on this field as manuring from nearby farms and settlements.

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**Plate 2: Objects Recovered from Area 13**

In Area 15, inspection of topsoil being removed and as removed from Trenches 7 to 12 showed occasional modern pottery fragments and burnt lime fragments. Finds recovered from the topsoil in Areas 19-20 included plenty of burnt limestone fragments (not surprising, given the former presence of a limekiln in this field) and modern pottery, presumably from field manuring from nearby properties. No archaeological finds were recovered (**Plate 3**).



**Plate 3: Objects Recovered from Area 20**

#### 13.3.1.2.4 Archaeological Monitoring of Geotechnical Investigations within the Proposed Scheme

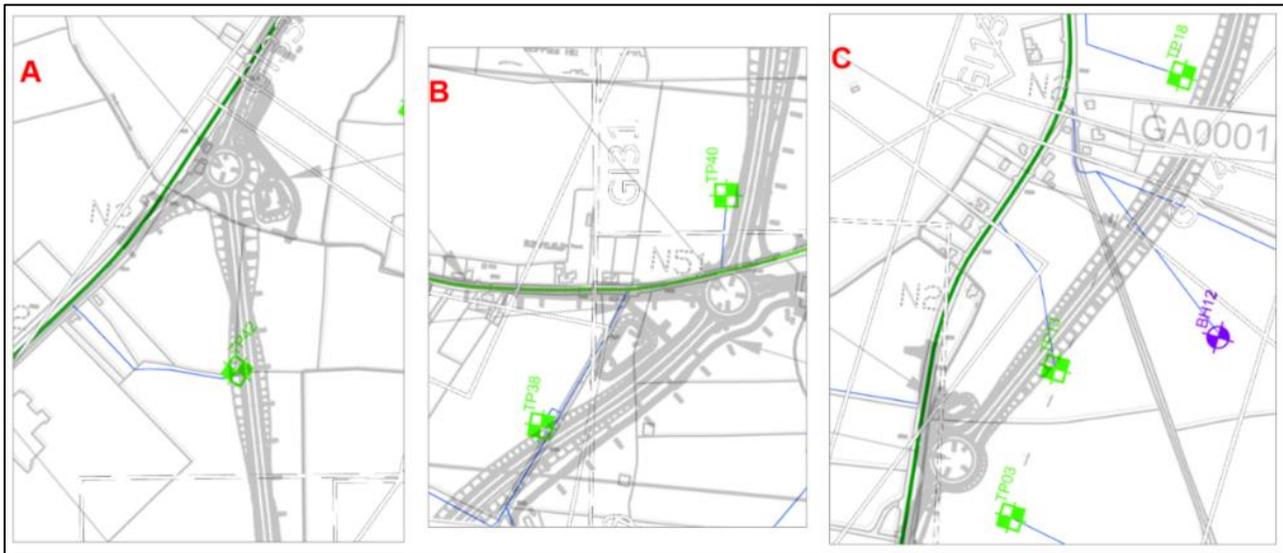
Geotechnical investigations were undertaken by IGSL Ltd at 49 test pit (TP) locations in 2018, as part of the Route Options Selection process. This took place under archaeological supervision (O'Brien 2018). Test pit locations 4, 6, 12, 29, 50-53 were not excavated as these locations lie outside of the study area for the Proposed Scheme. Of those excavated, four are located within (wholly or partly) the Proposed Scheme (TP42, TP40, TP38, TP13) and two are in close proximity to it (TP3, TP18) (**Figure 13.7**).

All excavated material was subject to visual and metal detection survey (Licence ref: 18R0019) in order to identify potential artefacts within the spoil. Excavation of topsoils was undertaken with a flat-bottomed grading bucket, after which a full photographic and written record was taken at the natural subsoil level. The pits were completed using a clawed bucket and backfilled.

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Potential archaeological deposits were identified in three of the 49 test pits, only one of which (TP42) is located within the Proposed Scheme. The other two pits, TP23 and TP36, were in Slanecastle Demesne and Coalpits townland respectively, outside the study area. The pits were left in situ, unexcavated, and a photographic and written record was taken before backfilling. Deposits of burnt material were found at TP 42 (Slane townland) (ACH38, **Appendix 13.5**). It included burnt clay and organic material, with some disturbance from a drain, though it was noted that crop stubble in this field is often burnt, which may account for these deposits. It may otherwise be related to a pre-1836 roadway which connected a former pound to a structure in the adjacent field to the north, though this is some distance away. Nonetheless, the test pit was located in a wet corner of the field, a location typical of those where prehistoric burnt mounds / fulachta fia are found. It should also be noted that geophysical survey in 2010 identified a possible burnt spread further north-west in this field, outside the Proposed Scheme (c. 35 m west).

Metal detecting revealed several modern fragments of metal wire, nails etc. in various test pit locations. Quantities of quartzite and red earthenware were observed in a number of locations, with concentrations found in Mooretown and Coalpits, outside of the study area.



**Figure 13.7: Location of Test Pits with the Proposed Scheme Overlaid, Showing TP42 (A), TP38 and TP40 (B), and TP03, TP13 and TP18 (C).**

### 13.3.1.2.5 Surface Collection Survey

A fieldwalking survey of the Boyne Valley was undertaken by Conor Brady in the 1990s, focusing on the south side of the River Boyne, in an attempt to identify areas of settlement or other activity in the prehistoric period. Several of the fields walked as part of Brady's survey fall within the southern extent of the Proposed Scheme (Brady F.49, F.110, F.27, F.13, F.91, F.81; these correspond to the EIAR field survey numbers F9, F8, F5, F4, F2, F3; ACH18 in **Appendix 13.5**), in the townlands of Fennor, Cullen and Johnstown (**Figure 13.8**). Five adjacent fields also formed part of the survey (Brady F.50, F.48, F.93, F.108, F.82). Brady provided analysis of the survey results for these fields (and other relevant fields) as part of the Route Selection Study and this is summarised below (Brady 2018, **Appendix 13.8**).

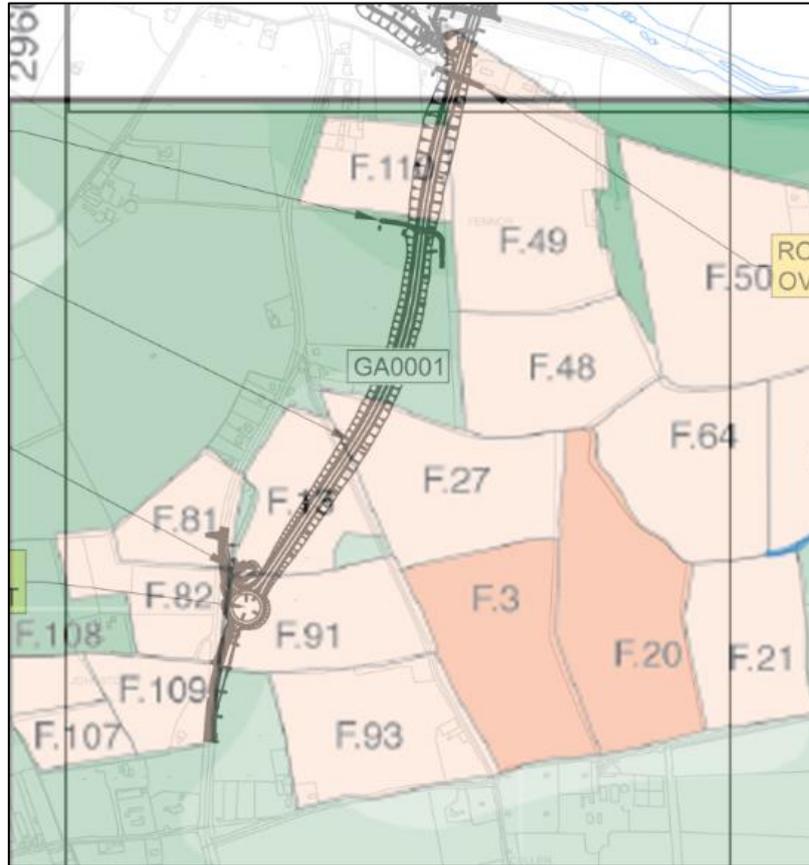
The density of artefacts per hectare was quite low for this area, ranging from 0.78 in F.110 to 6.75 in F.13, both in Fennor townland. It should be noted that, although the densities recorded are relatively low, they are considered high on a national scale. The background level of flint density demonstrated within Brady's study area is unsurprising given the extraordinary degree of prehistoric activity in Brú na Bóinne. Continuous ploughing of most of the land surface since the medieval period has hooked up and moved a great quantity of lithic material across the local and more general landscape.

Most of the finds were of flint, with the majority of this material probably of local glacial till origin. Chert, quartz and rock crystal were also identified. A total of 236 artefacts of probable prehistoric date were found in these fields, which were divided into 'Selection' (indicating selection of special material and pebbles), 'Production' (indicating cores and flakes of the lithic production process), 'Tools' and 'Miscellaneous'. The 'Production' category represented the largest group, with 127 items. Fifty tools were found, with some dating as early as the Early Neolithic, but most ranging from the Neolithic and Early Bronze Age. The range of

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artefacts represents a variety of activities, which may include settlement, but the densities are too low to make a definitive statement.

Only one confirmed archaeological site (ACH26) has been identified within the Proposed Scheme within Brady's survey area, a possible ring-ditch which is located in F.110, a field with a relatively low density of artefacts recorded. Two of the three finds recovered were flint tools of probable early prehistoric date (the third was a quartz chunk). Given the preliminary Iron Age date returned for the possible ring-ditch, these speak to activity in the area at an earlier date, rather than contemporaneous or associated activity with this site.



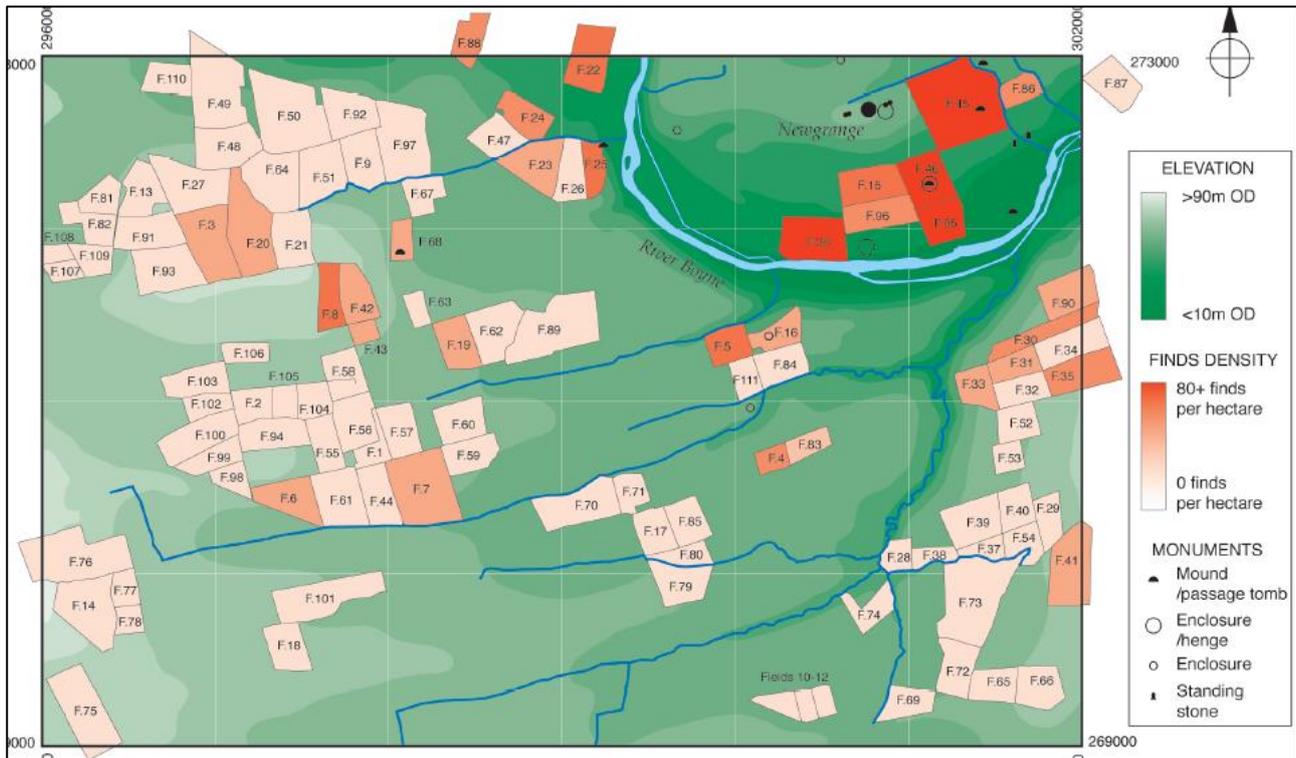
**Figure 13.8: Location of Fields Surveyed by Brady with Proposed Scheme Overlaid (after Brady 2018)**

This is in contrast to some of the other fields within the larger survey area, where there were significant densities and concentrations (**Figure 13.9**). Broad zones of activity were identified, the most dense of which are located in the fields in Newgrange townland, representing prolonged intense activity (Brady 2002). There were also approximately 40 scatters of higher than normal density, the largest of which are distributed along the high ground at the top of the southern slope of the river valley facing into Brú na Bóinne, several on the north-facing slopes overlooking the river and on the floodplain itself in Rosnaree townland, and another group on the eastern slope of the Cullen ridge (*ibid.*). The nearest area of high density to the Proposed Scheme is located to the south-east, on the high ground of this ridge (Brady F.3 and F.20). Brady identified a lithic scatter and transverse arrowhead (ME026-024) c. 2 km south-east in F.20, Newtown townland, believed to date to the Late Neolithic (Brady 2000); subsequent excavation of test pits (Licence No. 00E0613) revealed evidence for intense burning.

A possible cremated fragment of a human rib in F.49 in the townland of Fennor could suggest a prehistoric burial in the area (ACH06, **Appendix 13.5**). The find location is c. 115 m east of the Proposed Scheme and c. 195 m east of the newly discovered possible Iron Age ring-ditch (ACH26).

While the aim of the fieldwalking was to identify prehistoric artefacts and lithics, a range of later items was also recovered, including ceramics, glass, clay pipes, iron objects and plough-pebbles. Most of these were probably of relatively recent date, but some ceramic sherds and the plough-pebbles may be of medieval date.

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**Figure 13.9: Map Indicating Relative Density of Finds Across Entire Area of Brady's Survey (after Brady 2018)<sup>7</sup>**

The results of Brady's survey have greatly augmented the existing record of stray finds for the study area south of the River Boyne. There are numerous stray finds recorded for Fenner townland in the National Museum of Ireland topographical files, though the locational data is not specific and could relate to any part of this large townland. These include a small flint flake with no evidence of retouching (NMI 1971:1079), a boar tusk (1971:1080), an iron pin and penannular ring (1971:1084 & 1085), an iron strap possibly from a bucket handle or a medieval spur (1971:1082), and medieval pottery sherds, one of which was a fragment of Early Medieval cooking ware (1971:1064-1078). With the exception of the concentration of finds in Fenner townland (where there was known settlement in the early medieval and medieval periods), only three other finds are recorded, all in or near Slane: six bronze lachets dug up in Slane Castle demesne in 1781 (Wilde 1857, 566), a club-headed bronze stick pin found in 1948 and now in the Royal Ontario Museum, and a bronze ring pin (NMI Ref. IA/104/1998). No other stray finds are recorded for the townlands within the study area.

To the north of the river, a small flint scatter observed during field walking undertaken to inform the EIS for the previous N2 Slane Bypass scheme (CRDS 2009; see ACH17 in **Appendix 13.5**). No additional scatters were identified at the time of the field walkovers carried out for this assessment. This flint scatter, along with the results of Brady's survey south of the river, point to the potential in this landscape for the identification of prehistoric activity.

### 13.3.1.2.6 Supplementary Aerial Photographic Analysis

The heatwave and subsequent drought that occurred during the summer months of 2018 provided the perfect conditions to see crop marks (especially parch marks) because of the lack of moisture in the soil.

Natural and man-made grooves in the subsoil or bedrock hold more moisture than the undisturbed ground around them and are usually filled with richer soils. This means that in fields levelled by ploughing, crops growing over archaeological remains have access to more water and better nutrients; when pastures are parched, as they were this summer, such areas stay greener and grow taller. Conversely, crops growing over old stone walls struggle to find water and wilt in the heat, to form what are known as negative crop marks. The crop marks and parch marks produced during a prolonged drought – a highly unusual event and

<sup>7</sup> Fields relating to the Proposed Scheme, as shown in **Figure 13.4**, are located in the top left corner of this image.

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one not seen in Ireland since 1976 – are often more dramatic and noticeable in the landscape. Such extreme conditions can often reveal previously unknown archaeological features and sites, which would otherwise not appear as crop marks.

Bluesky Ireland conducted an aerial survey of the study area for the route options on 28 June 2018, around 2 pm with a sun angle in excess of 40 degrees (thus minimal shadow). The aerial imagery that was acquired comprised RGBi and CIR (infrared) orthophotographs at 25 cm resolution, direct-georeferenced to approximately 1 metre. This imagery covered all of the route options, including the area through which the Proposed Scheme travels.

Each of the routes was closely examined to identify any additional potential archaeological sites or features on or within 250 m of the options, using both RGBi and CIR aerial imagery. The locations of sites / features / areas of potential already identified through other aerial imagery, LiDAR, geophysical survey, field survey and historic map analysis were also examined to confirm – where possible – the earlier findings.

Despite the clarity of some crop marks visible on the aerial imagery, differing conditions in the individual fields throughout the study area meant that some features and sites do not appear. A case in point is the substantial D-shaped enclosure site in Cashel townland (ME019-085), which was first identified through geophysical survey and confirmed through testing; neither the enclosure nor its associated field system can be seen on the aerial imagery.

A total of 19 additional sites or areas of archaeological potential were identified across the route selection study area, the majority of which are possible enclosures that are relatively small in scale (mostly ranging from c. 5 m to c. 18 m diameter, several between c. 25 m and c. 30 m), with the largest being the very clearly defined parch mark measuring 44m by 46m that is visible in Fennor townland, c. 300m east of the Proposed Scheme. This enclosure has since been added to the SMR as ME019-141, on which it is classified as a ringfort.

Only one of the potential sites identified is located within the Proposed Scheme, which presents only as very faint, fragmentary crop mark: a possible rectilinear feature of c. 25 m, in Slane townland (ACH33, **Appendix 13.5**). Geophysical survey immediately east of this feature identified a series of anomalies (Area 9, Gimson 2020), none of which proved to be archaeological in nature when tested (Garahy 2021). The visible spoil mounds on and around the feature may indicate a degree of previous ground disturbance at this location. Such disturbance (e.g. scarping of the ground surface) can create anomalous patterns visible in aerial imagery.

A further three possible enclosures identified are located within c. 250m of the Proposed Scheme (ACH31, 32, 34, **Appendix 13.5**).

### 13.3.1.2.7 Other Relevant Archaeological Investigations in the Study Area

A search of the digital Excavations Bulletins (1969 to 2021; [www.excavations.ie](http://www.excavations.ie)) was undertaken to identify any other previous archaeological investigations of relevance within the study area, in Slane, Cashel, Fennor, Cullen, and Johnstown townlands.

Archaeological testing was carried out in advance of proposed development on the north side of Ledwidge Hall residential estate (Licence No. 07E0201; Excavations Bulletin Ref. 2007:1389), to the west of the recorded enclosures on Stanley Hill (RMP ME019-062 & -063; AH27 & 28 in **Appendix 13.5**) and c. 795 m west of the Proposed Scheme (Mainline Bypass). Of the twelve trenches excavated, two contained archaeological features: a ditch running south-east / north-west that appeared to curve slightly, and three pits containing burnt and shattered stone and charcoal-rich deposits. These features were subsequently excavated (Licence No. 07E0804; Excavations Bulletin Ref. 2007:1390) and are thought to form part of a sub-circular enclosure, with the three pits identified as post-holes located in the south-west section of the enclosed area. The interior of the enclosure was not exposed enough to discuss the presence or lack of internal structures. Charcoal from the ditch was radiocarbon dated to 650-780 AD (Kelleher 2008). There was also evidence for prehistoric activity at the site. Flints of possible Bronze Age date recovered; these were intrusions in the early medieval ditch and it is thought they may be associated with a burnt spread and burnt stone pits identified within the possible enclosure. There were also some worked flints and medieval pottery sherds listed among the surface finds (*ibid*).

The presence of the site was previously unknown, with no surface expression and no indication on historic maps or aerial imagery. Like much of the archaeology in the study area, any above ground remains had been destroyed by centuries of ploughing.

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The partially excavated site is of interest given its proximity to the recorded enclosure sites on Stanley Hill, the early medieval enclosure further east that lies partly within the Proposed Scheme (ME019-085; AH32), and the other sites identified on and around Stanley, Gallows, and Norris Hills by geophysical survey (enclosure ME019-088, AH33) and LiDAR survey in this area (the linear earthwork that crosses between the two hills and the second further south-east, ME019-089 & -092; AH34 & 35, and the possible field system ME019-098, AH37). Although only one of these sites (ME019-085) has been dated and not all have been confirmed as archaeological, it is clear that these hills and their immediate environs were a focus for human activity in the past, whether contemporaneously or not. Geophysical survey and archaeological testing were carried out in a development site immediately to the south-west in 2019. Despite anomalies being identified in the geophysical survey, these proved to be geological in nature or representative of modern activity (Licence No. 19E0735; Excavations Bulletin Ref. 2019:691).

The results of archaeological monitoring to the rear (south) of St Patrick's National School (Licence No. 15E0108; Excavations Bulletin Ref. 2015:030), in the field immediately adjacent a recorded souterrain (ME019-008), may also be of interest in the context of the enclosure identified at Ledwidge Hall. Three small areas of burning were identified during topsoil stripping in this area, a short distance north of the enclosure identified at Ledwidge Hall. These were found to be heavily truncated by subsequent agricultural activity and were represented by areas of charcoal-flecked and blackened soil. While no other features of archaeological interest were noted on the site during monitoring and no artefacts were recovered from any of the features, their presence speaks to the disturbance caused by centuries of ploughing in this area and to the spread of past human activity here. Further monitoring at the site of a community centre immediately west of this found only rock outcropping and modern drainage activity (Licence No. 20E0366; Excavations Bulletin Ref. 2020:161).

In contrast, other investigations in the area identified nothing of archaeological interest, despite, in some instances their relative proximity to known archaeological sites. Archaeological testing in advance of a proposed housing development on the south side of the Hill of Slane, for example, in the vicinity of a recorded souterrain (ME019-013), found no archaeological material (Licence No. 95E0106; Excavations Bulletin Ref. 1995:235). Similarly, nothing was noted during monitoring of groundworks associated with the Slane Hill Public Footpath and Lighting Scheme in 2015, in the vicinity of both Hill of Slane car park and souterrain ME019-013 (Licence No. 15E0073; Excavations Bulletin Ref. 2015:185).

Archaeological monitoring of groundworks on the north side of the farm yard at Janeville, south of the N51, found nothing of archaeological interest (Licence No. 13E0306; Excavations Bulletin Ref. 2013:112), nor did archaeological testing to the rear of the parochial house at the heart of Slane village in 2018 (Licence No. 18E0575; Excavations Bulletin Ref. 2018:768) and testing at River View housing estate, north-west of Slane Mill (Licence No. 21E0573; Excavations Bulletin Ref. 2021:154).

In 1971, archaeological inspection and recording were carried out in the area immediately outside and east of Fennor graveyard wall (ME019-035), after human bone was revealed during road widening works (Swan 1972). The face of the bank under the castle and churchyard had been cut back and scarped, exposing its composition in the newly cleared bank face. In several places the natural layering of clay and gravel had been cut into and disturbed by pits or trenches. The archaeological works were limited to the recording of an exposed section and a necessarily superficial examination of this face and the immediate area. Finds included a single worked flint, large amounts of charcoal, numerous animal bones (many showing signs of butchering), a small amount of oyster shell, and a number of human bones. The pottery was largely medieval in date, but one sherd of early medieval cooking ware was found. There were also several pieces of badly corroded pieces of iron, one of which was tentatively identified as the base hoop of a bucket and the other a possible ring-pin shaft. Although the investigation was limited, the findings indicate that the area of human burial is not restricted to the present graveyard enclosure (which is fairly modern in date, first appearing on the 1909 OS six-inch map) and a large ditch noted in the bank could be interpreted as part of a possible enclosure. They also show evidence for human occupation over a relatively large area in this area.

Also relevant, given the proposed public realm works, are the results of archaeological monitoring of works at various locations at Fennor and in Slane village as part of the Meath Watermains Rehabilitation Scheme (Phase 2), along the existing N2 Road, the Hill of Slane and within some housing estates (Licence No. E004659 (Ext.); Excavations Bulletin Ref. 2018:799). The monitoring found that most of the excavated ground consisted of either natural, archaeologically sterile soil and outcrops of rock or ground that has been disturbed by modern activity and contains redeposited fills. A layer of cobbles was uncovered in one receptor pit on Main Street representing an earlier road surface associated with the 18th century village, but otherwise nothing of archaeological significance was identified.

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Archaeological monitoring of works in 2019 during the Slane Pavement scheme (Licence No. 19E0581; Roycroft 2020) revealed additional sections of original road surfacing beneath the existing N2 road at the centre of Slane village and on approaches. It also identified a stone-built box drain and a trough, possibly a fountain base, situated in the middle of the north arm of the Octagon junction (see ACH39 in **Appendix 13.5** for further detail). The features are likely to be 18th century in date and associated with the contemporary Georgian layout of the village, as it was noted that the trough did not appear to cut through the gravelled road surface. An elm-wood trunk with lead spine water supply system, possibly also dating to the 18th century, was also identified during the monitoring, on the north arm leading from this junction. The trunks had been broken up, with pieces thrown into modern water main trench.

### 13.3.1.3 Industrial Heritage

Industrial heritage is generally taken to encompass historic sites and structures associated with transport, communications, utilities and manufacturing. The Meath Industrial Heritage Survey (MIHS) project is still in its initial stage, with industrial features identified from documentary sources. The survey was a paper one only and a field inspection to assess individual sites to confirm if they are still present will have to occur. It is a policy of Meath County Council “to protect and enhance the built and natural heritage of the Royal Canal and Boyne Navigation and associated structures and to ensure, in as far as practically possible, that development which may effect on these structures and their setting be sensitively designed with regard to their character and setting”.

A number of industrial heritage sites are recorded within the study area for the Proposed Scheme, associated for the most part with the Boyne Navigation works, (e.g. canal itself, weirs and a lock keeper’s cottage), but also including Slane Bridge and mill-workers’ cottages. These are included in the architectural heritage assessment in **Chapter 14 – Architectural Heritage** (Slane Bridge is also an RMP site and is discussed below in **Section 13.3.1.6.1.3**, and also in **Chapter 14**). Slane village itself is also referenced in the MIHS (Ref. 019-015) as an urban area and surviving industrial heritage buildings/ features within Slane village are included, where relevant, in the architectural heritage assessment in **Chapter 14**. The foundations remains of two small structures and an associated old laneway were identified during the field survey for the Route Options Selection (CH12 in Crowley 2019; these lie beyond the study area for upstanding built heritage, c. 250 m east of the Proposed Scheme). It is possible that these were built and utilised during the Boyne Navigation canal construction in the late 18th century, either as dwellings, for storage, or other works (or a combination thereof).

Written and cartographic sources demonstrate the thriving milling industry around Slane, along the banks of the River Boyne, with the Slane Mills being the most significant (see also **Chapter 14**, where this architectural heritage asset is dealt with in more detail). This milling industry has a long past, with evidence for earlier, possibly medieval, milling activity on the south bank of the river (SMR ME019-120), opposite Slane Mills, c. 65 m north-west of the Proposed Scheme. There is also placename evidence suggesting that milling activity extended eastwards along the south bank of the river (ACH05 in **Appendix 13.5**), between this recorded mill site and another c. 950 m downriver (ME019-084), as these fields are named ‘Mollies’ in the Meath Field Name Survey. This may be a derivation of the Irish word *muileann*, meaning mill.

### 13.3.1.4 Cultural Heritage

Cultural heritage is a broad term that now has come to include a wide range of tangible and intangible cultural considerations that are bound up in cultural memory and associations, belief, traditions, past knowledge, traditional and arcane practices, craft and building skills, and the oral tradition of local populations. It encompasses aspects of archaeology, architecture, history, landscape and garden design, folklore and tradition and topography.

Cultural heritage can be expressed in physical ways as settlements, designed landscapes, natural resources of economic value (e.g. mining sites, quarries, caves, mills, weirs, fish passes etc.), buildings & structures (outside of NIAH and RPS), infrastructural features (coach roads, military roads etc.). It can also be expressed in non-physical or intangible ways, for example, in folklore, in inherited tradition (pilgrim paths, pattern-day routes, historical county fairs or long-established sporting activities and traditional country pursuits), in historical events (e.g. battle sites, like the Battle of the Boyne) or persons (such as the poet Francis Edward Ledwidge, 1887-1917), or in townland, placenames and language.

According to UNESCO, the importance of intangible cultural heritage is not the cultural manifestation itself, but rather the wealth of knowledge and skills that is transmitted through it from one generation to the next.

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The social and economic value of this transmission of knowledge can also be relevant for minority and mainstream groups alike.<sup>8</sup>

### 13.3.1.4.1 Literary Associations

Francis Ledwidge was born in Janesville east of Slane, in a labourer's cottage on 19<sup>th</sup> August 1887 (RPS MH019-112, now a museum). He was the eighth out of nine children that were borne to Anne and Patrick. Having left primary school, he worked on the roads with the County Council, on farms, as a shop boy and in a copper mine (in Beauparc in the southwestern section of the study area) (Quinn 2017).

He was known as the Poet of the Blackbird and the Poet of the Boyne. Lord Dunsany was Ledwidge's friend and patron; on reading verses from the poet for the first time he commented that he "... was astonished by the brilliance of that eye that had looked at the fields of Meath and seen there all simple birds and flowers, with a vividness that made those pages like a magnifying glass, through which one looked at familiar things seen thus for the first time" (Ibid).

The landscape of the Boyne Valley, its hills, rivers and fields where he grew up and worked were great sources of inspiration to the poet. His very personal evocations of his hometown and its landscape and deep love and longing for it was woven into his poetry. He enlisted in the Royal Inniskilling Fusiliers and fought in the Great War.

Ledwidge was a home bird and romanticised this rural landscape (initially demonstrated in the poem 'Behind the Closed Eye') when he worked for a short time in Dublin City, and desperately so when he was away at war. For example, in his Poem 'In France', he notes that "*The hills of home are in my mind, And there I wander as I will*". At war he visualised home and wrote to his girlfriend Lizzie: "*I could see all the old landmarks so loved by me as I crossed the fields down to the Boyne to meet you. We Met at the Mill House... we walked slowly by the river...*"

In a letter to Katherine Tynan 1917: "*Death is as interesting to me as life. I have seen so much of it from Suvla to Serbia and now in France. I am always homesick. I hear the roads calling, and the hills and the rivers wondering where I am. It is terrible to always be homesick*" (Ibid). He expressed similar longings in his poem 'Home' ("*...it was about the little fields That call across the world to me*") and in the poem 'Summer at Home' ("*I could find the fields of beauty In the fields I left behind*"). In another letter he describes to Katharine the view from Tara towards Slane: "*If it is a clear day you will see Slane Hill blue and distant*".

Poems describing the topography include 'Stanley Hill', 'Crocknaharna' and 'Crewbawn' (Crewbane). Rosnaree features in 'The Dead Kings': "*The Dead Kings came to me at Rosnaree...*" Slane is possibly referred to in Lullaby and is likely to be referred to in 'The Sister' ("*I swathe little quiet town, and the white washed gables on the hill and laughing children coming down the laneway to the mill*"). The River Boyne is likely to be described in 'A Dream of Artemis', referring to weirs, hills and mills. In fact, there is scarcely a poem that does not refer to the hills, the streams, rivers and vegetation.

In what may have been his final letter to Katherine on 20<sup>th</sup> July 1917 (Ibid), Ledwidge wrote: "*I want to see again my wonderful mother, and to walk by the Boyne to Crewbawn and up through the brown and grey rocks of Crocknaharna... I suffer with this longing for the swish of the reeds at Slane and the voices I used to hear coming over the hills of Currabwe*". The poignancy of these words is even greater for the knowledge that he would never again see his homeland. He was killed in the Battle of Passchendaele only eleven days later, on the 31<sup>st</sup> July 1917.

The former home of Francis Ledwidge is now a local museum dedicated to and celebrating the poet and is a protected structure (see **Chapter 14**). The importance of the Ledwidge Museum is not only as a tangible cultural heritage asset in and of itself (as a 19<sup>th</sup> century cottage where Ledwidge was born), but also in the transmission of knowledge, fostering awareness of Ledwidge and his writings, and maintaining that cultural link between past and present. In this way it also plays a part in the social and economic value element of intangible cultural heritage – providing an opportunity to bring Ledwidge to a wider audience and potentially, to bring visitors to Slane.

<sup>8</sup> <https://ich.unesco.org/en>

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### 13.3.1.4.2 Artistic Representations

Aspects of the landscape of the Boyne Valley have been captured by artists over the centuries, with the main focus being the significant passage tombs at the core of the WHP, Newgrange, Knowth and Dowth, and other historic monuments in the area, such as Carrickdexter Castle to the west of Slane village. Various locations along the River Boyne have also been the focus for antiquarians and artists, like Fennor Rock and Oldbridge. In the case of the former, the early 19th century painting *View of Fennor Rock, on the Boyne* (in Slane Castle Demesne) is a picturesque view of a wild landscape, in a style typical of early romanticism in which the actual landscape is enhanced or edited for dramatic or artistic licence (reproduced in Stout 2002). In contrast, Oldbridge featured in several paintings that captured scenes of the Battle of the Boyne (most by Jan Wyck; Stout 2002), in which attempts had clearly been made to accurately portray the countryside as it was in the late 17th century. Modern artists, like 1960s painter Nano Reid (e.g. *Ros-na-Rí*, reproduced in Stout 2002), have been inspired by the geometric symbols decorating the stones at Newgrange and by the river itself.

### 13.3.1.4.3 Placenames

The Proposed Scheme runs through five townlands (listed in **Table 13-4**), land divisions that form a unique feature in the Irish landscape, the origins of which are undoubtedly of great antiquity, most certainly pre-Anglo-Norman. They existed well before the establishment of parishes or counties. Townland boundaries can take the form of natural boundaries or routeways, as well as artificially constructed earthen bank and ditch divisions. They are predominantly formed by well-built boundaries that demarcate the townland, that are usually distinguishable from standard field division boundaries. There are 62,000 townlands in Ireland, grouped into civil parishes, then counties and finally provinces.

The names of townlands and fields are an invaluable source of information not only on the topography, land ownership, and land use within the landscape, but also on its history, the archaeological monuments and the folklore. The Anglo-Norman influence in this area of North Meath is clear from the townland names in the surrounding area, which is not surprising given its position on the frontier of the Pale. Names appear in both Irish and English forms, with translation and Anglicisation suggesting the presence of both English and Irish speakers into the middle of the 19th century. Several names in the vicinity contain the English suffix '-town', rather than the Irish prefix '*baile*'. One such example within the Proposed Scheme is Johnstown, with neighbouring examples such as Mooretown to the north, Monknewtown to the east, and Thurstanstown to the south-west. There is also a strong survival of placenames with Irish origin, both within the Proposed Scheme (Cashel, Cullen, Fennor, Slane in **Table 13-4**) and immediately surrounding it (e.g. Knockmooney, meaning 'Mooney's Hill', and Rossnaree, meaning 'wood of the kings').

Field names are recorded in the Meath Field Names Project (MFNP) for the majority of the lands within the study area; the MFNP does not yet extend to the townlands of Cashel or Crewbane. Field names have a potential to indicate the presence of archaeological or cultural heritage features that might have long since disappeared. Most of the fields in the study area have no known name. The few that do are in English form and describe the field or features within it (agricultural, industrial and physical) or land ownership, e.g. Sand Hole Field and Road Field in Fennor and Harding's in Cullen. Only one field name is likely to have an Irish origin, 'Mollies' in Fennor. The name is associated with two fields along the south bank of the River Boyne in Fennor townland, one of which lies within the Proposed Scheme (CH8, **Appendix 13.5**). 'Mollies' may be a derivation of the Irish word *muileann*, meaning mill, suggesting an association perhaps with the mills located across the river or an older milling tradition in this area; there are two recorded mill sites further north-west and south-east along the riverbank: ME019-120 and ME019-084.

**Table 13-4: Townland Names within the Proposed Scheme**

Townland	Civil parish	Barony	Derivation (logainm.ie)
Cashel	Slane	Slane Upper	Referring to a stone fort ( <i>caiseal</i> ), there are two within the townland
Cullen	Knockcommon	Duleek Lower	From the Irish <i>Cuilionn</i> , meaning 'holly or land bearing holly'
Fennor	Fennor	Duleek Lower	Anglicised name that is derived from the Irish words ' <i>Fionn air</i> ', meaning 'white plain'
Johnstown	Fennor	Duleek Lower	English name
Slane	Slane	Slane Upper	The ancient name of Slane is <i>Ferta fer Feig</i>

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### 13.3.1.4.4 Folklore

Folklore entries in the National Folklore Collection's Schools' Collection were recorded by pupils from 5,000 primary schools in the Irish Free State between 1937 and 1939, as part of a scheme initiated by the Irish Folklore Commission (many of the entries have now been digitised and are available at [www.duchas.ie](http://www.duchas.ie)).

The entries relating to Slane and its environs include variations of the stories relating to St Patrick lighting the fire on the Hill of Slane, and to other monuments such as St Erc's Hermitage, the holy well (Lady Well) recorded in Slane Castle Demesne, and to the two souterrains recorded either side of the existing N2 road north of Slane (ME019-008 & -013) which are described as openings or mouths to a 'cave' (this term frequently occurs in folkloric descriptions of passages, either of souterrains or prehistoric tombs). An entry relating to Fennor expands on the origin for the placename, telling that it got its name from *Pairc an fionn fuar*, meaning the field of the fresh water, "as there is a well in the Churchyard which is noted for the cure of warts" (Vol. 0713, P.294).

There were also numerous references to saints' days in the area, in particular Lady Day, when 'thousands of people' would visit Lady Well, a renowned source for "miraculous cures in the case of certain diseases" (Vol. 0690, P.008). Given its prominence in the area, it is not surprising that there are also multiple entries relating to Slane Castle, the estate and its owners. One entry is titled 'The Landlord' and begins "I only know of one landlord around Slane and he owned most of the houses in the village. As well as a good many of the firms. His name is Lord Conyngham of Slane Castle Co Meath" (Vol. 0713, P.111).

Local roads are mentioned often, with descriptions of old roads around Slane. According to one entry, one such old road "is at Fennor Slane. Before the bridge was built there was a ford opposite to the Mill, connected with the mill farmyard" (Vol. 0713, P.031). It is interesting to note that local lore recalls a ford opposite Slane Mill, connected with the 'mill farmyard', before the bridge (an 18th century structure incorporating part of the earlier, medieval bridge), was built. No ford is depicted on the historic maps and the mill dates to the 18th century. Stories passed from generation to generation often change, adapting details to make a story 'fit' what is known at a given time. It is possible that this particular story preserves traces of a memory of milling in this area from a time before the bridge was built (there is a mill site, possibly associated with Fennor church or castle, on the south bank of the river, east of the medieval bridge). The establishment of the church and later castle at Fennor may have been associated with a fording point at the river, on or close to the existing bridge location.

The folklore entries also record a vibrant working village, with references to the mill and a variety of trades and industries that were once part of life in Slane, such as nail-making, rope-making, thatching, forges making ploughs, horseshoes and other machinery, and lime kilns where lime was burned ("the lime is used for whitewashing people's houses and the farmers use it for their land and fruit trees") (Vol. 0713, P.227-30). At least two separate entries referred to lime kilns still present in the landscape but no longer in use by that time (1930s). One entry refers to barrel and churn-making at Harlinstown, outside Slane, by Mr Feely and records that "he is dead now and no one carries on that trade now". This demonstrates the value of this collection in recording a way of life long since passed and the prevalent cultural beliefs and social attitudes. For example, in an entry relating to flax scutching and the cotton mills at Slane, it is noted that flax scutching was "a good craft for men only" (it is not clear why this was the case, but it obviously needed no further explanation at the time).

The prosperity of the village is also captured in some of the stories, albeit relative to the time. One entry notes that there is only one thatched house, while the others are all slated, while another records that "long ago children did not wear boots until they were five years of age. Now they wear them at two years of age" (Vol. 0713, P.294 & 453).

### 13.3.1.5 Historic Landscape Development

A historic landscape approach has been used to characterise the receiving cultural heritage environment, informed by the field walkover survey undertaken for the Proposed Scheme, historic map review, and the known archaeological record. To this end, the study area is described under the following headings: physical environment, cultural landscape and archaeological potential.

The first section looks at the cartographic sources, providing an overview of the lands through which the Proposed Scheme passes, as presented on the various historic maps that are available for this area. More specific cartographic analysis is included in the subsequent sections, which describe the study area on a townland basis, beginning at the southern end (where only a small portion of a neighbouring townland is included in the Proposed Scheme), townlands have been grouped together for ease of discussion.

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The River Boyne, which flows through the study area, is discussed in terms of its significance as a historic landscape feature and in terms of its archaeological context, using the same headings as the townland descriptions.

The final section summarises the character of the historic landscape, drawing on all of the data gathered.

This section should be read in conjunction with **Appendix 13.5, Figures 13.5(a)-13.5(e)**, which show the locations of archaeological and cultural heritage sites, field survey numbers, and townland boundaries crossed by the Proposed Scheme. Townland boundaries are described in the detailed field survey results in **Appendix 13.4**, which contains the field survey record sheets (see **Section 13.3.1.4.2** for further discussion on townland boundaries and names) and photographs taken during the surveys. Relevant extracts of the historic Ordnance Survey maps used to illustrate features of interest within the Proposed Scheme, where these may survive below ground, are also provided in the Archaeological and Cultural Heritage Inventory in **Appendix 13.5**.

### 13.3.1.5.1 Historic Development of the Landscape through Maps

#### 13.3.1.5.1.1 Down Survey Barony and Parish Maps, c. 1656

The Down Survey of 1656-58 was, at the time, the most detailed cartographic survey in the world, undertaken in order to measure the land forfeited from the Catholic population to be redistributed amongst merchant adventurers and loyal English soldiers. Not all of the maps have survived, including that of the parish of Slane. The Down Survey, under the direction of William Petty, used the Civil Survey as a guide; the latter had been undertaken from 1654-56 to value the lands. The primary purpose of these maps was to record the boundaries of each townland and to calculate their areas with great precision. The maps are also rich in other detail showing churches, roads, rivers, castles, houses and fortifications, with most towns (where included) represented pictorially. Quite often, only the most substantial houses are depicted, though sometimes 'Cabins' are shown, indicating the cottages and other less substantial dwellings common at the time (the most humble abodes were one room cabins with no windows, usually clay-built structures with thatched roofs and no chimneys). Where land was unforfeited, generally little or no detail is given on the maps. Although the scale of the maps is small and the detail can be sparse, some key elements are shown within the study area.

The area to the north of the Boyne at Slane is in the barony of Slane (**Figure 13.10**) and to the south in the barony of Duleek (**Figure 13.11**). On the map for Slane barony, Slane Bridge is shown clearly, with a building nearby, while above it, towards the right, the old village of Slane and beyond this Slane Castle can be seen near a bend in the river. Carrickdexter Castle (ME019-033) is also depicted further west, close to the river. The map does not depict roads and only the most substantial of houses would have been shown. The bridge is also depicted on the Duleek barony map, as is Slane Castle north of the river, an indication of its importance in the area. The coming of the Normans had brought about little change in the landholding patterns on the north side of the River Boyne in the medieval period, where they respected and maintained the lands forming part of the Cistercian Order's Mellifont estate (Bradley 1997), and the enduring distinction between the lands of Slane parish and those to the east is readily apparent on the Down Survey map.

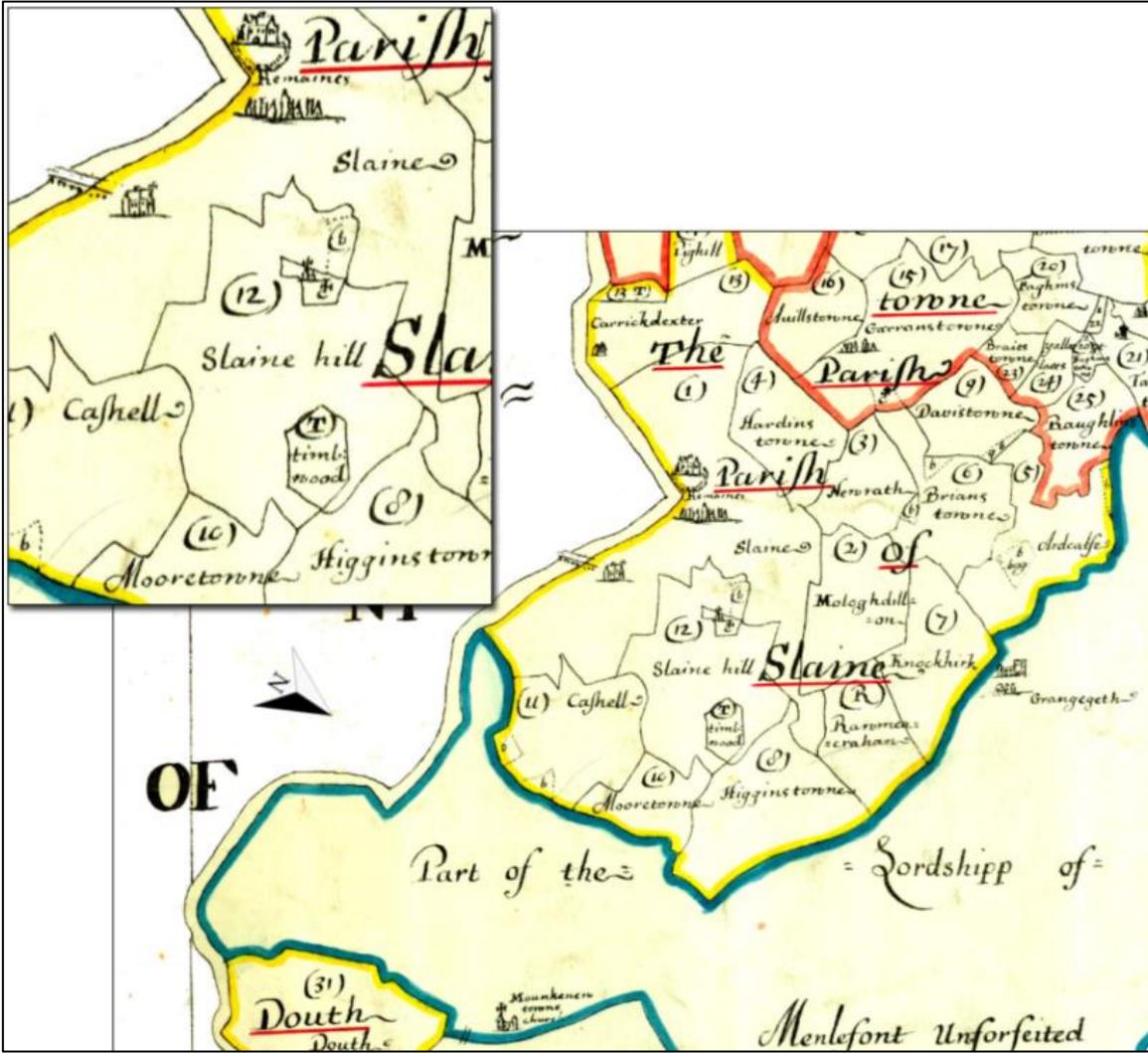


Figure 13.10: Down Survey Map of the Barony of Slane, c. 1656, Showing Large Landholding to South Forming Part of the Lordship of Mellifont, with Detail of Slane (inset)



Figure 13.11: Down Survey Map of the Barony of Duleek, c. 1656

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South of the bridge, the church and tower house / fortified house (ME019-035 & -036) at Fennor are depicted and a mill (ME019-084) is indicated further east along the river. More detail is provided on the Down Survey map of Fennor Parish (no parish map survives for Slane), which can be seen in **Figure 13.12**. Slane Bridge is named and upstream of it a weir is depicted and annotated. The buildings at Fennor are described as “an Old Stone House”, “Brick House in repair”, and the church as being “out of repayre”. The mill downstream of the bridge is also noted as being out of repair. The landholding belonged to Sir Richard Barnewell (Irish Papist), who also owned the neighbouring townland of Johnstown. The majority of the land within both Fennor and Johnstown was arable and the rising ground south of the river is indicated by the low hills shown on the map. The land is described in the accompanying parish terrier as “somewhat mountainous towards the river Boyne”. No detail is provided for Knockcommon parish, which appears to have remained unforfeited.



**Figure 13.12: Down Survey Map of the Parish of Fennor, c. 1656**

A rough overlay of the Down Survey barony maps for Slane and Duleek onto the first edition Ordnance Survey six-inch map (1836) demonstrates a surprising level of accuracy was captured by the earlier maps with regard to the townland boundaries. It also illustrates the changes that took place between the time of the first survey in the mid-17th century and the 19th century Ordnance Survey. Although the Down Survey map cannot be precisely overlaid, the approximate overlay seen in **Figure 13.13** shows the changes wrought in the post-medieval period on both sides of the river.

To the north of the Boyne, the most significant difference between the two maps is within Slane townland. By 1836, the townland had expanded eastwards encompassing the former large townland of ‘Slane Hill’ and taking the western edge of Cashel townland. The latter change created the straight boundary that now runs between Slane and Cashel townlands (east of the Proposed Scheme) north of the N51 road. Notably the earlier townland boundary would have incorporated into Cashel townland the early medieval complex that now survives only below ground (SMR ME019-088), which may have given the townland its name – the Irish *caiseal* being a reference to ringfort.

South of the N51 the Cashel townland boundary remains unchanged, as does the Slane / Crewbane boundary. Another change within Slane involved the carving out of a new townland, Slane Castle Demesne, which extended north-eastwards to include an area of woodland that is also depicted on the Down Survey map, on which it is so annotated ‘(T) timb. wood’.

To the south of the river, Johnstown is clearly labelled and is of a size and shape largely the same as that on the later map. The parish terrier mentions that Fennor parish contains only two townlands, Fennor and Johnstown, and the remainder of the parish as shown on the Down Survey map echoes the boundaries of Fennor townland as they still exist. The land within Fennor townland is further subdivided on the earlier map, with small parcels indicated as church lands (Fennor became a grange of Mellifont after 1142).



**Figure 13.13: Overlay of Down Survey Baronial Maps (c. 1656) onto OS First Edition Six-inch Map (1836), Showing Comparative Townland Boundaries**

#### 13.3.1.5.1.2 Pre-Ordnance Survey 18th and 19th Century Maps

There are several cartographic sources for the period between the Down Survey and Ordnance Survey, none of which provide much in the way of detail for the study area. Taylor and Skinner's *Maps of the Roads of Ireland* (1777) includes two map sheets that show Slane village and parts of the road network extending from it (**Figure 13.14**). The quality of the maps is excellent in terms of distance being correctly represented and much of the physical landscape well rendered. The maps are less accurate in detailing areas which do not contain a gentleman's seat and native Irish settlements are sometimes overlooked. The schematic nature of the maps can also be misleading, with regard to the location of features and their scale.

Not surprisingly, both Slane Castle and Beauparc are named and shown, the seats of Viscount Conyngham and Mr Lambert Esquire north and south of the river respectively. The castle ruins at Carrickdexter are also depicted. The formal arrangement of Slane village at the crossroads can be clearly seen on the Navan Road map, with the ruins on what is probably Slane Hill shown to the north. On the Duleek Road map, the area south and east of Slane are visible, extending eastwards to the Dowth estate of Viscount Netterville. The mill on the east side of Slane Bridge is depicted ("*Flower Mill*"), as is part of the canal, with the ruins of Fennor Church ("*Finnar Ch. Rus*") shown to the south of this. The now defunct section of the Dublin Road that leads south-eastwards to Cullen House is still the principal routeway at the time of this map.

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**Figure 13.14: Extracts from Map 41 Duleek Road (left) and Map 263 Navan Road (right) (after Taylor and Skinner 1777), Showing Slane**

Daniel Augustus Beaufort's map of Meath from 1797 (**Figure 13.15**) is at a small scale and as such shows little detail of the study area. Of note is the way in which it depicts Slane Castle demesne, the lands of which are less extensive than those shown on the Ordnance Survey map of 1836, with no demesne lands to the south of the Boyne, while the demesne to the north-east of the village is not marked as demesne lands. The ruins on the Hill of Slane are again noted, while Slane, Fennor and Cullen are the only placenames marked in the study area.



**Figure 13.15: Beaufort's Map of Meath, 1797**

William Larkin's Map of County Meath (1812) is slightly better in scale and shows a greater level of detail (**Figure 13.16**). The roads are clearly marked, as are the canal and the wooded areas. The southern side of the Boyne opposite Slane Castle is shown as heavily wooded, while woodland also extends to the north-east of Slane, probably indicating the extent of the demesne of Slane Castle at that time (much as it appears on the Ordnance Survey map two decades later).

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**Figure 13.16: Extract of Larkin's Map of Meath, 1812**

Most of the townlands are named, with Fennor, Johnstown and Cullen to the south, and Cashel to the north. Slane appears as the name of the village, which is depicted with its distinctive plan focused on the crossroads. Slane Mill is named, as are the church ruins at Fennor, Fennor House (c. 280m east of the Proposed Scheme) is depicted but not named (it remains unnamed on mapping until the early 20th century). The hills to the east of Slane village are shown, though only one (Stanley Hill) is identified. Janeville house is also named ('*Janewell*' on the map). North along the road from Slane (present N2 road), a small cluster of buildings is just about visible at the stream flowing east-west – one of these buildings is annotated '*The Pound*' (this historically refers to a lock-up for the confinement of prisoners or for confiscated goods and is also marked on the first edition Ordnance Survey map).

### 13.3.1.5.1.3 Ordnance Survey Maps, Sheet 19 (1836 to 1958)

#### ***First edition Ordnance Survey six-inch map, 1836***

The first edition Ordnance Survey (OS) six-inch map (**Figure 13.17**) depicts a largely agricultural landscape in the area surrounding Slane village. The notable exception on the map is the expansive Slane Castle demesne, with its areas of woodland, parkland and gardens, which hugged the banks of the River Boyne to the south and west of the village, and continued north of the Navan road (present N51), encompassing the Hill of Slane and the distinctive square of woodland beyond that. In contrast, the land through which the Proposed Scheme passes was one of mostly large fields and – given the absence of small farmsteads or houses away from the roadsides – one of predominantly large landholdings. This was a consequence of the 18th century agricultural improvements and was commented on by Arthur Young when he visited the Slane area in 1776; he noted that the farms were relatively large by the standards of the time (Young 1780, cited in Stout 2002). One prosperous farm-holding is south of the Navan/ Drogheda Road (present N2), off which is depicted a neat tree-lined avenue with entrance lodge, leading to Janeville Cottage, with its courtyard of outbuildings, small orchard and walled kitchen garden.



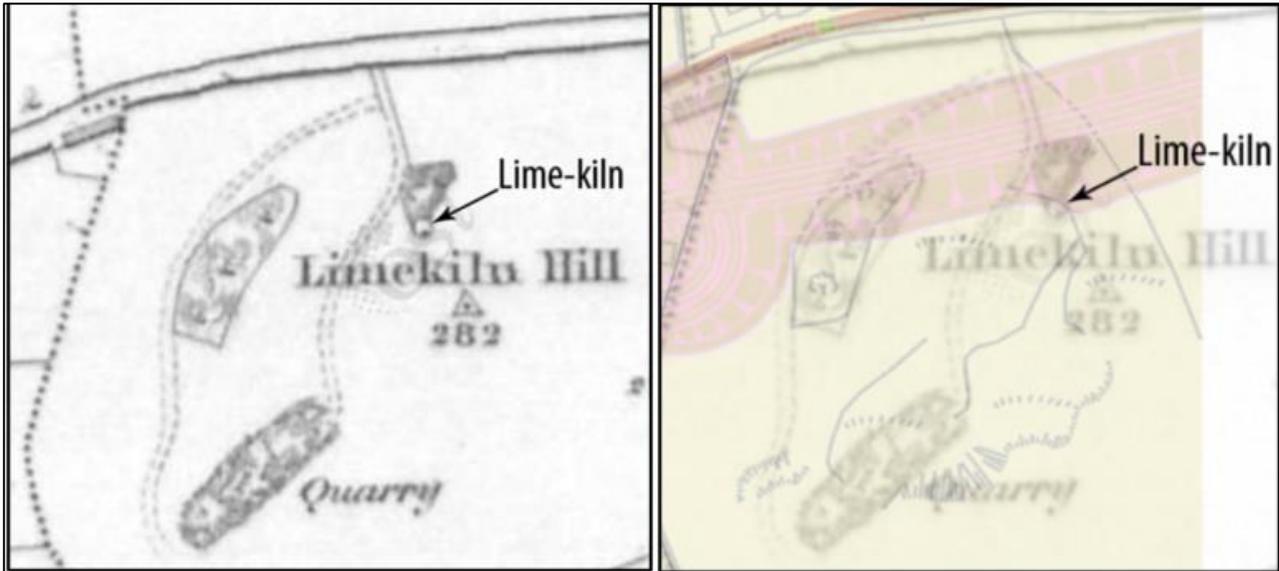
**Figure 13.17: First Edition Ordnance Survey Six-inch Map (1836), Showing Approximate Location of Proposed Scheme**

Outside the village centre, settlement is dispersed and for the most part linear, with small cottages and cabins dotted along the north / south and east / west roads. Two distinct clusters of houses are depicted to the north of Slane, on the north side of the stream that separates the townlands of Mooretown and Slane (**Figure 13.18**). One is located where the stream meets the road (it includes the Pound also seen on Larkin's map) and the other (named Mooretown on the map) lies to the east; the relict remains of a road network evident on the map suggests that the two were once connected (see also ACH21 in **Appendix 13.5**).



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The prevalence of rock outcrops is evident both in the number of quarries, gravel pits and lime-kilns marked on the maps (e.g. at Limekiln Hill on **Figure 13.20**; see also ACH21 in **Appendix 13.5**), and in the numerous copses of trees that are depicted. Evidence for quarrying and some surviving tree stands were observed during the field survey, for example at Limekiln Hill. The trees are of interest as, according to local folklore, during construction of the ‘old Dublin road’ (presumably the late 18th century turnpike road, the present N2), local landowners with quarryable stone on their land were obliged to contribute stone for the construction of the road, unless it meant disturbing a stand of trees, and for that reason, to protect their resources many stone outcrops / areas of quarry were planted (CRDS 2009, p.10-94). Another factor was undoubtedly the impetus in the 18th century to improve the landscape, following the loss of much woodland during the turbulent 17th century (Stout 2002). Such undertakings were driven by the Acts passed to promote tree-planting by landlords and to enforce such planting by their tenants (McCracken 1987-93, cited in Stout 2002).



**Figure 13.20: Detail of First Edition Ordnance Survey Six-inch map (1836), Showing Lime-kiln and Quarry at Limekiln Hill (left) and with Proposed Scheme Overlaid (right)**

Elements of Slane’s early and later medieval past are also depicted on the map. The cluster of monuments on the Hill of Slane (c. 1km west of the Proposed Scheme) are shown within Slane Castle Demesne, with woodland to the north and west. The labels ‘Monastery’, ‘Monastic ruins’ and ‘Graveyard’, ‘Tober Patrick’, and ‘Moat’ were given to the monuments on the hill, representing the way they were understood at the time (**Figure 13.21**).

On the south-west side of Slane village in the woodland on the north bank of the Boyne, the ‘Hermitage of St Erc’ was the label given to the remains of the medieval Franciscan church, while a short distance to the west is an ‘Ancient Stone’. The latter is a late 14th/ early 15th century stone sculpture (known as the Apostle Stone) that once formed part of a composite tomb removed from St Mary’s Abbey in Navan. To the south-east of Slane, the map shows the medieval Slane Bridge and to the south of the river, the remains at Fennor, with the latter comprising Fennor Castle and Church (**Figure 13.22**).

Only one archaeological site is depicted in the area between the existing N2 and the townlands containing the monuments of the World Heritage Property to the east, a circular enclosure in Rosnaree townland described as a ‘fort’ on the map (this is now recorded as an embanked barrow, ME026-004, c. 1.5km east of the Proposed Scheme).

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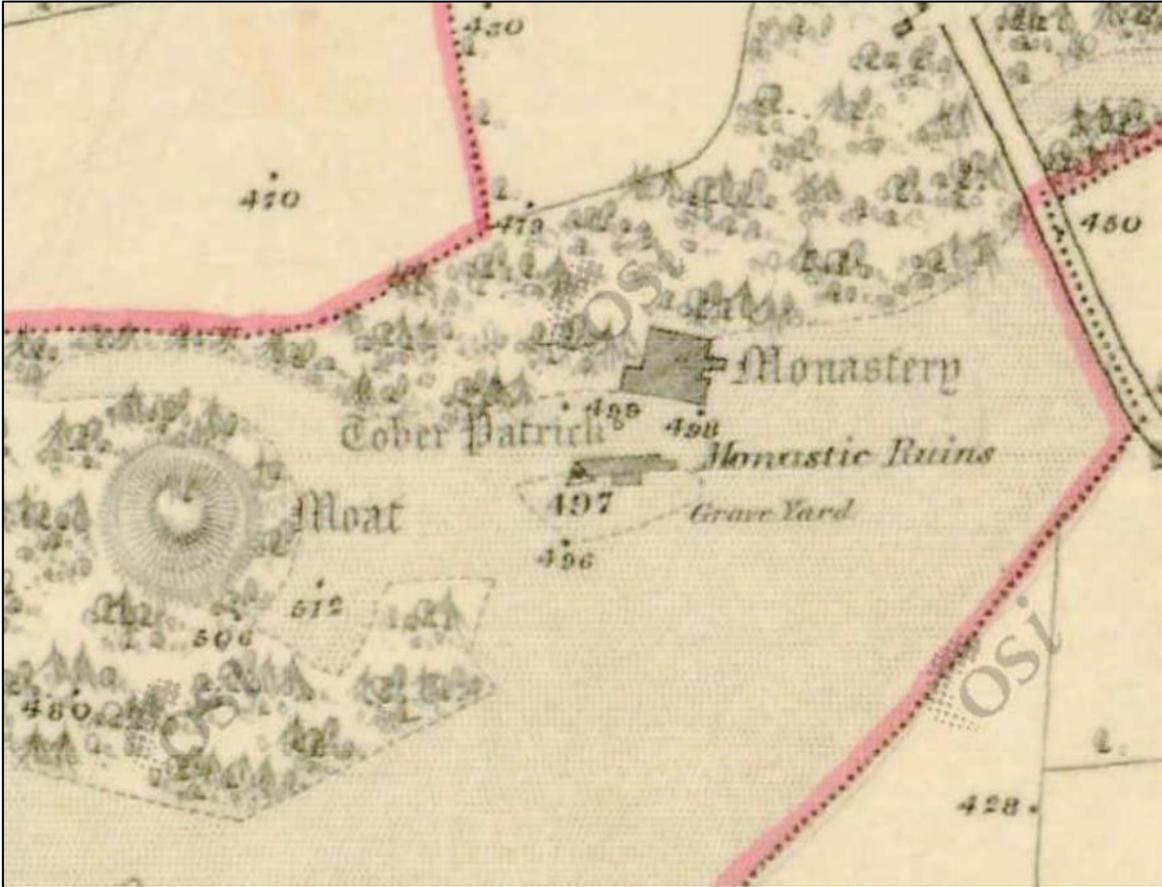


Figure 13.21: Detail of First Edition Ordnance Survey Six-inch Map (1836), Showing Monuments on Hill of Slane

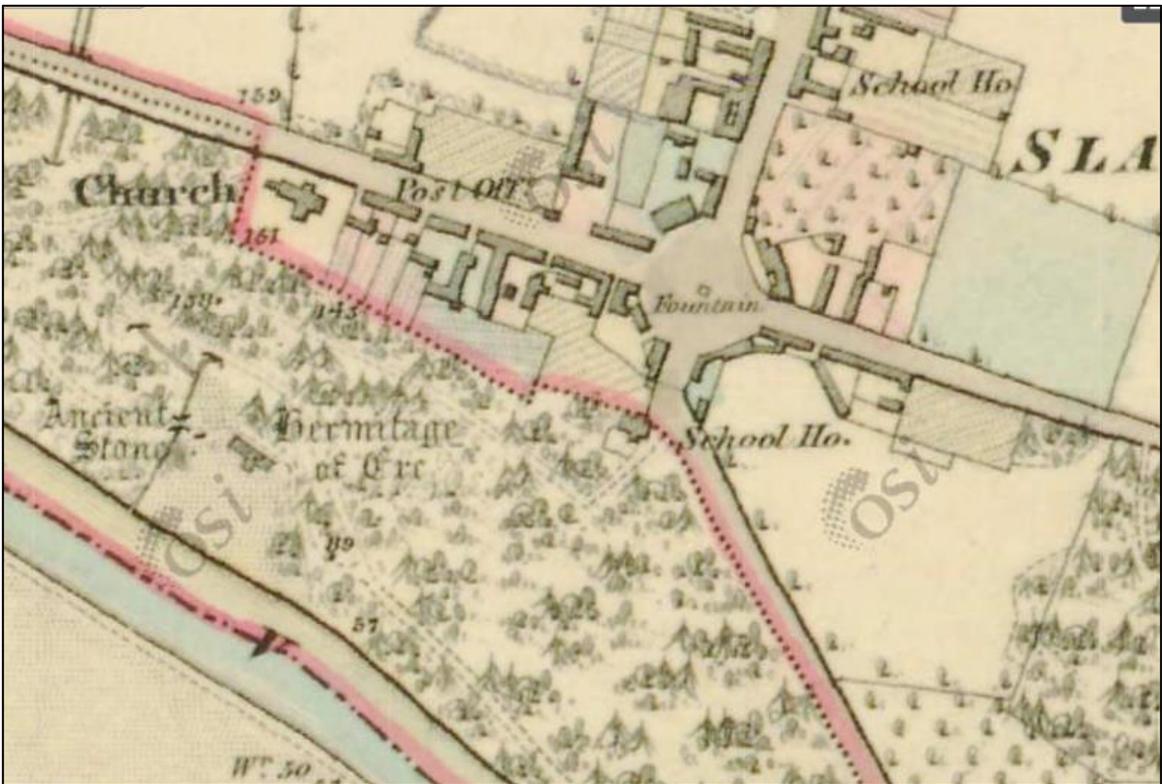


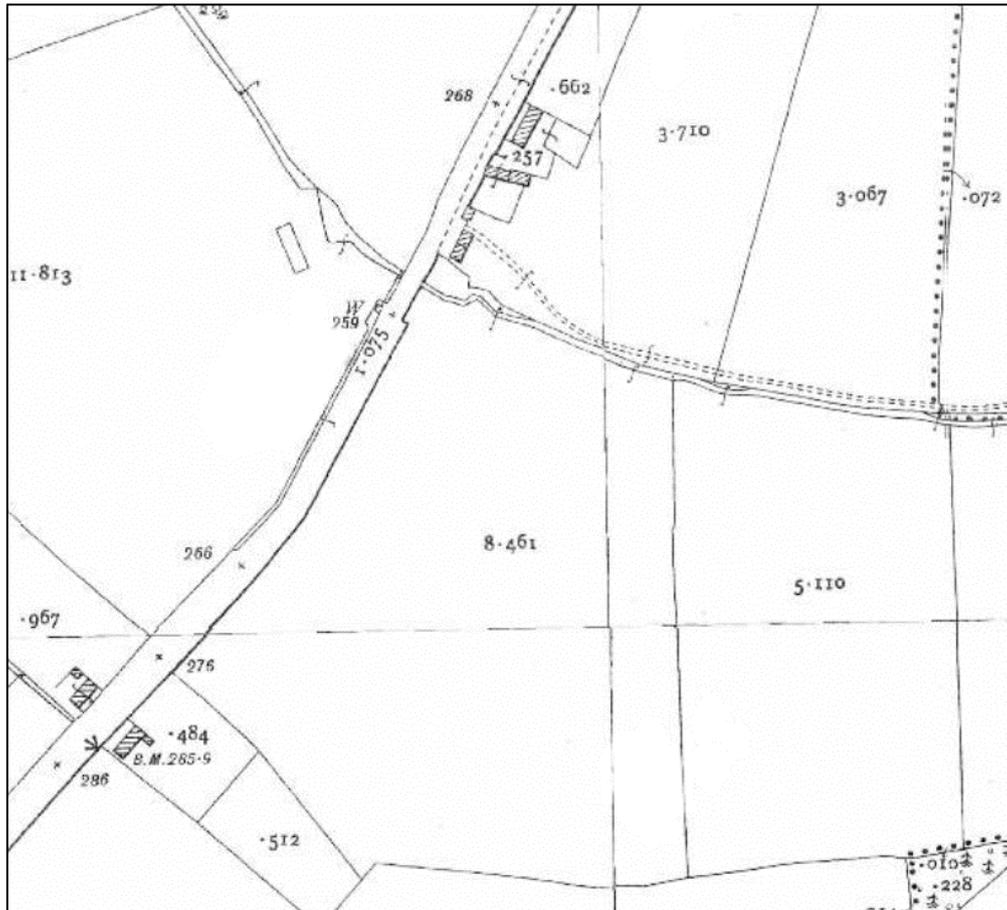
Figure 13.22: Detail of First Edition Ordnance Survey Six-inch Map (1836), Showing the Archaeological Remains of 'St Erc's Hermitage'

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### Ordnance Survey 25-inch map, 1911

The picture of the landscape through which the Proposed Scheme travels as shown on the 25-inch OS map of 1911 is little changed from the previous century, with many of the fields remaining unaltered in size or shape. On the north side of the river, the removal of field boundaries to create larger fields was concentrated in two areas. The first is at the northern end of the Proposed Scheme in Slane townland, where a network of smaller fields had survived alongside the settlement cluster at the stream (ACH21 in **Appendix 13.5**).

The former plots and buildings on both sides of the (N2) road, south of the stream, had also been removed by 1911, leaving only one building outline to the west of the road (indicating building remains) (**Figure 13.23**). Some of the fields on the south side of the Slane to Drogheda Road (N51) had also been enlarged by this time, perhaps reflecting land management associated with Janeville Cottage farm. South of the river in Fennor townland, boundaries had been added, subdividing two of the large fields depicted on the first edition map, on the south side of the Rosnaree Road.

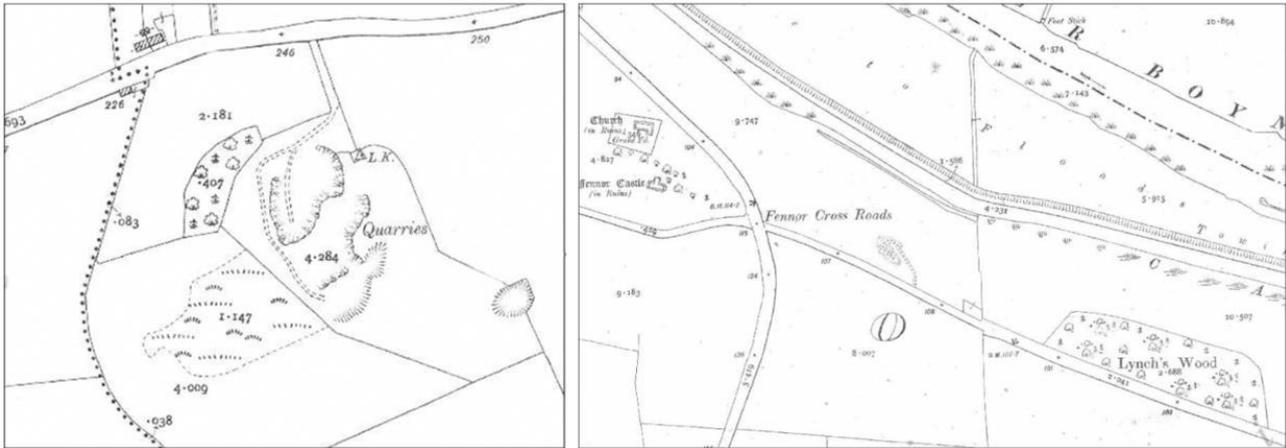


**Figure 13.23: Detail of Ordnance Survey 25-inch Map (1911), Showing Example of Settlement and Field Pattern Changes at North End of Proposed Scheme**

There is evidence that the extraction of materials in the lands surrounding Slane village had continued into the 20th century, with some of the earlier quarries having increased in size since 1836 (as at Limekiln Hill, **Figure 13.24**, left-hand image) and others marked as disused or simply no longer depicted, having been exhausted.

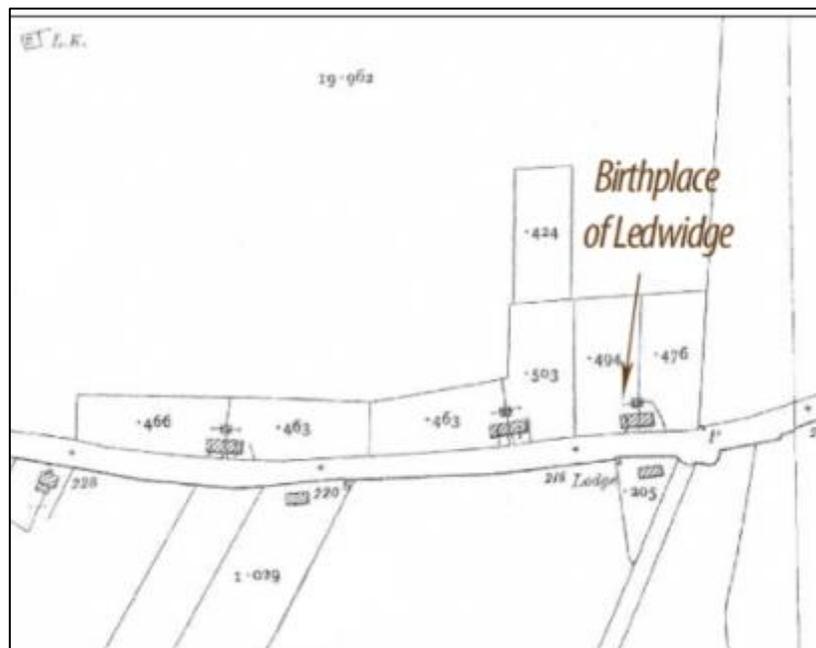
A new limekiln is shown on this map, located north of the Slane to Drogheda (N51 Road), on the slopes between Gallows Hill Wood and Norris Hill Wood. On the north side of Rosnaree Road, a small area of woodland had been planted (Lynch's Wood) and a new quarry pit is shown in the field to the west (**Figure 13.24**, right-hand image).

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**Figure 13.24: Detail of Ordnance Survey 25-inch Map (1911), Showing Expansion of Quarry at Limekiln Hill (left) and Lynch's Wood (right)**

The most notable of the changes is the increase in the number of properties lining the roads leading out of Slane, which though not a large number, signified an improvement in the living standard of the labouring classes. One example is the row of six properties on the north side of the Slane to Drogheda (N51) Road opposite the lodge for Janeville Cottage, representing three pairs of workers' cottages that had been built in the later 19th century, one of which was the birthplace of the poet Francis Ledwidge (**Figure 13.25**; see also **Chapter 14**).



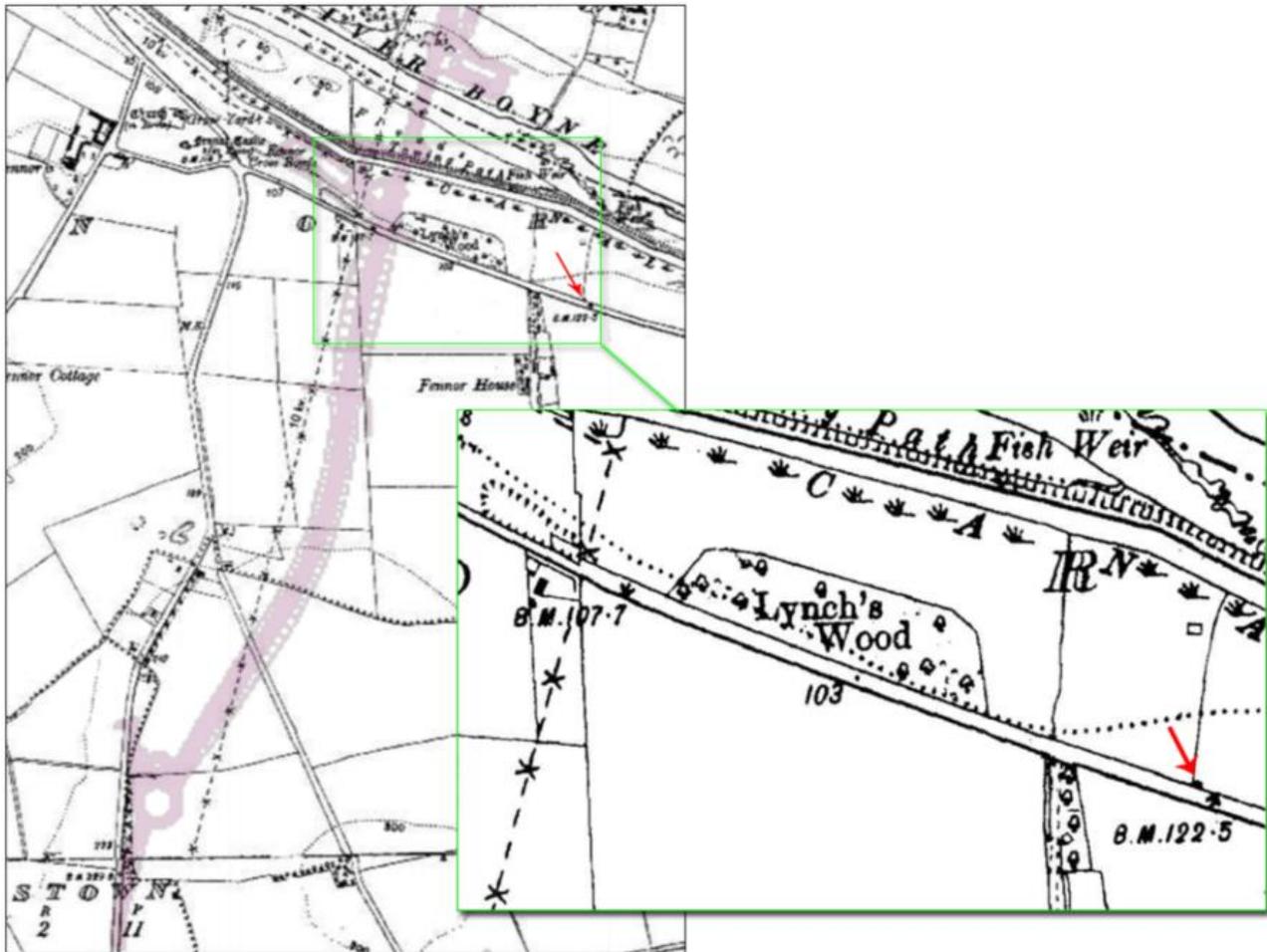
**Figure 13.25: Detail of Ordnance Survey 25-inch Map (1911), Showing Labourer's Cottages East of Slane**

#### **Revised edition OS six-inch map, 1958**

Industrial activity, settlement and modernisation are the most obvious changes to the landscape around Slane village by the mid-20th century. Electricity lines (a modest 10 kV) are shown running roughly north/south on the east side of the village (between Stanley Hill and 'Norris' Hill (now Norris Hill), and c. 500 m west of the Proposed Scheme), with a line connecting westwards into Slane (**Figure 13.26**). The map captures the addition in 1950 of nine homes in Slane to the ESB national grid as part of the Rural Electrification Scheme, when 81 km of cable and 830 poles were installed<sup>9</sup>. No lines are depicted in the area east of Slane townland.

<sup>9</sup> <https://esbarchives.ie/2020/06/09/electrifying-ireland-how-esb-connected-one-million-irish-homes-to-the-national-grid-1929-1978>





**Figure 13.27: Revised edition Ordnance Survey Six-inch Map (1958), Showing Approximate Location of Proposed Scheme South of the River Boyne, with Inset Detail Showing Location of Pill Box East of Lynch's Wood**

### 13.3.1.5.2 River Boyne

The River Boyne is a key defining feature of the ritual landscape of Brú na Bóinne WHP, but beyond this ritual core it is also an important historic landscape feature in a more general sense. Like all of Ireland's major rivers, it functioned as a means of transport, providing an artery for communication and trade, whilst also being utilised for its natural resources, supporting fishing and providing water to power mills. For millennia, rivers have often been the easiest way to travel inland from the coast, with much of the country heavily forested and road travel sometimes dangerous and frequently slow, particularly when it came to transporting heavy goods. This may be of particular note in relation to the movement of construction materials for the passage tombs and other monuments within Brú na Bóinne. Rivers are also significant as boundaries, with natural fording points and bridged crossings offering strategic advantage to those who controlled them (as for example at Oldbridge during the Battle of the Boyne) and settlements developing at these locations (as at Slane Bridge). The use of the river for communications is well documented historically, the river being traditionally navigable as far west as Rossnaree, and this navigability was radically improved in the 18th century with the development of the Boyne Navigation system.

#### 13.3.1.5.2.1 Academic Research

It has been acknowledged that more work is required to obtain a better appreciation and understanding of the role and relevance of the river throughout prehistory and into the early medieval period (Smyth 2009). Two research projects undertaken since 2009 have sought to address existing gaps in the knowledge base regarding the River Boyne and its landscape.

The first was the INSTAR Boyne Valley Landscapes Project undertaken by the Schools of Archaeology and Geography in UCD, in association with Meath County Council, Talamh Ireland, Dundalk Institute of

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Technology and the University of Southampton. The project aimed to produce an integrated, comprehensive landscape archaeological model of the evolution of the Boyne catchment area. Early project phases were primarily concerned with building the GIS database required for project research (Lewis et al. 2008), and understanding the geomorphological development of the Boyne, providing new understanding of the wider geographic context of Brú-na-Bóinne (Lewis et al. 2009). Phase 3 built on this geomorphic and palaeo-environmental framework, linking the physical background with the archaeological domain, using LiDAR and geophysical survey to throw light on known monuments and of potential new sites within Brú na Bóinne (Davis et al. 2010).

Specific areas of research in the earlier phases included a study of sections of the Boyne floodplain outside Brú na Bóinne, in the townland of Dunmoe (west of Slane Castle Demesne, Dunmoe castle to the north) (Lewis et al. 2009); Dunmoe floodplain had no recorded archaeological sites. The study carried out shed light on the historical and proto-historical landscape, identifying a previously unknown possible medieval complex. Investigations undertaken included LIDAR, Digital Elevation Modelling (DEM) and palaeo-environmental sampling. The results of this preliminary study indicated that probable archaeological structures survive sub-surface, possibly related to a mill and or jetty or dock. It is possible that these structures are related to the castle. Dates obtained from palaeo-environmental studies indicate that the site was in use in the 15th century or possibly earlier. Palaeo-environmental data also indicates periods of stabilisation or dry periods; molluscan data obtained can give information on the history of land use on the floodplain and the preliminary analysis of small sediment samples demonstrated exceptional preservation of molluscan remains throughout the Boyne floodplain (Lewis et al. 2009). These results indicate the potential of the Boyne River floodplain at Slane.

An ongoing research project led by Dr Stephen Davis of UCD School of Archaeology is now seeking to expand our understanding of the relationship between the river and Brú na Bóinne WHP. The Pleasant Boyne Project took a three-pronged approach in its initial phase, focusing on underwater archaeological potential through bathymetric and sonar survey, using the existing Boyne GIS (developed for the INSTAR project) to attempt to understand the role of the river in site selection for the prehistoric monuments, i.e. was it central to the positioning of monuments in this landscape, and reviewing the folklore associated with the river.

There are currently only two logboats recorded in the River Boyne along the stretch of river from Oldbridge in the east and Dunmoe to the west of Slane village (Karl Brady, NMS Underwater Archaeological Unit, Pers. Comm. 27/04/22). Both of these were found at Oldbridge, one as recently as 2016 which has been dated to the Neolithic period (radiocarbon date c. 3300-2900 BC, NMS Wreck No. W18584) and the other around 1844 for which the date is unknown (Wakefield 1894, No. 729). The river survey in 2019 (Westley 2019) covered an area beginning upstream of Oldbridge, stretching from Dowth to Rosnaree (ending approximately 1.1 km east of the Proposed Scheme). It identified 100 anomalies, though just over half of these were identifiable as tyres and other objects of limited archaeological interest. Of those worthy of further investigation, ten may represent log boats, 16 were boulders or rocks, potentially of interest as regards movement of orthostatic blocks up the Boyne for megalith construction, and a further eighteen were interpreted as debris accumulations, possibly archaeological in nature (Westley 2019).

The work undertaken by Davis (2019a) demonstrated that there is a degree of spatial patterning at Brú na Bóinne, with sites from different time periods largely occupying different spaces within the landscape. The current location of the Boyne within a rock-cut channel, as well as radiocarbon dates from the Dowth floodplain, suggest that the river has moved little since the early Neolithic. It is therefore possible to consider whether the river influenced the location of the monuments more accurately than if the river had been more mobile over this time period. The investigation focused on visual aspects of the landscape, using cumulative viewshed analyses to explore the core area of the WHP – effectively the ritual core of the Neolithic landscape and monuments – and the River Boyne itself. The results indicate that the megalithic monuments tend to occupy more visible locations than most later Neolithic monuments, especially the earthen ‘embanked enclosures’ that are located on the lowest terraces, and that areas with low visibility are, thus far, archaeologically ‘empty’ (Davis 2019b & Davis et al. 2019c).

There is, unsurprisingly, much folklore associated with the River Boyne with hundreds of entries in the National Folklore Collection’s Schools’ Collection ([www.duchas.ie](http://www.duchas.ie)). The review undertaken for the Pleasant Boyne Project (Galbari 2019) found that in addition to well-known stories that refer to the river (such as the Salmon of Knowledge, the Black Pig, and the burial of Cormac Mac Airt), the Boyne is often associated with descriptions of the supernatural, treasure and ‘caves and tunnels’. While the latter are likely to relate to known or as yet undiscovered monuments in the landscape around the Boyne, it is interesting how little the principal monuments of Newgrange, Knowth and Dowth featured in the stories assessed. This may be the result of the types of questions asked at the time the folklore was collected or perhaps it was felt that the

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stories would be of little interest because they were so well known in local lore (Ibid.). There were also multiple entries recounting the story of how the Boyne got its name. Although the details of the story varied, all agreed that the river was created by the actions of a woman named Boua (also named Boan in other versions) and was named after her (Ibid.).

Many entries in the collection that include reference to the Boyne were not directly related to the river, but instead referred to trades or crafts carried out in its environs, such as brick-making, basket-making, boat-making (e.g. at Donore in the 19th century, milling and brewing (Ibid.)). These results are not dissimilar to the types of folklore recorded for many places around the country, including Slane, where tales of supernatural occurrences / religious miracles occur alongside more prosaic descriptions of local crafts and industries (see **Section 13.3.1.4.4**).

### 13.3.1.5.2.2 Physical Environment

The Proposed Scheme crosses approximately 600m upstream of the bend in the river where the valley broadens, with no views further down the valley than the bend but a restricted view of Knowth from the higher ground upslope of the river. The valley is formed by a series of post-glacial terraces descending from Cullen Hill in the south, to the general terrace of Fennor south of the Rossnaree Road, then down to the River Floodplain and channel. The land then rises up from the floodplain to a terrace below Janeville house, to another terrace at the N51 road (where there is also a fairly prominent knoll, Limekiln Hill), and then to the top of the ridge at Norris Hill.

Land slopes more steeply down towards the river on the south side, with what little level ground there is along the banks being utilised by the canal and towpath. This side of the river floodplain has been quite disturbed in the past, through quarrying and canal works. Views to Slane Mill are best from the south side, it being largely screened by the trees of Mill Wood in field F15 to the north; the mills are visible from the level ground along the north bank. The south bank also provides a view of the Hill of Slane, though modern residential development obscures all but the church tower on the hill. Much of the level ground on both sides of the river was under water at the time of the initial inspection in December 2018, demonstrating that the floodplain of the river remains much as marked on the historic OS mapping. The land is better on the north side of the river, with good pasture and a broad floodplain undisturbed by canal infrastructure, rising more gently from the riverbank.

The Boyne Drainage Scheme, which began in 1967 and continued into the 1980s, involved dredging of the river channel. The extent of the dredging along the stretch of river where the Proposed Scheme is located is uncertain. At the very least, parts of it appear to have been subjected to more limited dredging, since some of the in-Channel Islands and islets that are depicted on the historic OS mapping to the north-west and south-east of the Proposed Scheme are still in situ. This includes an island oriented north-west / south-east that is indicated as a fish weir on the first edition OS six-inch map (1836), which may be the location of an earlier medieval weir (ME019-083, AH31 in **Appendix 13.5**, c. 140 m south-east of the Proposed Scheme).

### 13.3.1.5.2.3 Cultural Landscape

This part of the river, within the study area, appears to have had a predominantly early and later medieval focus, with activity continuing into the early modern period when Slane village and Slane Mill were developed (**Plate 4**). The historic maps record the medieval Slane Bridge as an important feature, one of the few marked on the 17th century Down Survey maps. Notably, Fennor church and castle were also depicted on these maps, and it is likely that there was a settlement associated with these two monuments (see **Section 13.3.1.5.4.2** for further discussion on the monuments at Fennor). There was also a large, possibly fortified house, depicted on the Down Survey maps north of the river at Slane, perhaps on the high ground overlooking the crossing (roughly where the present village sits) and controlling the northern approaches.

The recorded mill site (ME019-120, AH38 in **Appendix 13.5**) on the riverbank to the east / north-east of the church and castle, may have been associated with medieval Fennor. Field name evidence points to milling activity possibly extending eastwards along the riverbank (as discussed below in terms of archaeological potential). While the origins of the church at Fennor may precede the 9th century, there were abbots at Fennor documented from as early as 804 AD and a church at 'Fynowre' is listed in the ecclesiastical taxation (1302-06) of Pope Nicholas IV (RMP file ME019-035, AH20). The placename Fennor is also interesting as it may have had close associations with the river, possibly deriving from Neachtan, a pagan deity and guardian of the River Boyne (Ibid.).

With the exception of the possible ring-ditch with a preliminary Iron Age date identified in Fennor (ACH26; on the higher ground above the river where the topography levels out), and the scatters of flint identified by

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Brady (ACH 18; also in Fennor, above the river and beyond the valley slopes), there are no known prehistoric sites located along the river between Slane and Brú na Bóinne WHP buffer zone (see **Section 13.3.1**). No possible prehistoric sites were identified on the 2018 aerial imagery taken during the drought period that Summer. This is in direct contrast to the numerous and significant sites identified by aerial survey within the WHP at that time, notably the cluster of sites within the floodplain on the north side of the river to the south of Newgrange (Condit and Keegan 2018). Similarly, the LiDAR survey undertaken for the Route Options Selection study (Davis 2018; see **Section 13.3.1.2.1**) identified no possible prehistoric sites in the vicinity of the river or its floodplain.



**Plate 4: Slane Bridge, Facing North-west**

An example of intangible cultural heritage that is very much connected with the river is the Boyne Currach Making (ACH40 in **Appendix 13.5**), which is listed in the NIAH Inventory of Intangible Cultural Heritage as an item of traditional craftsmanship. It was revived as a craft in 1997 when the Boyne Currach Heritage Group was established, with a dedicated centre (the Boyne Currach Centre) set up on the riverbank opposite Newgrange (c. 4.7 km south-east of the Proposed Scheme). The Boyne currach or coracle is a small skin- or hide-covered vessel with a shallow draft. The tradition of this type of boat-making has a long history and it is thought that the Boyne Currach is the closest relation to the original sea currach (the Currach Dhá Éadan), which was used out at sea and from which the Bunbeg, and perhaps Boyne Currach evolved (<https://nationalinventoryich.chg.gov.ie/boyne-currach-making>). The Boyne Currach Heritage Group have actively promoted this ancient tradition of weaving boats, fostering and safeguarding the knowledge and traditions associated with it.

### 13.3.1.5.2.4 Archaeological Potential

Rivers and rivers banks have an inherently high level of archaeological potential; water-side sites have been favoured since prehistoric times for their proximity to food sources (often represented by habitation sites, *fulachtaí fia* and middens), while waterways also serve as routeways, boundaries, defences and ritual sites. Riverbeds and riverbanks may also contain archaeological features associated with fording sites, early bridge crossings and milling activities or may contain votive offerings.

Riverside greenfield areas, which are generally prone to fewer disturbances than arable areas or areas that experienced development in the past, have an even greater potential that subsurface prehistoric or later settlement activity may come to light. Such areas can contain waterlogged soils, which provides an anaerobic environment, thus preserving organic materials that would not otherwise survive, such as wood,

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leather, and plant remains. River channels often change over time and it is possible that the Boyne may have flowed along a slightly different course at this point, through the present greenfield area along the southern floodplain between the tow path and the current river channel, as indicated by the deeper rock and possible alluvial deposits identified by geophysical survey carried out for ground investigations of the proposed river crossing (Minerex Geophysics Ltd 2020).

A non-disturbance assessment of the river around Slane Bridge was undertaken in 2010, in order to identify and record the location, nature and dimensions of any archaeological features, fabric or artefacts in the area. The survey extended 200m upstream and 150m downstream of the bridge. No archaeologically significant materials were found, but the industrial and historical features such as sluice structure, weir, river walling etc. were noted (Licence No. 10D040 and 10R134; Excavations Bulletin Ref. 2010:518).

The amount of disturbances at the proposed river crossing caused by the later 20th century dredging for the Boyne Drainage Scheme is uncertain, but as noted in **Section 13.3.1.5.2.2**, it may not have been extensive. There is nonetheless a potential that previously unknown artefacts may survive within the riverbed, as demonstrated by some of the surveys undertaken elsewhere along the Boyne. Equally, there is archaeological potential within the floodplain both north and south of the river (ACH08 in **Appendix 13.5**), where any waterlogged soils may preserve archaeological material.

While the Proposed Scheme will avoid effects to the riverbed, the bridge piers are located within the floodplain. The ground disturbance associated with the construction of the Boyne Navigation canal and tow path on the south side of the river has reduced the archaeological potential of this area, though the extent of this disturbance is unknown and there are likely to be areas left relatively undisturbed.

In addition to the inherent potential of riverine environments, Field F14 on the south side of the crossing point is named 'Mollies', which as noted previously may suggest an association with the mills located across the river or an older milling tradition in this area (the site of a mill is recorded on the south bank of the river just at the bend, c. 550m east of the proposed crossing point; SMR ME019-084, probably the 'mill out of repair' that is depicted on the Down Survey map of Fennor parish). There is also an unclassified mill (SMR ME019-120) recorded in F13 c. 300m east of the proposed crossing point, which comprises a mill race and possible footings of a mill building, neither of which appear on the historic OS maps. It is perhaps this mill, which it is thought may have served the medieval settlement at Fennor, which might be referenced by the field name. It is also possible that milling activity extended into field F14.

### 13.3.1.5.3 Cullen and Johnstown Townlands

This section should be read in conjunction with **Figure 13.32(a)-(f)**, which show the locations of the relevant archaeological and cultural heritage assets identified as part of this assessment, as well as the field numbers used in the field walkover survey.

#### 13.3.1.5.3.1 Physical Environment

The Proposed Scheme travels through three fields in Cullen townland (F1-F3), with only a very small section of the road extending into Johnstown townland; in field F4 on the east side of the N2 road and field F3 on the west. The land is under a mixture of pasture and arable use and the topography is relatively flat in these fields, beyond which it rises gently to Cullen Hill to the west / south-west. The existing N2 road north of McGruder's Crossroads is located to the west, with a number of modern properties situated along it. The field boundaries are predominantly mature hedgerow, with some deep drainage ditches alongside.

#### 13.3.1.5.3.2 Cultural Landscape

Neither the Fennor / Cullen nor the Johnstown / Cullen townland boundaries in their present form are distinct from the surrounding field / property boundaries. The Fennor / Cullen boundary is formed of mature hedgerow (sparse in places) and ditch; the mature trees that once lined the boundary (as depicted on the first edition OS six-inch map of 1836) are no longer present and the absence of any large bank may indicate re-landscaping of the boundary in the past. The small section of the Johnstown / Cullen boundary that lies within the Proposed Scheme is now a modern property boundary. However, although it appears modern in form, the Fennor / Cullen boundary (which is also the Fennor parish boundary) follows the same line as that shown on the mid-17th century Down Survey map.

Few features of interest are depicted within the Proposed Scheme in Cullen townland on the historic maps. Where it passes through agricultural fields along the east side of the Dublin / Slane Road (existing N2), the

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mostly small dwellings depicted on the first edition map had been removed by the time of the later, revised edition maps. The sites of only two of these are within the Proposed Scheme (ACH02 and 04 in **Appendix 13.5**), with no surface trace of either. The site of a spring shown on the 25-inch OS map of 1909 was too overgrown by modern hedgerow to be inspected, but the now-clogged ditch leading from it to the present N2 roadside drainage ditch was observed. No spring is indicated on the first edition OS six-inch map at that location.

The road from Dublin to Slane was realigned to its present form to facilitate the coach road at some stage in the early 19th century, with work completed by 1812. Prior to these improvements the 18th century turnpike road passed by Cullen House and this is the route shown on Taylor and Skinner's map of 1783 (**Figure 13.14**). Even this section of older road is remarkably straight, which suggests that it may represent a realignment of an earlier route from Dublin to Slane, via Rathfeigh. The remains of the old turnpike road are extant between Fennor and Knockcommon (a section within the Proposed Scheme runs along the boundaries of fields F4 and F5; ACH03 in **Appendix 13.5**), truncated by the railway line to the south, in the townlands of Knockcommon and Thurstianstown. The northern end of the road is still in regular use as a farm access track for c. 550m, where the mud surface had been recently churned up, after which it becomes grassed-over, flanked by dense, overgrown hedgerows.

Local tradition holds that the straightening of the road from Dublin to Slane to facilitate the coach road is said to have been carried out in order to hasten communications between the Prince Regent in London and his love, the Lady Conyngham, in Slane Castle. This is one of several road network alterations that were carried out around Slane, on both sides of the river in the 19th and 20th centuries (for example, Rosnaree Road, as discussed in **Section 13.3.1.5.4.2**).

In the wider landscape, Knowth can be seen from field F5 and at the eastern boundary of F4, and the Hill of Slane is visible from fields F1, F2 and F4.

### 13.3.1.5.3.3 Archaeological Potential

There is no visible surface trace of the recorded mound (RMP ME026-003), located in a field on the opposite side of the existing N2 road to the Proposed Scheme where it commences. The site description in the Archaeological Inventory of County Meath (1987) is of a "circular flat-topped mound (diam. 11 m, H 1.6 m)". Although currently under pasture, this field appears on aerial imagery from 1995 onwards as an arable field. Surface trace of the monument appears to have been removed by ploughing activity some time after 1987.

Within the Proposed Scheme itself, the inherent greenfield archaeological potential has been investigated through the use of LiDAR survey, aerial survey, and geophysical survey. Only two potential sites were identified within the study area, both in field F4. One of these, a possible enclosure identified by geophysical survey, lies partly within the Proposed Scheme (ACH01 in **Appendix 13.5**). There was no surface trace of this site, nor of the second (ACH31 in **Appendix 13.5**), a possible enclosure site observed on aerial imagery which lies c. 70 m outside the Proposed Scheme. This is a former arable field that was under pasture at the time of inspection. As with many of the fields within the study area, centuries of ploughing has removed all above-ground remains of any archaeological sites or features that may be present.

This area also formed part of Brady's surface collection survey in 2000, with fields F2, F3, F4, F5 included, and flint scatters identified in these and adjoining fields to the east and south (ACH18, **Appendix 13.5**).

No additional archaeological or cultural heritage features or finds were identified during the field walkover survey. A large mound observed in field F4, which lies outside the Proposed Scheme LMA to the east, appears to be a naturally occurring rock outcrop built up with spoil. A dip in the north-west side of the mound may indicate quarrying here at some point in the past; as nothing is indicated at this location on the historic OS mapping any quarrying activity occurred before 1836 or after 1912.

There remains a potential within the Proposed Scheme for the discovery of discrete, small-scale archaeological features and deposits or additional stray finds.

### 13.3.1.5.4 Fennor Townland

This section should be read in conjunction with **Figure 13.32(a)-(f)**, which show the locations of the relevant archaeological and cultural heritage assets identified as part of this assessment, as well as the field numbers used in the field walkover survey.

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### 13.3.1.5.4.1 Physical Environment

The Proposed Scheme travels through a series of large arable or former arable fields in Fennor townland (F6-F9) that are relatively level, becoming more undulating as they slope down to meet the Rosnaree Road. Field F10 is the exception, a small narrow field of rough pasture that slopes steeply down to the road. This steep gradient is echoed on the north side of Rosnaree Road, where the rough pasture fields undulate sharply down to the Boyne Navigation canal. In field F11, a row of modern houses occupy a plateau of higher ground level with the road; this was formerly Lynch's Wood, as shown on the historic OS maps.

The field boundaries are predominantly mature hedgerow and ditches, as elsewhere, with the exception of the boundary between F11 and F12, which is visible in F11 as a high dry-stone wall, c. 1.7 m high. This acts as a revetment to the higher ground level in the adjoining field to the west, F12. The varying ground levels in the fields and the uneven surface and rough terracing evident in both fields, is mostly likely the result of industrial activity in the past – the construction of the Boyne Navigation in the 18th century and the quarrying in F11 in the first half of the 20th century. The use of stone in the dividing boundary was presumably opportunistic, making use of the natural rock or stone excavated during one or other of these activities.

Beyond the canal, which is almost entirely obscured by vegetation, and its associated tow-path bounded by hedgerow, the land is level and low-lying. Both fields F13 and F14 are located within the floodplain of the Boyne and both were variably under water or under long grass at the times of inspection. The ground surfaces are rough underfoot, with areas of waterlogged ground even during dry periods.

The present N2 road runs roughly parallel to the Proposed Scheme (Mainline Bypass) to the west, before curving sharply north-west on the approach to Slane Bridge, passing Fennor Church and Castle. This section of the road was widened in the 1970s and is busy and noisy, with vehicles forced to stop at lights on either side of the bridge. Modern housing lines the east side of the road to the south of the junction with Rosnaree Road. Views from the existing N2 road, from Fennor Castle and from the tow-path of the bridge, the mill, and towards Slane village, and Slane Castle Demesne are compromised by the traffic safety measures in place, particularly on the hill up to the village on the north side of the river.

### 13.3.1.5.4.2 Cultural Landscape

The River Boyne forms the townland boundary between Fennor and Slane (see **Section 13.3.1**).

The course of the Dublin to Slane Road in Fennor on the first edition OS six-inch map of 1836 is largely that of the present N2, crossing the river and Boyne Navigation canal on Slane Bridge (RMP ME019-024), AH09 in **Appendix 13.5**. Before reaching the bridge it passes Fennor Castle (tower house and 16th/17th century house; ME019-036001 and 002) and Church (ME019-035, & graveyard, high cross, graveslab) which occupy a site on the south side of the road as it curves round from east to south (AH20-AH25, **Appendix 13.5**). This section of the road, where it curves around the graveyard, was widened in the 1970s, at which time human remains were found in the area close to the graveyard (see **Section 13.3.1.5.4.3** below). No other features of note are shown along the road on the historic OS mapping. There is no visible surface trace of the recorded souterrain (ME019-037, AH26, **Appendix 13.5**), which is located on the east side of the existing N2 road in an area of pasture between two modern properties.

Recorded watercourse ME019-082 (AH30) is depicted on the first edition OS six-inch map of 1836 (this stream flows through field F11 c. 155m east of the Proposed Scheme). The sites of two small buildings in an L-shaped plot are also shown on the 1836 map, located on the south side of the canal and possibly associated with it (while outside the present study area, these were inspected as part of the Route Options Selection field survey and found to be partly upstanding; CH9 in Crowley 2019). The watercourse is culverted beneath the Rosnaree Road and a laneway that leads south off it to Fennor House (a farmhouse depicted on the OS historic maps and now derelict); the watercourse is depicted flowing along the east side of the lane. The Rosnaree Road is shown with an irregular alignment on the Ralph Howard estate map of 1790. The road is shown in its present straightened form by the time of the 1836 first edition OS six-inch map. It is likely that the culvert dates to around 1800 and was built at the time of the road straightening. By the time of the 1908-11 25-inch OS map, the course of the stream had been significantly altered.

Several buildings and plots are depicted along this laneway on the 1836 map. The single building on the west side of the laneway is named Fennor House on the 25-inch OS map, set within a copse of trees and is still in situ, albeit derelict. The site of the buildings on the east side of the road (all of which are shown as disused by the time of the 25-inch OS map) is now derelict (the yard remains roughly the same shape as that shown on the first edition OS). A lime kiln (extant) is shown on the first edition OS map.

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A gravel pit is indicated on the 1836 OS map on the south side of the Rosnaree Road, now within a modern property, outside the Proposed Scheme.

A surviving pill-box from The Emergency period (ACH23, **Appendix 13.5**) was identified on the north side of the Rosnaree Road, in the field to the east of field F11, at the adjoining boundary. It is depicted on the 1958 revised edition OS six-inch map. Although this lies beyond the 250m study area, its presence was noted and it is included in the archaeological and cultural heritage inventory as a record of this important undesignated site. This pill-box formed part of the Boyne defences during The Emergency period. Another surviving element of these defences is located inside Fennor Graveyard (ME019-035001, AH21, **Appendix 13.5**), where the wall was converted with gun slits to cover Slane Bridge and the N2 southern approaches to the bridge, though no cover survives or was provided for this position.

In the wider landscape, Knowth can be seen from fields F6-F11 and the Hill of Slane is visible from all the fields south of the river on higher ground, e.g. in F11 at Rosnaree Road (see **Figure 13.29** in **Section 13.3.1.5.6**). Fennor Castle occupies a strategic position above the river, possibly situated to take advantage of an earlier fording point. The remains of the medieval tower house and fortified house are mostly screened by a stand of mature trees, but the monument is visible from several places within Fennor townland. Conversely, views from the monument in the direction of the existing N2 road and Proposed Scheme (Mainline Bypass) are less open thanks to the tree cover. Part of the busy road is visible from within Fennor graveyard, which contains the ruined Fennor Church (**Plate 5**). The traffic noise from passing vehicles is loud and distracting at both monuments, negatively affecting their setting and detracting from the experience.

Slane Bridge is a primarily 18th century construction that incorporates elements of the earlier, medieval bridge. The bridge is one of the earliest known crossings of the River Boyne and contains elements from various periods, from the 14th century to the present day. At present, it is both dangerous and unpleasant as a pedestrian, to walk along the bridge or to stop and view the river and its valley. Neither Knowth nor the Hill of Slane are visible from this low point in the river valley. The buildings forming Slane Mill dominate the near view facing east and add character to the northern riverbank. Distant and deliberately designed views to Slane Castle occur towards the north end of the bridge facing west. The setting of the bridge, with the nearby large weirs, canal, mill, Slane Castle demesne and its wooded valley sides, is a natural focal point in the landscape and, although there are two carparks and a picnic spot here, it is underutilised as a local attraction.



**Plate 5: Fennor Castle, Viewed from Within Fennor Graveyard. Facing South-east**

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### 13.3.1.5.4.3 Archaeological Potential

Within the Proposed Scheme, the inherent greenfield archaeological potential has been investigated through the use of LiDAR survey, aerial survey, and geophysical survey. Targeted archaeological testing in field F8 took place which confirmed the presence of a possible ring-ditch that had been initially identified by geophysical survey (ACH26, **Appendix 13.5**; preliminary dating evidence indicates an Iron Age date).

This area also formed part of Brady's surface collection survey in 2000, with fields F8 and F9 included, and flint scatters identified in these and adjoining fields to the east and south (ACH18, **Appendix 13.5**). In the survey area outside the Proposed Scheme (c. 115m east), Brady found a possible cremated human bone fragment (ACH06). This, along with the presence of the ring-ditch and flint scatters, points to human activity in this area of higher, level ground above the river valley at various times during the prehistoric period.

One potential archaeological site was identified by geophysical survey in field F6, a curving anomaly that extends into the Proposed Scheme and may form part of a possible enclosure (ACH07 in **Appendix 13.5**). This is a former arable field that was under pasture at the time of inspection. As with many of the fields within the study area, centuries of ploughing has removed all above-ground remains of any archaeological sites or features that may be present.

The northernmost fields in Fennor, between the Boyne Navigation canal tow path (**Plate 14**) and the river, have an inherent riverine archaeological potential. In addition, the field name 'Mollies' is associated with field F14 and the adjacent field to the east. These fields occupy the riverbank between a recorded mill site further east along the riverbank (ME019-084) and another unclassified mill site (ME019-120) that is recorded in F13 (outside the Proposed Scheme). It is possible that there was also milling activity along the southern riverbank between the two recorded sites, within the Proposed Scheme.

There was no surface trace of any of these possible sites and no additional archaeological or cultural heritage features or finds were identified during the field walkover survey. There remains a potential within the Proposed Scheme for the discovery of discrete, small-scale archaeological features and deposits or additional stray finds.

The section of the existing N2 road that passes Fennor Castle and Church was widened in the 1970s. In 1971, human remains were revealed as the present road was being widened and subsequent investigation took place in the area directly outside and to the east of the graveyard wall site (Swan 1972). The finding of human bone in the exposed bank outside the present graveyard wall indicates that the burial ground was once larger than its current form. There was also evidence for occupation activity in the early medieval and medieval period. More recently, this section of road was subject to archaeological monitoring as part of the Meath Watermains Rehabilitation Scheme in 2016 (see **Section 13.3.1.2.7**). Nothing of archaeological significance was identified and modern disturbances were noted. There is nonetheless a slight possibility that archaeological deposits may survive below the modern road and path surfaces, beyond those areas excavated for the watermains trench.

The results of archaeological monitoring of works in 2019 during the Slane Pavement scheme (see **Section 13.3.1.2.7**) found that the original gravel road surface survives in places beneath the existing N2, including at the southern end of Fennor townland and in patches on the southern approaches to the bridge. It is likely that further remains of the original road surface survive subsurface elsewhere along the existing N2.

### 13.3.1.5.5 Slane and Cashel Townlands

This section should be read in conjunction with **Figure 13.32(a)-(f)**, which show the locations of the relevant archaeological and cultural heritage assets identified as part of this assessment, as well as the field numbers used in the field walkover survey.

#### 13.3.1.5.5.1 Physical Environment

North of the river, the Proposed Scheme is predominantly in Slane townland, with only a short section extending into Cashel townland south of the N51 road in fields F22 to F25. All of these are under pasture with the exception of field F25, a private garden. The small prominence of Limekiln Hill, a rock outcrop in field F22, was partly quarried away in the 19th and 20th centuries.

The land rises steeply from the level, low-lying riverbank (floodplain) in field F15, with the mature woodland of Mill Wood and rock outcrop to the west. Beyond this it undulates more gently upwards to meet the N51

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road. These large pasture fields (F16 to F19) form part of the farmland associated with Janeville Cottage, a 19th century farmhouse.

On the north side of the N51 road, an area of large pasture fields on the east side of Slane village is dominated by a ridge of high ground formed by Stanley Hill / Gallows Hill to the west and Norris Hill to the east. North of this east-west ridge, the land undulates gently, generally rising to the north / north-west. The more significant height of the Hill of Slane to the west, with its ruined ecclesiastical remains, is a prominent landmark in the landscape.

Modern properties, and some 19th century cottages, are dotted along the N51 road. The Ledwidge Hall housing estate occupies a large site north of the N51 to the west of Stanley Hill. A more continuous line of properties extends northwards along the N2 road from Slane village, primarily residential but including a school, a church, and various retailers. This development extends as far as the road leading north-east to the Hill of Slane on the west side and to the east, the sizeable lot containing Grassland Agro industrial fertiliser plant, which abuts field F28 (**Plate 11**).

Slane village, originally planned as an estate village in the 18th century, retains much of its 18th / 19th century character, though this is difficult to appreciate with the constant stream of traffic moving through it.

The field boundaries are predominantly mature hedgerow (sparse in places) and ditches. Dry-stone walls as field boundaries (or parts thereof) were noted in field F19 and in the area east of Stanley Hill, forming the western boundary to field F27 (c. 360m west of the Proposed Scheme). Both are located in areas containing rock outcrop and had active lime kilns and quarrying in the vicinity in the 19th and / or 20th centuries. The walls represent a practical use of stone cleared from the land and / or local quarrying and stone revetment of the bank along the eastern boundary of field F27 was also noted.

Neither of the two townland boundaries north of the N51 road are distinct from the surrounding field boundaries, both having mature hedgerow and ditch. The Slane / Cashel boundary north of the road was altered some time between the 17th and 19th centuries, most likely during the land improvements of the 18th century and differs from the older section that survives south of the road, between fields F20/21 in Slane and F22 in Cashel. This boundary is formed by a double earthen bank flanking a broad, shallow dry ditch and mature trees.

### 13.3.1.5.5.2 Cultural Landscape

The present N2 road rises steeply into Slane village after crossing the Boyne at Slane Bridge (ME019-024), before running north / north-east through Slane townland; this is the same course as the early 19th century road shown on the first edition OS six-inch map of 1836 and on Larkin's map of 1812. The village centre is depicted on these early maps much as it does at present, though as noted previously, settlement grows in linear form along the approach roads throughout the 19th and 20th centuries. Some details differ, notably the larger area at the heart of the village (presumably used as a marketplace) which is shown on both Larkin's map and on the first edition OS map, at which time none of the four Georgian houses (the 'Four Sisters') had front gardens. Both maps also show a fountain located at the centre of the open space, the remains of which may survive subsurface (ACH41, **Appendix 13.5; Figure 13.16 & Figure 13.22**). The base of a probable contemporary trough or fountain base and drain on Chapel Street (ACH39, **Appendix 13.5**) were identified during archaeological monitoring in 2019 (see **Section 13.3.1.2.7**). Occasional houses are depicted along the roadside north of the village on the 1836 map, with one particular cluster (including a Pound) (ACH21 in **Appendix 13.5**) depicted where the road crosses a stream (the culvert / bridge is shown) near to the boundary with Mooretown. All of the buildings shown on the 1836 map are now gone, though one depicted on the later 25-inch map (1911) survives, and the site of the pound is a modern farmyard.

No features are depicted on the historic OS mapping within or near the Proposed Scheme, which passes through agricultural fields before reaching the western approach road to Slane village (present N51). Stanley Hill, Norris Hill and Gallows Hill are depicted as wooded knolls on the first edition OS map. None are so named on this edition (named as Stanley Hill Wood, Norriss [sic] Hill Wood and Gallows Hill Wood) and none of the recorded archaeological sites present in this area are depicted on the historic maps. Gallows Hill and Stanley Hill represent two high points on a larger hilltop (as shown by the contour lines on the revised edition OS 6-inch map (1958); the trees had been removed from all three hills by this time (rock outcrops are depicted on Stanley and Norris Hills) and a reservoir had been built into the south-western slopes of Stanley Hill. A lime kiln is depicted to the south-west of Norris Hill (in F32) by the time of the 1908-11 edition OS 25-inch map (the structure survives almost intact; see **Chapter 14 – Architectural Heritage**).

On the south side of the eastern approach road to Slane village (present N51), a lime kiln is also depicted (present N51) at Limekiln Hill. The historic OS maps also show large quarry pits at different locations from

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the early 19th to the early 20th centuries (ACH21 in **Appendix 13.5**). Field survey confirmed that the site was extensively quarried and disturbed in the 19th and 20th centuries and only scant foundation remains of the lime-kiln survive, truncated by more recent quarrying works. The lime-kiln remains can be seen in the side of the modern quarry face. The field survey indicated that the quarrying at Limekiln Hill continued well into the 20th century and was likely more extensive than what is depicted on the historic OS mapping.

The Proposed Scheme crosses the sites of two small cottages on the N51 roadside (one of which is named a lodge (for Janeville Cottage) on the revised OS map; structural remains survive in a copse of trees; see **Chapter 14 – Architectural Heritage**) and the tree-lined avenue (now in use as a farm track) that provides access to Janeville Cottage (associated outbuildings appear to be extant within copse of trees adjacent modern farmyard; see **Chapter 14 – Architectural Heritage**). The Proposed Scheme then continues south through agricultural fields to the River Boyne, passing to the east of a band of woodland containing Mill Lodge and a flour mill (named on 25-inch OS as Mill Wood) (Slane Mill is included in **Chapter 14 – Architectural Heritage**). A lime kiln is depicted to the south-west of Janeville Cottage, which survives on the west side of the present farm track, c. 185 m east of the Proposed Scheme.

The sites of several of the cottages depicted on the first edition OS map within the Proposed Scheme, at the N2 and N51 roadsides, contain no above ground trace of the structures (ACH09, 12, 16, 21, 25, in **Appendix 13.5**).

Mature trees enclose the properties in the southeast corner of F32, providing a high, dense screen for the Francis Ledwidge Museum (**Plate 6** and see also **Chapter 14 – Architectural Heritage**). The latter is located within the house of his birthplace, a 19th century farm-labourer's cottage (built some time after the 1836 first edition OS map, it is depicted on the revised edition mapping of 1882-4; Ledwidge was born in 1887). The cottage fronts onto the busy N51 road, with a garden sloping up to the rear, parking to the west and mature boundaries on all sides.

A fish weir is indicated on first edition OS six-inch map on the north bank of the river (ME019-083), with a second weir depicted to the south-east in Crewbane townland. The River Boyne forms the townland boundary with Fennor townland. Slane Mill is visible beyond the trees from the low ground along the river, from which there is also a good view of Fennor Castle.

The recorded enclosures ME019-062 and -063 (AH27 and 28 in **Appendix 13.5**) on Stanley Hill and Gallows Hill (**Plate 7**), represent the only recorded monuments with any above ground remains in this part of the study area, between Slane village and the Proposed Scheme. An enclosing dry-stone wall marks the location of the north-western enclosure, ME019-062. The neighbouring enclosure to the south on Gallows Hill has been damaged by quarrying (ME019-063). Although both are prominently located on Stanley Hill and Gallows Hill, the monuments themselves are well absorbed into the landscape, which contains other dry-stone wall boundaries, a lime kiln and rock outcrops.

In the wider landscape, the archaeological monuments on the Hill of Slane (c. 1km west of the Proposed Scheme at the N2 northern tie-in junction, and c.1.5 km from the proposed Scheme on the N51) form a prominent landmark and dominate the landscape north of Slane village (**Plate 8**). They are visible from the higher ground north of the river, as the land rises up to the N51 road, in fields F19 to F22, and from most of the fields north of the N51 road (F26 to F31). **Plate 9** captures the view of the monuments from south of the river (in field F11, Fennor townland), showing the topography of the landscape as it rises to Stanley Hill / Gallows Hill. While Knowth is visible from the high points of Stanley Hill and Norris Hill, views of the monument from the lower-lying ground where the Proposed Scheme will travel are much more limited, being restricted to the northern tie-in of the Proposed Scheme with the existing N2.

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**Plate 6: Ledwidge Cottage Museum, Facing North-east**



**Plate 7: View North-west of Stanley Hill and Gallows Hill**



**Plate 8: The Monuments on the Hill of Slane Viewed from Field F30, North of Norris Hill**



**Plate 9: The Monuments on the Hill of Slane Viewed from Fennor Townland**

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### 13.3.1.5.3 Archaeological Potential

Within the Proposed Scheme, the inherent greenfield archaeological potential has been investigated through the use of LiDAR survey, aerial survey, and geophysical survey. Targeted archaeological testing in fields F26 and F27 took place which confirmed the presence of an early medieval enclosure site initially identified by geophysical survey (ME019-085, AH32 in **Appendix 13.5**), which lies partly within the Proposed Scheme. The site is located on the west side of the Cashel / Slane townland boundary, in Slane townland; additional geophysical survey undertaken in 2021 found that the site continued on the east side of the townland boundary, outside the Proposed Scheme. The site, as a D-shaped, early medieval enclosure, is not rare in County Meath and can also be found elsewhere in the country. It is located within view of the Hill of Slane, which formed a focus of power for the Aed Sláine dynasty during the later early medieval period. The site is likely to have been in the possession of a free farmer or higher grades of early medieval people, although it has been subject to considerable truncation from post-medieval ploughing and deeper modern ploughs (as confirmed by testing and evidenced by the scarping of the Cashel townland boundary noted during field survey). While there is currently no evidence for a souterrain, a small souterrain nearby is possible. The landscape setting is not visible from the wider Boyne valley or the Brú na Bóinne World Heritage Property. The site was constructed on a gentle, north-facing slope, and does not look down into the Boyne Valley. It was clearly located so that it can overlook a local hollow c.600m in diameter to the north of the site; this 'hollow' area is likely to have been used for herding livestock and for arable agriculture in the past (as it is in the present).

A possible small enclosure and field system was identified to the south in field F26 (ACH24 in **Appendix 13.5**), also partly within the Proposed Scheme, but archaeological testing in 2005 failed to identify any features. This testing was limited to two trenches and it is possible that there are still archaeological features here.

In the same large pasture field (F27), there is a second enclosure site (ME019-088, AH33) to the west / north-west of the early medieval enclosure site (ME019-085, AH35), and a possible field system (ME019-098, AH36) further west again, both outside the Proposed Scheme. There is no visible surface trace of either these sites or those in the fields to the west and south-west that were also identified through geophysical survey or by LiDAR survey (enclosure ME019-102, AH37; linear earthworks ME019-102, AH34 and ME019-092, AH35). Two other sites are recorded in the vicinity of the Norris Hill / Stanley Hill / Gallows Hill area, both of which were previously known and recorded on the RMP, enclosures ME019-062 & -063 (AH27 & 28 in **Appendix 13.5**; these were previously described as cashels in the RMP, but the classification on the online Historic Environment Viewer is now enclosure). These occupy the two limestone knolls at the western end of the ridge, Stanley Hill and Gallows Hill, c. 650 m west of the Proposed Scheme.

This area of large pasture fields on the east side of Slane village, north of the N51 road and dominated by the ridge of high ground, appears to have been a focus for human settlement and activity. The date of only two of the sites is known, the large early medieval enclosure, ME019-085, and a second site c. 795 m west (a possible enclosure, also early medieval in date) partly excavated at Ledwidge Hall in 2007 (Licence No. 07E0804, Kelleher 2008). It is not clear whether the multiple sites and potential sites (as yet unconfirmed by archaeological excavation) in this area are contemporaneous, or whether they represent activity spread across different time periods. A small flint scatter (ACH17) was observed beyond the Proposed Scheme (c. 30m west) during field survey in 2009 (no flints were collected). This is located c. 470 m north of Norris Hill and may indicate prehistoric activity in this general area. Further indication of prehistoric activity was found at the Ledwidge Hall site, where flints of possible Bronze Age date were recovered (Kelleher 2008). These were residual finds in an early medieval ditch and it is thought they may be associated with a burnt spread and burnt stone pits identified within the possible enclosure. There were also some worked flints and medieval pottery sherds listed among the surface finds.

There was no surface trace of any of these possible sites and no additional archaeological or cultural heritage features or finds were identified during the field walkover survey. There remains a potential within the Proposed Scheme for the discovery of discrete, small-scale archaeological features and deposits or additional stray finds.

Limekiln Hill is another natural high point in the landscape and while it is possible that this site may have attracted earlier settlement and activity, there is no evidence, apart from the townland name (Cashel, from *caisel*, a stone-built ringfort), to suggest this. Field survey confirmed that the site was extensively quarried and disturbed in the 19th and 20th centuries and only scant foundation remains of the lime-kiln survive above ground (ACH21).

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Most of the recorded archaeological sites near or in the village have no visible presence, with the majority being medieval ecclesiastical remains that are now housed within existing buildings (e.g. in St Patrick's Church of Ireland Church), no longer in their original context or locations. The upstanding remains of the medieval church, tower and dwelling of St Erc's Hermitage (AH12, ME019-026) are hidden from view amongst the dense woodland of Slane Castle demesne. Others survive as below-ground sites, e.g. the souterrains to the east and west of the N2 Collon Road.

The section of the existing N2 road through Slane village was subject to archaeological monitoring as part of the Meath Watermains Rehabilitation Scheme in 2016 and again in 2019 for the Slane Pavement Renewal Scheme (see **Section 13.3.1.2.7**). A small area of cobbling representing an earlier road surface was identified in 2016 and an original gravelled road surface, drain and possible fountain base (ACH39 in **Appendix 13.5**) were uncovered in 2019. Nothing of archaeological significance was identified and modern disturbances were noted. There is nonetheless a slight possibility that archaeological deposits may survive below the modern road and path surfaces, beyond those areas excavated during these works. Given these findings, it is possible that subsurface remains of the fountain shown on the historic mapping at the centre of the Octagon may also survive (see also **Section 13.3.1.5.5.2** and ACH41, **Appendix 13.5**).

### 13.3.1.5.6 Character of the Historic Landscape

The field walkover survey identified an exclusively 18th, 19th and 20th century character to the landscape between Slane and Brú na Bóinne WHP, with large agricultural fields and unremarkable hedgerow field boundaries. This echoes the findings of the historic map analysis and contemporary accounts (e.g. Young in 1776 and Lewis in 1837), which record a landscape that underwent considerable improvement and changes in the early modern period.

The modern village retains a similar layout to that seen on early 19th century maps, retaining the essence of the 18th century planned estate village and containing various buildings from the late 18th and 19th centuries, interspersed with some modern development. Slane Mill, on the south-east side of the village, is another prominent example of 18th century-built heritage in the study area. Beyond the village, the rest of the land in the vicinity remained in agricultural use (as much of it does today). Some farmhouses and associated outbuildings were erected in this period or were expanded. A significant new departure occurred from the 1880s when a series of houses were built in the rural areas under the 1883 Labourers Act, providing housing for those who toiled the land in the district around Slane. Most notable amongst these is the house that is now the Ledwidge Museum, which was built in the 1880s as a semi-detached house.

The land between Slane village and the WHP has long been a landscape that was in flux. Boundaries have been removed and altered, both field and townland, though some pre-19th century boundaries do survive (as described below in **Section 13.3.1.5.1**). Small fields have been merged to create larger ones to facilitate changing agricultural practices, particularly during the 18th century which saw a period of prosperity with an economic boom and new ideas about land improvement. Slane Castle Demesne was enlarged, with areas of parkland, woodland, and agricultural fields contained within it. Tree planting was promoted during this period and evidence of new areas of woodland and copses can be seen on the historic maps from the late 18th / early 19th century onwards. Transport initiatives also left their mark on this landscape, notably the Boyne Navigation in the 18th century, and the introduction of the turnpike road around the same time, which realigned the old Dublin to Slane Road south of the river.

Other changes were wrought in the 20th century, with the connection of Slane to the national grid in the 1950s, which saw electricity poles (**Plate 10**) and line run north-south through the fields east and south-east of the village (west of the Proposed Scheme). Connection of Slane and the wider area into the modern grid was facilitated later in the century by the line of pylons carrying high-voltage power lines that run roughly north-south further east (beyond the Proposed Scheme and closer to the WHP, through Mooretown, Cashel, Crewbane and Rosnaree). The water reservoir close to the car park at the Hill of Slane, the large fertiliser plant on the north side of Slane village, and the addition of modern housing, both one-off and residential estates (e.g. Ledwidge Hall, immediately west of Stanley Hill), are all examples of the ongoing changes to the landscape around Slane village.

This is and was a busy working landscape. In addition to farming, there was industrial activity, with numerous quarries and lime kilns active from the 18th century onwards, and evidence of both surviving in the fields. Slane Mill (**Plate 12** and **Plate 13**), which stands as a reminder of the large-scale 18th and 19th century industrial workings here, is described by Lewis in 1837: "*On the river, adjoining the town, are very extensive flours and corn-mills [...] worked by seven pairs of stones; they have an excellent supply of water and are capable of grinding 1000 barrels of wheat weekly*". There was also activity along the river, on the Boyne Navigation, with boats and barges loading, unloading and transporting goods down river to Drogheda and

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beyond. Evidence for earlier milling on the river is present, during the early medieval and medieval periods, and fishing would also have been common (a fish weir of possible medieval date is also recorded in the river).

Arable fields were the majority recorded in the Down Survey parish terrier south of the river in the mid-17th century and possibly also to the north. The predominance of arable agricultural from at least the early modern period is evident in the fields today, the majority of which have the level ground surface typical of ploughed fields (a review of aerial imagery from the late 20th century onwards shows that most of the fields have been under the plough at some point). This had the effect of removing any above ground remains of archaeological sites that were present and explains the relative paucity of upstanding monuments in this area. Those upstanding monuments that are recorded in the area west of the WHP are almost entirely later medieval in date, albeit they include more subtle elements dating to the early medieval period (e.g. remnants of high crosses at Fennor and Hill of Slane, and a bullaun stone at the latter).

Similarly, a map of known archaeological sites (upstanding or not) by time period in this area (where dates are known) demonstrates that the dominant character in this landscape with regard to archaeology is early medieval and medieval. This is in direct contrast to the area within the WHP, which is predominantly prehistoric in character, with a large number of significant and upstanding Neolithic tombs (**Figure 13.28**).

While there is some additional evidence for prehistoric activity in the form of stray finds and flint scatters, there are only three prehistoric sites west of the WHP Buffer Zone, all of which date to later prehistory. In the case of the two that lie partly within the Proposed Scheme, these have been preliminarily dated to the Iron Age (one a probable ring-ditch, the other a circular enclosure). The third is an embanked barrow in Rosnaree townland (ME026-004), of Bronze Age / Iron Age date, which lies outside the study area c. 1.5 km west of the Proposed Scheme. Using the Brú na Bóinne GIS, Davis (2019) has mapped the spatial distribution of sites within the WHP (**Figure 13.29**). This identified that sites from the Bronze Age and Iron Age (including numerous ring-ditches, small burial monuments that generally date to this period) within the WHP are almost entirely confined to two areas: the Battle of the Boyne site at Oldbridge and the area north-west of the Visitor Centre. He observed that the river seems to have influenced their position and that unlike earlier monuments, they are found on both the north and south sides of the river (Ibid).

The early medieval sites had a broader distribution, but a clustering on the steep slopes overlooking the Boyne at Knowth and Dowth was evident. Some sites had strategic positions, controlling views along large stretches of the river. Sites occupying strategic locations in the early medieval and later medieval period is common – for instance, the ecclesiastical site at Fennor, and the later castle, occupy a position that takes full advantage of the view to the river and (more importantly) its crossing point. Early medieval settlement enclosures can often be found on south-facing slopes, on areas of high ground.

Other views were more important in a less tangible way, such as that between Knowth and the Hill of Slane, two centres of power in the early medieval period situated on localised high points in the landscape. It is possible that this visual connection was also of import during the prehistoric period, though it is not yet certain that there was a prehistoric site on the Hill of Slane. The panoramic view today from the Hill of Slane is impressive and takes in views across the wider landscape in which the WHP sits. Although Knowth is visible from various points within the study area, it is not as prominent a feature as the monuments on the Hill of Slane, as the grassed mound frequently blends into the surrounding field-scape. Viewshed analysis (**Figure 13.30** and **Figure 13.31**) demonstrates that the Proposed Scheme is largely screened in views from Knowth and those sections that are visible will become less so once landscaping mitigation is in place. Visibility from the Hill of Slane is greater, particularly in the near view, where the Proposed Scheme will be visible at the Northern N2 tie-in and when crossing through the northern part of Slane townland, but also south of the river in a more distant view in Fennor and Cullen townlands. This section of the Proposed Scheme will be less visible than the existing N2 road south of the river, as it will be largely in cutting and will be better screened.

The presence of the WHP to the east of the Proposed Scheme does not influence the character of the landscape within the study area (the role of this area as part of the wider setting for the WHP, and the degree to which it supports the Outstanding Universal Value of the WHP, is outlined in the HIA in **Appendix 13.5**). Rather, the character of the study area is formed by proximity to Slane village, Fennor and the Hill of Slane, which provide a historic background to the modern landscape that is early medieval, medieval and post-medieval in date. In conclusion it is considered that the landscape through which the Proposed Scheme travels has the ability to absorb it.

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**Plate 10: View east from Hill of Slane Car Park, Towards Knowth, Include Electricity Poles and Water Reservoir in the Foreground**



**Plate 11: View East / South-east from Hill of Slane Graveyard, Towards Knowth, Showing Norris Hill, Stanley Hill, Gallows Hill and Ledwidge Hall Housing Estate**

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**Plate 12: View of Slane Mill from Slane Bridge, Facing East**



**Plate 13: View of Slane Mill from Rosnaree Road, Facing North-west, with Houses of Ledwidge Hall and Hill of Slane Visible Beyond**

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Plate 14: Boyne Navigation Tow Path (left) and Canal (right, overgrown with vegetation), Facing East

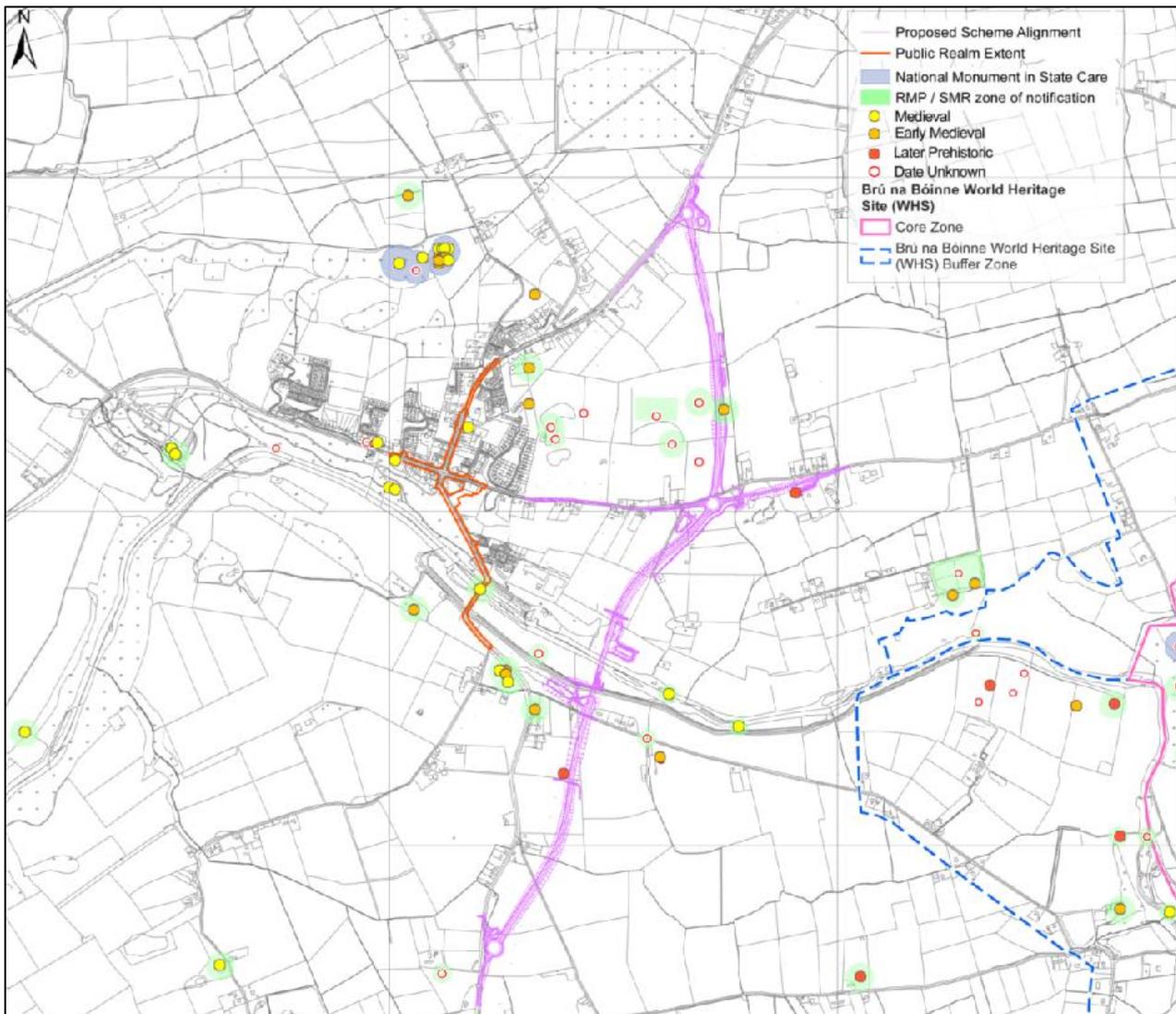


Figure 13.28: Archaeological Sites by Time Period, West of Brú na Bóinne WHP Core Zone

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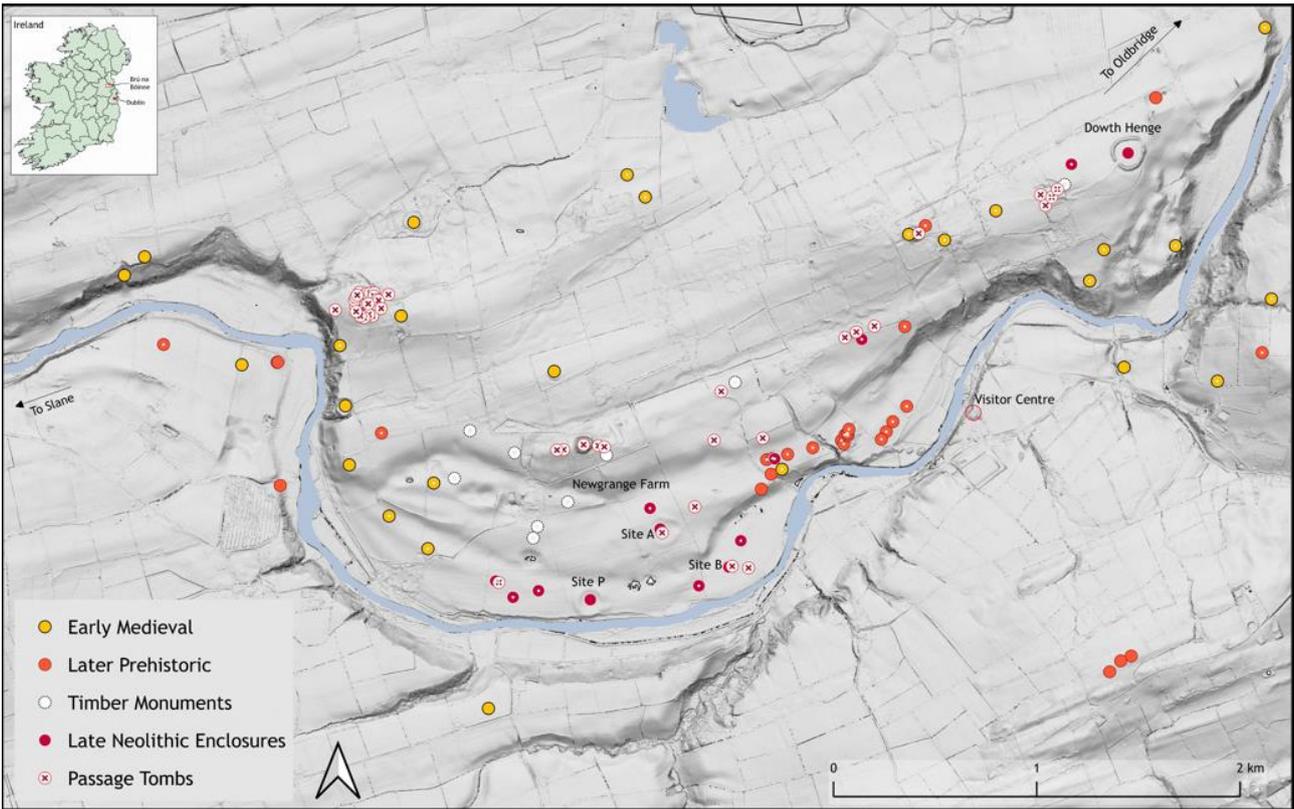


Figure 13.29: Archaeological Sites by Time Period at Brú na Bóinne (after Davis 2019)

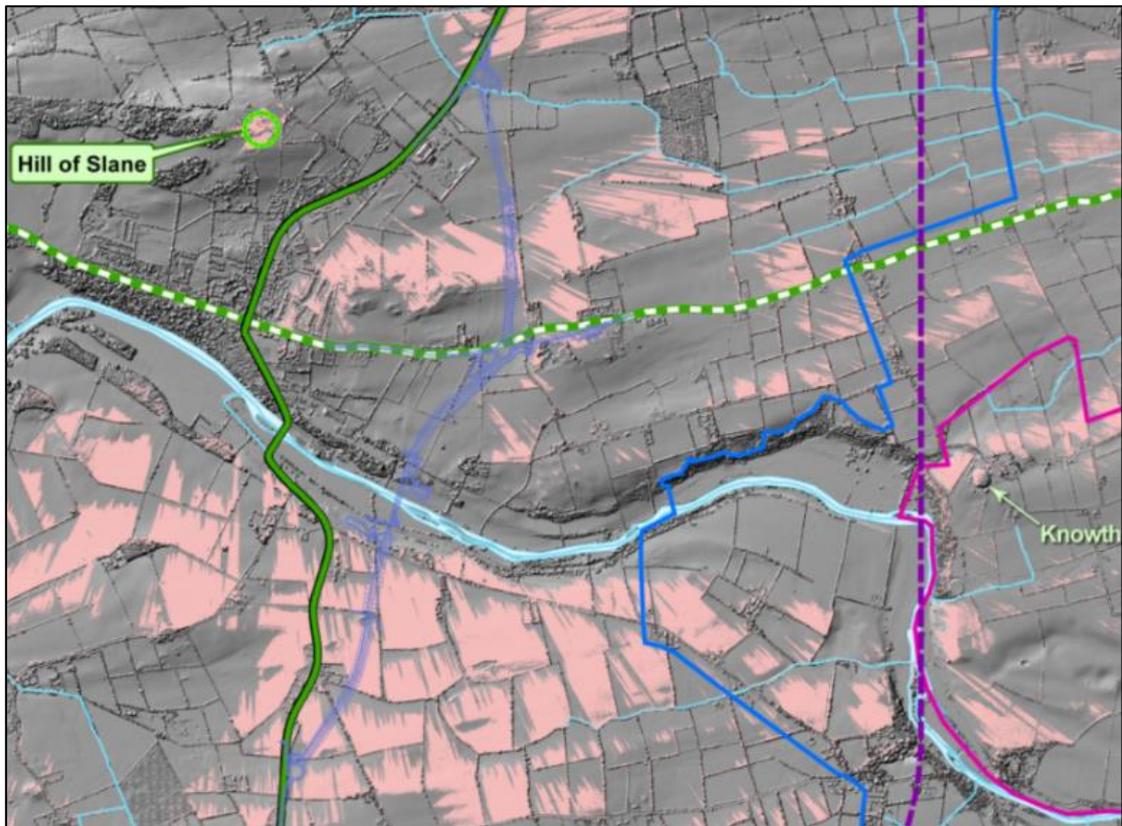
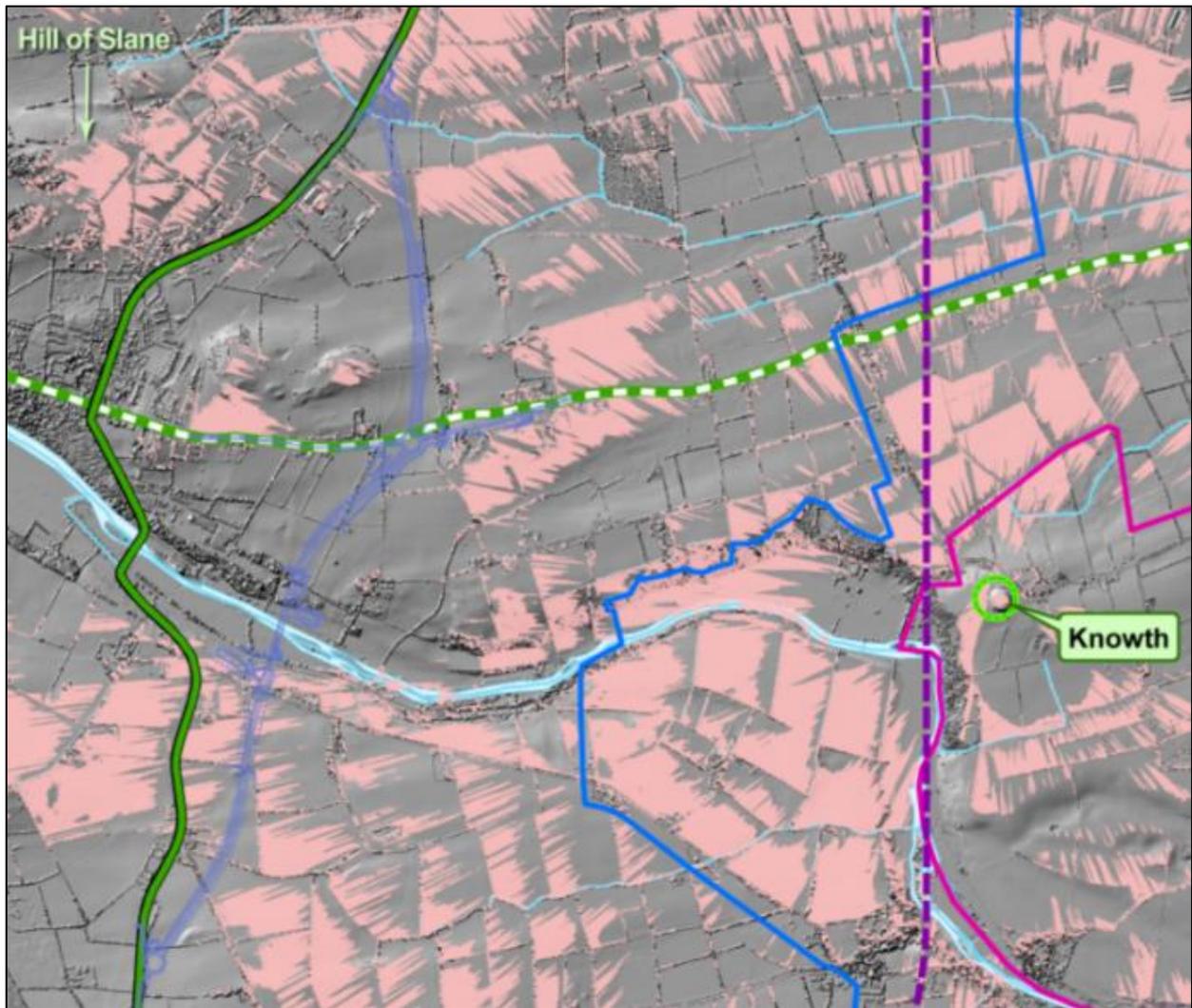
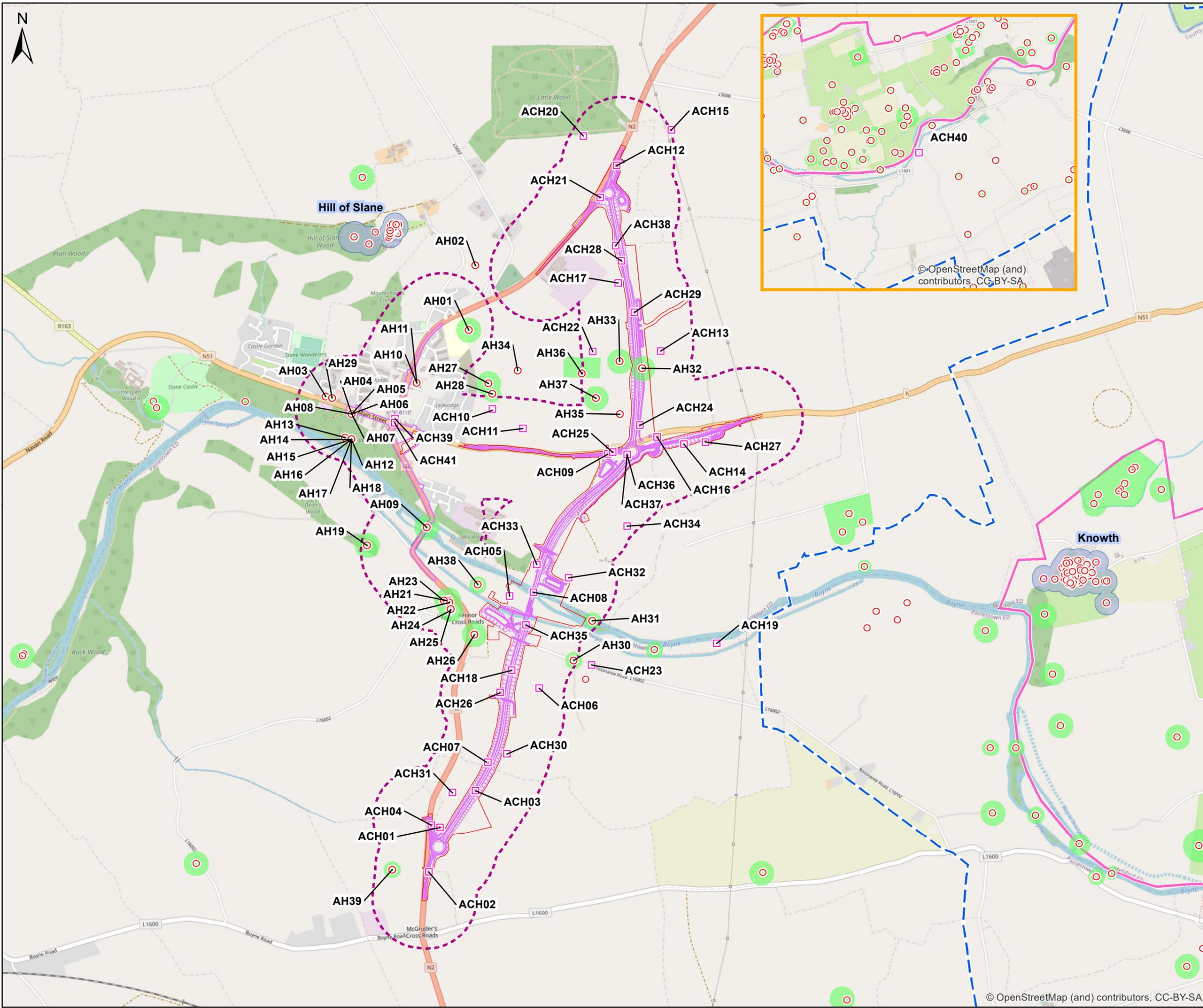


Figure 13.30: Viewshed from the Hill of Slane, with Proposed Scheme Alignment Shown in Light Purple (Viewshed produced using Digital Surface Model, which shows surface features such as trees & hedges)



**Figure 13.31: Viewshed from Knowth, with Proposed Scheme Alignment Shown in Light Purple (Viewshed produced using Digital Surface Model, which shows surface features such as trees & hedges)**



Legend		
	Proposed Scheme	
	250m Zone of Influence	
	Proposed Scheme Boundary	
	RMP/SMR sites (AH)	
	Undesignated sites (ACH)	
	National Monument in State Care	
	RMP / SMR zone of notification	
Brú na Bóinne World Heritage Property		
	Core Zone	
	Buffer Zone	
<p>Data Source: The World Heritage Property Boundaries were sourced from Meath County Council as used in the Meath County Development Plan (2021-2027).            RMP and SMRZ: National Monuments Service.            National Monuments in State Care: <a href="https://www.archaeology.ie/sites/default/files/media/pdf/monuments-in-state-care-meath.pdf">https://www.archaeology.ie/sites/default/files/media/pdf/monuments-in-state-care-meath.pdf</a>.            Indicative boundary digitised.</p>		
<p>0 0.25 0.5 1 Kilometres</p>		
<p>Client <b>Meath County Council</b></p>		
<p><b>N2 Slane Bypass and Public Realm Enhancement Scheme</b></p>		
<p>Title <b>13.32(a):</b></p>		
<p><b>Archaeological and Cultural Heritage Overview</b></p>		
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<p>Issue Details</p>		
<p>File Identifier: MDT0806-RPS-00-N2-DR-Z-AG-3047</p>		
Status:	Rev:	Model File Identifier:
A1	C01	MDT0806-RPS-01-N2-M2-C-XM1001 MDT0806-RPS-01-PR-M2-C-XR9000
Drawn:	NR	Date: 13/06/2023
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**Legend**

- Proposed Scheme
- Proposed Scheme Boundary**
  - Land Acquisition Boundary Permanent
  - Land Acquisition Boundary Temporary
  - 250m Zone of Influence
  - RMP/SMR sites (AH)
  - Undesignated sites (ACH)
  - RMP / SMR zone of notification
  - Field Walkover Survey, field numbers
  - Townland Boundaries

Data Source: The World Heritage Property Boundaries were sourced from Meath County Council as used in the Meath County Development Plan (2021-2027).  
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Client  
**Meath County Council**

**N2 Slane Bypass and Public Realm Enhancement Scheme**

Title  
**Figure 13.32(b)**

**Location of Archaeological and Cultural Heritage Sites**

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<b>Status:</b> A1	<b>Rev:</b> C01	<b>Model File Identifier:</b> MDT0806-RPS-01-N2-M2-C-XM1001 MDT0806-RPS-01-N2-M2-C-XR9000
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**Legend**

- Proposed Scheme
- Proposed Scheme Boundary**
  - Land Acquisition Boundary Permanent
  - Land Acquisition Boundary Temporary
  - 250m Zone of Influence
  - RMP/SMR sites (AH)
  - Undesignated sites (ACH)
  - RMP / SMR zone of notification
  - Field Walkover Survey, field numbers
  - Townland Boundaries

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Kilometres

13.32(e)  
13.32(f) 13.32(d)  
13.32(c)  
13.32(b)

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**Figure 13.32(c)**

**Location of Archaeological and Cultural Heritage Sites**

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<b>Drawn:</b> NR	<b>Date:</b> 13/06/2023	
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**Legend**

- Proposed Scheme
- Proposed Scheme Boundary**
  - Land Acquisition Boundary Permanent
  - Land Acquisition Boundary Temporary
  - 250m Zone of Influence
  - RMP/SMR sites (AH)
  - Undesignated sites (ACH)
  - RMP / SMR zone of notification
  - Field Walkover Survey, field numbers
  - Townland Boundaries
- Brú na Bóinne World Heritage Property (WHP)**
  - Buffer Zone

Data Source: The World Heritage Property Boundaries were sourced from Meath County Council as used in the Meath County Development Plan (2021-2027).  
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**N2 Slane Bypass and Public Realm Enhancement Scheme**

Title  
**Figure 13.32(d)**

**Location of Archaeological and Cultural Heritage Sites**

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<b>Status:</b> A1	<b>Rev:</b> C01	<b>Model File Identifier:</b> MDT0806-RPS-01-N2-M2-C-XM1001 MDT0806-RPS-01-N2-M2-C-XR9000
<b>Drawn:</b> NR	<b>Date:</b> 13/06/2023	
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**Legend**

- Proposed Scheme
- Proposed Scheme Boundary**
  - Land Acquisition Boundary Permanent
  - Land Acquisition Boundary Temporary
- 250m Zone of Influence
- RMP/SMR sites (AH)
- Undesignated sites (ACH)
- RMP / SMR zone of notification
- F Field Walkover Survey, field numbers
- Townland Boundaries

Data Source: The World Heritage Property Boundaries were sourced from Meath County Council as used in the Meath County Development Plan (2021-2027).  
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Title **Figure 13.32(e)**

**Location of Archaeological and Cultural Heritage Sites**

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**Legend**

- Proposed Scheme
- Proposed Scheme Boundary
  - Land Acquisition Boundary Permanent
  - Land Acquisition Boundary Temporary
- 250m Zone of Influence
- RMP/SMR sites (AH)
- Undesignated sites (ACH)
- RMP / SMR zone of notification
- Field Walkover Survey, field numbers
- Townland Boundaries

Data Source: The World Heritage Property Boundaries were sourced from Meath County Council as used in the Meath County Development Plan (2021-2027).  
RMP and SMRZ: National Monuments Service.

0 0.05 0.1 0.2  
Kilometres

13.32(e)  
13.32(f) 13.32(d)  
13.32(c)  
13.32(b)

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Client  
**Meath County Council**

**N2 Slane Bypass and Public Realm Enhancement Scheme**

Title  
**Figure 13.32(f)**

**Location of Archaeological and Cultural Heritage Sites**

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<b>Drawn:</b> NR	<b>Date:</b> 13/06/2023	
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## VOL. 2 CHAPTER 13 – ARCHAEOLOGICAL AND CULTURAL HERITAGE

### 13.3.1.6 Mainline Bypass

This section should be read in conjunction with **Figure 13.32(a)-(f)**, which show the locations of the relevant archaeological and cultural heritage assets identified as part of this assessment.

#### 13.3.1.6.1 Designated Sites

##### 13.3.1.6.1.1 World Heritage Property

The current N2 road runs from south to north through Slane, where it crosses the River Boyne. The World Heritage Property is located further down the Boyne, east of Slane, at least 2.7km from the current N2 at Fennor. The boundary of the buffer zone that surrounds the World Heritage Property is at least 1.4km from the current N2 (the location of the buffer zone in relation to the proposed scheme and the existing road can be seen on **Figure 13.28**). The proposed new road would bypass Slane on its east side and therefore would be closer to the World Heritage Property than the existing road. However, it must be stressed that no part of the proposed bypass would lie within the World Heritage Property or its buffer zone. The bypass, at its closest where it crosses the N51, would be at least 0.9km outside the buffer zone and 2.0km outside the World Heritage Property.

As a result, the bypass would lie within the wider setting of the World Heritage Property. Construction of the bypass would change the setting, and this could affect the OUV of the World Heritage Property. Change in the setting would not automatically affect OUV; this depends on the nature of the change and the ways in which this part of the setting supports OUV.

The HIA report (**Appendix 13.1**) undertaken for the World Heritage Property provides analysis of the contribution made by setting to OUV (Section 4 of the report). This leads to a Statement of Significance in Section 5 that describes three ways in which the wider setting around Slane supports the OUV of the World Heritage Property:

- Attributes of both the built and natural environment near Slane have functional associations with the monumental landscape of the World Heritage Property and with individual monuments within the property. Appreciation of these associations supports the OUV of the property.
- Viewpoints near Slane provide opportunities to experience the monumental landscape of the World Heritage Property and the landscape setting of individual monuments within the property. These opportunities enhance our appreciation of the landscape setting and therefore support the OUV of the property.
- The land around Slane features in the background to some important views of the World Heritage Property from within the nominated property and the buffer zone. In these views, it is part of the modern rural agricultural landscape that forms an appropriate green setting for the Neolithic monuments within the nominated property. Experience of the monuments in this rural setting supports the OUV of the property.

These three aspects of setting provide the framework for assessment of how the predicted changes in the wider setting caused by the Proposed Scheme would impact on OUV.

A full and detailed account of the assessment is provided in the HIA report in **Appendix 13.1** and a summary of the impact assessment and mitigation of potential and predicted adverse effects on the OUV of the World Heritage Property is contained in **Sections 13.4** and **13.4.3**.

##### 13.3.1.6.1.2 National Monuments

There are no national monuments recorded within the Proposed Scheme or within 250m of it. Two national monuments are located on natural heights within the wider landscape and are discussed below.

#### Hill of Slane, Church and College

The Hill of Slane is a national monument in State ownership (NM Refs 666 and 188, RMP ME019-060002 to ME019-006015). The concentration of ecclesiastical ruins on the Hill of Slane occupies a commanding position on the summit (158 m OD) in lands that were formerly part of the Slanecastle Demesne, c. 1km west of the Proposed Scheme. The hill overlooks the River Boyne and has views of Tara, Skryne, Knowth, Newgrange, Mountfortescue and Slieve Breagh. Fennor Church and Castle, which overlook the key fording point at Slane Bridge, can also be seen from the hilltop. Its association with the Boyne River and the village

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of Slane to the south is also significant. The site is accessible to the public and is a prominent landmark. It is also the focus of the annual Paschal Fire procession, which celebrates the tradition that St Patrick lit the paschal fire on Slane Hill in 433 AD.

There are two protected views from the hill in the Meath County Development Plan (CDP) 2021-2027: one from the summit of the hill (CDP Ref. 30) which provides an extensive panorama across an open, working, and settled landscape; and the other from the car park at the Hill of Slane (CDP Ref. 29), which has extensive views from east to south-east across the same open, working, and settled landscape (see **Chapter 12 – Landscape and Visual**). Modern housing and agricultural development are visible in both. In the case of the view from the car park, the fencing around the water reservoir, electricity poles, and Ledwidge Hall housing estate are prominent in the near view to the east / south-east.

The visibility of the Proposed Scheme (Mainline Bypass) from the Hill of Slane is largely concentrated in Slane townland, where the Proposed Scheme approaches a ridge of low hills in the foreground of the view south-east from the Hill of Slane (c. 800 m from the Hill of Slane to the nearest, Stanley Hill). This ridge appears to have been the focus of contemporary early medieval activity, with at least one confirmed early medieval site situated on lower ground on its eastern side (AH32, ME019-085). Although the Proposed Scheme will also be visible south of the river, this is a more distant view, in which it will be less visible than the existing N2 road south of the river, as it will be in cut and will be better screened.

In relation to views from the Hill of Slane towards the Brú na Bóinne World Heritage Property (WHP), this is examined by Dr Carter in the HIA (**Appendix 13.1**) and the conclusions of his assessment are provided below in **Section 13.4**.

### Knowth Passage Tomb Cemetery, Enclosure and Mound

Knowth is a national monument in State ownership (NM Refs 409 and 549, RMP ME019-030001 to ME019-030063, ME019-073 and -074), located over 2 km east of the Proposed Scheme, which also forms part of the WHP (see the HIA in **Appendix 13.1**). As with the Hill of Slane, Knowth is a prominent landmark, though not as easily identifiable from the Proposed Scheme. The relationship between Knowth and the River Boyne (especially the bend in the river) is of particular importance. This connection is readily apparent and views along the river from the monument, towards the bend, are meaningful. The HIA report provides a detailed assessment of the Proposed Scheme in relation to Knowth and the WHP (**Appendix 13.1**).

#### 13.3.1.6.1.3 Recorded Archaeological Sites and Monuments (RMP / SMR sites)

There are 16 recorded archaeological sites located within c. 250m of the Proposed Scheme (Mainline Bypass) (**Table 13-5**), only one of which, an early medieval D-shaped enclosure site, is located (partly) within it, just east of the ridge of high ground formed by Norris Hill, Gallows Hill and Stanley Hill. The enclosure (AH32, ME019-085) was first identified in 2005 during a geophysical survey and was subsequently confirmed during archaeological testing (**Section 13.3.1.2**) and added to the SMR for inclusion in the next revision of the RMP. Additional geophysical survey undertaken as part of this assessment in the area to the east of the Proposed Scheme identified that the site continues on the opposite side of the Slane / Cashel townland boundary, outside the Proposed Scheme.

Six of the recorded sites are clustered together at Fennor (AH20-AH25), on the west side of the existing N2 road, comprising the early medieval and medieval remains at Fennor Church (ME019-035) and Fennor Castle (tower house and 16th/17th century house; ME019-036001 and 002). Fennor Castle occupies a strategic position above the river, possibly situated to take advantage of an earlier fording point. The remains of the medieval tower house and fortified house are mostly screened by a stand of mature trees, but the monument is visible from several places within Fennor townland. Conversely, views from the monument in the direction of the existing N2 road and Proposed Scheme (Mainline Bypass) are less open thanks to the tree cover. Part of this busy road is visible from within Fennor graveyard, which contains the ruined Fennor Church. The traffic noise from passing vehicles is loud and distracting at both monuments, negatively affecting their setting and detracting from the experience. Standing within the graveyard looking eastwards, there is a view down the river valley to the east/ north-east towards Knowth, albeit somewhat interrupted by traffic and streetlights on the existing N2 road. The Proposed Scheme (Mainline Bypass) will be partly visible in this view where it crosses the river.

The remaining sites recorded within the zone of influence represent sites of uncertain date, predominantly subsurface, though at least three south of the river may be roughly contemporary with the remains at Fennor, a mill site, fish weir, and a souterrain (AH26, AH31, AH38). Four sites north of the river (AH33, AH35-37), which were identified by geophysical survey and LiDAR survey, are located in the vicinity of the

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early medieval enclosure AH32. Whether or not they are contemporary with it is unknown, but they indicate a focus of activity on and around this ridge of high ground.

A further three recorded sites, enclosures ME019-062 and ME019-063 (AH27 & AH28), and Slane bridge, ME019-024 (AH09), lie beyond the 250 m zone of influence, but have been included for assessment because of their setting (**Table 13-6**). The two enclosures, both of which have above-ground remains albeit degraded, occupy a position on the western end of the Stanley/ Gallows / Norris Hills ridge, providing further evidence for activity here in the past (as do non-designated sites ACH10 and ACH24, discussed below). A large possible enclosure site, also of early medieval date, was partly excavated c. 120 m to the north-west of ME019-062 at Ledwidge Hall, providing further indication that this area was a focus for settlement in the early medieval period. There are good views to the Hill of Slane to the north-east, Knowth to the east, and over the river and to Fennor Castle and Church to the south. The Proposed Scheme (Mainline Bypass) will run in cutting to the east of the ridge, continuing northwards on alternating sections of embankment and cutting.

Slane Bridge (AH09) is a primarily 18th century construction that incorporates elements of the earlier, medieval bridge. The bridge is one of the earliest known crossings of the River Boyne and contains elements from various periods, from the 14th century to the present day. There are good views along the river valley to the east, though the bend in the river and the natural topography prevents views into the WHP, with none of the monuments visible. Slane Mill, located immediately north-east of the bridge, dominates the near view and captures the eye. There is also a designed view of Slane Castle at the north end of the bridge. The Proposed Scheme (Mainline Bypass) will cross the river c. 630 m east of the bridge.

**Table 13-5: RMP / SMR Sites Within c. 250m (Mainline Bypass)**

ID No.	RMP / SMR No.	Site Type	Townland	Easting (ITM)	Northing (ITM)	Distance
AH20	ME019-035	Church	FENNOR (Duleek Lwr By)	696449	773306	c. 160m
AH21	ME019-035001	Graveyard	FENNOR (Duleek Lwr By)	696440	773300	c. 155m
AH22	ME019-035002	Cross - High cross	FENNOR (Duleek Lwr By)	696454	773289	c. 157m
AH23	ME019-035003	Graveslab	FENNOR (Duleek Lwr By)	696426	773298	c. 187m
AH24	ME019-036001	House - 16th/17th century	FENNOR (Duleek Lwr By)	696460	773249	c. 135m
AH25	ME019-036002	Castle - tower house	FENNOR (Duleek Lwr By)	696462	773255	c. 135m
AH26	ME019-037	Souterrain	FENNOR (Duleek Lwr By)	696580	773128	c. 40m
AH30	ME019-082	Watercourse	FENNOR (Duleek Lwr By)	697080	772998	c. 155m
AH31	ME019-083	Weir - fish	FENNOR (Duleek Lwr By)	697175	773198	c. 140m
AH32	ME019-085	Enclosure	SLANE	697427	774470	0m
AH33	ME019-088	Enclosure	SLANE	697312	774506	c. 40m
AH35	ME019-092	Linear earthwork	SLANE	697313	774239	c. 55m
AH36	ME019-098	Field system	SLANE	697122	774444	c. 155m
AH37	ME019-102	Enclosure	SLANE	697193	774319	c. 115m
AH38	ME019-120	Mill - unclassified	FENNOR (Duleek Lwr By)	696597	773380	c. 65m
AH39	ME026-003	Mound	JOHNSTOWN (Duleek Lwr By)	696166	771943	c. 120m

**Table 13-6: Relevant RMP / SMR Sites Outside the Study Area**

Unique ID	RMP / SMR No.	Site Type	Townland	Easting (ITM)	Northing (ITM)	Distance
AH09	ME019-024	Bridge	FENNOR (Duleek Lwr By), SLANE, SLANECASTLE DEMESNE	696340	773668	c. 630m
AH27	ME019-062	Enclosure	SLANE	696651	774394	c. 690m
AH28	ME019-063	Enclosure	SLANE	696710	774268	c. 690m

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### 13.3.1.6.2 Non-Designated Sites

There are 29 non-designated sites located within the zone of influence, of which 20 lie within or partly within the mainline bypass element of the Proposed Scheme (**Table 13-7**).

One of the sites that lies partly within the Proposed Scheme was identified by geophysical survey and has been confirmed by archaeological testing, a probable ring-ditch (ACH26) in Fennor. Preliminary dating evidence indicates Iron Age activity at this site.

Archaeological monitoring of geotechnical test pits identified a possible burnt spread within the Proposed Scheme in Slane townland (ACH38).

There are also six potential enclosure sites and a possible mound identified through aerial survey, geophysical survey, or LiDAR survey, none of which have been confirmed as archaeological. Two of the possible enclosures are located within or partly within the Proposed Scheme (ACH24 & ACH33). The most extensive of these potential sites is a possible oval enclosure and apparent field system identified by geophysical survey (ACH24), was thought to be associated with the early medieval enclosure (ME019-085, AH32) in the field to the north. Targeted archaeological testing in 2005 did not identify any archaeological features. Underlying geology may have interfered with the survey, but it is also possible that there are still archaeological features here which limited testing failed to isolate.

Three of the sites represent areas of archaeological potential within or partly within the Proposed Scheme: the riverine environs of the Boyne, its riverbed, banks and floodplain (ACH08); possible milling activity on the south bank of the river (ACH05), as indicated by field names and its location between two recorded mill sites; and an area containing flint scatters in Fennor townland (ACH18). A fragment of burnt human bone (ACH06) also found in this area (c. 115 m outside the Proposed Scheme) may indicate the presence of a cremation burial in the area. An isolated flint scatter was also observed in Slane townland outside the Proposed Scheme during field survey work for the previously proposed N2 Slane Bypass Scheme (ACH17; the flints were not collected or assessed).

Four of the sites within the Proposed Scheme represent the locations of buildings depicted on the first edition OS six-maps of 1836, where foundations remain may survive below ground (ACH02, 04, 12, 21). In addition, a section of the 18th century turnpike road from Dublin to Slane (ACH03), which is also shown on historic maps, survives in Cullen townland.

A possible rectilinear feature was identified on aerial imagery (ACH33), within the LMA for the Proposed Scheme. Two features of potential archaeological interest were identified by geophysical survey, a curving ditch-type anomaly (ACH07) and a group of pits that appear to form a curving pattern (ACH01). Both are located within / partly within the Proposed Scheme.

The remaining six sites represent areas containing geophysical anomalies (such as isolated linear features and pit-type features) within the Proposed Scheme, where the features may or may not prove to be archaeological in nature (ACH28-30, 35-37). In these areas there were no features of definite archaeological interest, however an archaeological explanation for the anomalies could not be ruled out. Elsewhere within the Proposed Scheme where archaeological testing of geophysical features has taken place, it was found that many such features had a geological origin (e.g. a possible ring-ditch in Fennor townland, Geophysical Survey (GS) Site 13-1, and two possible enclosures in Slane townland, GS Sites 9-5 & 9-6; see **Section 13.3.1.2.2**).

An additional three sites lie beyond the zone of influence but have been included in the assessment because of their relative importance in the cultural heritage of this area (**Table 13-8**): a battle site at Rosnaree (associated with the Battle of the Boyne (ACH19)); an Emergency-era pill-box (ACH23); and Boyne Currach Making (ACH40), a feature of intangible cultural heritage interest, as identified in the National Inventory for Intangible Cultural Heritage, the centre for which lies c. 4.7 km south-east of the Proposed Scheme.

The Ledwidge Museum, the 19th century cottage where the celebrated local poet Francis Ledwidge was born, is located on the north side of the N51 road, c. 100 m west of the Proposed Scheme (Mainline Bypass). The Ledwidge Museum represents both tangible and intangible cultural heritage as described in **Section 13.3.1.4.1**. The museum is a designated protected structure and as such is assessed in **Chapter 14 – Architectural Heritage**.

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Table 13-7: Non-Designated Sites Within c. 250m (Mainline Bypass)

ID No.	Site Type	Townland	Easting (ITM)	Northing (ITM)	Distance
ACH01	Possible curvilinear feature (geophysical anomaly)	Cullen	696407	772155	Within
ACH02	Pre-1830s structure (site of)	Cullen	696351	771932	Within
ACH03	Pre-1830s road	Cullen	696585	772342	Partly within
ACH04	Pre-1830s structures (site of)	Johnstown	696363	772168	Within
ACH05	Possible milling activity	Fennor	696758	773322	Partly within
ACH06	Possible cremation burial (vicinity of)	Fennor	696906	772858	c. 115m
ACH07	Possible curvilinear feature (geophysical anomaly)	Fennor	696647	772485	Partly within
ACH08	Riverine environs (area of archaeological potential)	Slane / Fennor	696878	773341	Partly within
ACH12	Pre-1830s structure (site of)	Slane	697297	775492	Within
ACH13	Mound	Cashel	697519	774558	c. 70m
ACH15	Enclosure	Mooretown	697572	775671	c.230m
ACH17	Flint scatter	Slane	697305	774900	c. 30m
ACH18	Flint scatters	Fennor	696768	772948	Partly within
ACH20	Possible enclosure	Slane	697129	775641	c. 180m
ACH21	Pre-1830s structures (site of)	Slane	697175	775321	Partly within
ACH22	Possible enclosure	Slane	697177	774554	c. 185m
ACH24	Possible enclosure	Slane	697414	774182	Within
ACH26	Probable ring-ditch	Fennor	696710	772835	Partly within
ACH28	Possible archaeological features (geophysical anomalies)	Slane	697322	775011	Within
ACH29	Possible archaeological features (geophysical anomalies)	Slane	697387	774753	Within
ACH30	Possible archaeological features (geophysical anomalies)	Fennor	696744	772526	Within
ACH31	Possible enclosure	Cullen	696469	772331	c. 130m
ACH32	Possible enclosure	Slane	697054	773414	c. 25m
ACH33	Possible rectilinear feature	Slane	696895	773487	Within
ACH34	Possible enclosures	Slane	697350	773675	c. 220m
ACH35	Possible archaeological features (geophysical anomalies)	Fennor	696839	773177	Within
ACH36	Possible archaeological features (geophysical anomalies)	Slane	697350	774035	Within
ACH37	Possible archaeological features (geophysical anomalies)	Slane	697016	773685	Within
ACH38	Possible burnt spread	Slane	697292	775087	Within

Table 13-8: Relevant Non-Designated Sites Outside the Study Area

ID No.	Site Type	Townland	Easting (ITM)	Northing (ITM)	Distance
ACH23	Pill box	Fennor	697170	772975	c. 290m
ACH19	Battle site	Rosnaree	697802	773084	c. 900m
ACH40	Boyne Currach Making ( <i>distance given is to Heritage Group Centre</i> )	Roughgrange	701746	774216	c. 4.7km

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### 13.3.1.7 N51 Route Improvements

This section should be read in conjunction with **Figure 13.32(a)-(f)**, which show the locations of the relevant archaeological and cultural heritage assets identified as part of this assessment.

#### 13.3.1.7.1 Designated Sites

##### 13.3.1.7.1.1 World Heritage Property

A summary of the HIA undertaken with regard to the Proposed Scheme is contained in **Section 13.3.1.6.1.1**.

##### 13.3.1.7.1.2 National Monuments

There are no national monuments recorded within the Proposed Scheme (N51 Route Improvements) or within 250 m of it. Two national monuments are located on natural heights within the wider landscape, the Hill of Slane and Knowth, neither of which is visible from this section of the N51. The existing road, with its hedgerow boundaries and modern road-side properties, is well bedded into the landscape. Viewshed analysis indicate that only a portion of the field to the north of the N51, at the western end of the proposed road improvements, is visible from Knowth.

##### 13.3.1.7.2 Recorded Archaeological Sites and Monuments (RMP / SMR sites)

There are no recorded archaeological sites located within or in proximity to the proposed road improvements and only one within c. 250 m, an enclosure located on Stanley Hill (AH28, ME019-063; **Table 13-9**). There are good views southwards across the river valley from Stanley Hill. The existing N51 road, which runs east-west to the south, does not distract from this view.

**Table 13-9: RMP / SMR sites Within c. 250m (N51 Route Improvements)**

Unique ID	RMP / SMR No.	Site Type	Townland	Easting (ITM)	Northing (ITM)	Distance
AH28	ME019-063	Enclosure	SLANE	696710	774268	c. 245m

##### 13.3.1.7.3 Non-Designated Sites

There are five non-designated sites located within / partly within the Proposed Scheme (N51 Route Improvements) and only one further site within 250 m of it, ACH11, a possible enclosure identified by geophysical survey c. 95 m north (**Table 13-10**).

One of the sites that lies partly within the Proposed Scheme was identified by geophysical survey and has been confirmed by archaeological testing, part of a probable enclosure (ACH27) in Cashel. Preliminary dating evidence indicates Iron Age activity at this site.

The three sites within the Proposed Scheme represent the locations of buildings depicted on the first edition OS six-maps of 1836, where foundations remains may survive below ground (ACH09, 16, 25).

Another non-designated site of cultural heritage interest that lies partly within the Proposed Scheme is the site of post-medieval industrial activity and lime-kiln at Limekiln Hill (ACH14), where there has been a considerable amount of quarrying activity from at least the early 19th century into the 20th century. Many of the earlier quarry holes were backfilled and may contain material of archaeological or historical interest.

The Ledwidge Museum, the 19th century cottage where the celebrated war-time poet Francis Ledwidge was born, is located on the north side of the N51 road. This is an important cultural and built heritage feature and as a designated protected structure it is assessed in **Chapter 14 – Architectural Heritage**.

**Table 13-10: Non-Designated Sites Within c. 250m (N51 Route Improvements)**

ID No.	Site Type	Townland	Easting (ITM)	Northing (ITM)	Distance
ACH11	Possible enclosure	Slane	696825	774167	c. 95m
ACH09	Pre-1830s structure (site of)	Slane	697252	774038	Within

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ID No.	Site Type	Townland	Easting (ITM)	Northing (ITM)	Distance
ACH25	Pre-1830s structure (site of)	Slane	697277	774046	Within
ACH16	Pre-1830s structure (site of)	Cashel	697501	774125	Within
ACH14	Lime-kiln & post-medieval industrial activity (site of)	Cashel	697637	774088	Partly within
ACH27	Probable enclosure	Cashel	697745	774098	Partly within

### 13.3.1.8 Slane Village Traffic Management Works and Public Realm Works

This section should be read in conjunction with **Figure 13.32(a)-(f)**, which show the locations of the relevant archaeological and cultural heritage assets identified as part of this assessment.

#### 13.3.1.8.1 Designated Sites

##### 13.3.1.8.1.1 World Heritage Property

A summary of the HIA undertaken with regard to the Proposed Scheme is contained in **Section 13.3.1.6.1.1**.

##### 13.3.1.8.1.2 National Monuments

There are no national monuments recorded within this part of the Proposed Scheme or within 250m of it. Two national monuments are located on natural heights within the wider landscape, the Hill of Slane and Knowth, both of which are visible from the existing N2 road at Fennor.

#### 13.3.1.8.2 Recorded Archaeological Sites and Monuments (RMP / SMR sites)

There are 29 recorded archaeological sites located within c. 250 m of the proposed Slane village public realm element of the scheme, only one of which (Slane Bridge, ME019-024; AH09) is located within the Proposed Scheme boundary (**Table 13-11**). Slane Bridge is a primarily 18th century construction that incorporates elements of the earlier, medieval bridge. The bridge is one of the earliest known crossings of the River Boyne and contains elements from various periods, from the 14th century to the present day. There are good views along the river valley to the east, though the bend in the river and the natural topography prevents views into the WHP, with none of the monuments visible. Slane Mill, located immediately north-east of the bridge, dominates the near view and captures the eye. The N2 is a busy national road and the vibrations of heavy traffic on the bridge, which includes heavy goods vehicles, has an ongoing negative effect on the structure.

Six of the recorded sites are clustered together at Fennor (AH20-AH25), on the west side of the existing N2 road, comprising the early medieval and medieval remains at Fennor Church (ME019-035) and Fennor Castle (tower house and 16th/17th century house; ME019-036001 and 002). Fennor Castle occupies a strategic position above the river, possibly situated to take advantage of an earlier fording point. The remains of the medieval tower house and fortified house are mostly screened by a stand of mature trees, but the monument is visible from several places within Fennor townland. Conversely, views from the monument in the direction of the existing N2 road are less open thanks to the tree cover. Part of this busy road is visible from within Fennor graveyard, which contains the ruined Fennor Church. The traffic noise from passing vehicles is loud and distracting at both monuments, negatively affecting their setting and detracting from the experience. Standing within the graveyard looking eastwards, there is a view down the river valley to the east / north-east towards Knowth, albeit somewhat interrupted by traffic and streetlights on the existing N2 road.

Most of the recorded archaeological sites near or in Slane village have no visible presence, with the majority being medieval ecclesiastical remains that are now housed within existing buildings (e.g. in St Patrick's Church of Ireland Church), no longer in their original context or locations. The upstanding remains of the medieval church, tower and dwelling of St Erc's Hermitage (AH12, ME019-026) are hidden from view amongst the dense woodland of Slane Castle demesne. Others survive as below-ground sites, e.g. the souterrains to the east and west of the N2 Collon Road. A third souterrain is recorded north of the existing

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N2 road at Fennor, with a mill site recorded on the riverbank further north, both of which may be contemporary with the remains at Fennor (AH26, AH31, AH38).

**Table 13-11: RMP / SMR Sites Within c. 250m (Slane Village Public Realm)**

ID No.	RMP / SMR No.	Site Type	Townland	Easting (ITM)	Northing (ITM)	Distance
AH01	ME019-008	Souterrain	SLANE	696551	774663	c. 25m
AH02	ME019-013	Souterrain	SLANE	696580	774996	c. 160m
AH03	ME019-022----	Burial	SLANE	695830	774328	c. 120m
AH04	ME019-023001	Tomb – effigial (present location)	SLANE	695962	774241	c. 10m
AH05	ME019-023002	Graveslab (present location)	SLANE	695962	774241	c. 10m
AH06	ME019-023003	Architectural feature	SLANE	695962	774241	c. 10m
AH07	ME019-023004	Armorial plaque (present location)	SLANE	695962	774241	c. 10m
AH08	ME019-023005	Graveslab (present location)	SLANE	695962	774241	c. 10m
AH09	ME019-024	Bridge	FENNOR (Duleek Lower By.), SLANE, SLANECASTLE DEMESNE	696340	773668	Within
AH10	ME019-025	Font (present location)	SLANE	696290	774397	c. 35m
AH11	ME019-025001	Cross – high cross (present location)	SLANE	696290	774397	c. 35m
AH12	ME019-026	Religious house – Franciscan Third Order Religious	SLANECASTLE DEMESNE	695961	774113	c. 175m
AH13	ME019-026001	Stone sculpture (present location)	SLANECASTLE DEMESNE	695928	774122	c. 175m
AH14	ME019-026002	House – medieval	SLANECASTLE DEMESNE	695961	774113	c. 175m
AH15	ME019-026003	Stone sculpture	SLANECASTLE DEMESNE	695961	774113	c. 175m
AH16	ME019-026004	Tomb – chest tomb	SLANECASTLE DEMESNE	695961	774113	c. 175m
AH17	ME019-026005	Burial	SLANECASTLE DEMESNE	695961	774113	c. 175m
AH18	ME019-026006	Cross	SLANECASTLE DEMESNE	695961	774113	c. 175m
AH19	ME019-034----	Souterrain	FENNOR (Duleek Lower By.)	696040	773578	c. 150m
AH20	ME019-035----	Church	FENNOR (Duleek Lower By.)	696449	773306	c. 12m
AH21	ME019-035001	Graveyard	FENNOR (Duleek Lower By.)	696440	773300	c. 4m
AH22	ME019-035002	Cross - High cross	FENNOR (Duleek Lower By.)	696454	773289	c. 30m
AH23	ME019-035003	Graveslab	FENNOR (Duleek Lower By.)	696426	773298	c. 45m
AH24	ME019-036001	House - 16th/17th century	FENNOR (Duleek Lower By.)	696460	773249	c. 30m
AH25	ME019-036002	Castle - tower house	FENNOR (Duleek Lower By.)	696462	773255	c. 30m
AH26	ME019-037----	Souterrain	FENNOR (Duleek Lower By.)	696580	773128	c. 40m
AH29	ME019-079----	Cross (present location)	SLANE	695863	774321	c. 105m
AH34	ME019-089----	Linear earthwork	SLANE	696798	774458	c. 240m
AH38	ME019-120----	Mill - unclassified	FENNOR (Duleek Lower By.)	696597	773380	c. 90m

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### 13.3.1.8.3 Non-Designated Sites

Two sites of archaeological / cultural heritage interest were identified within this section of the Proposed Scheme: ACH39, the subsurface remains of an 18th century trough (possible fountain base) and drain identified during archaeological monitoring on Chapel Street; and ACH41, the site of an 18th century fountain at the centre of the present village cross-roads, the remains of which may survive subsurface. The sites are located beneath the existing road surface in areas proposed for resurfacing.

**Table 13-12: Non-Designated Sites Within c. 250m (Slane Village Public Realm)**

ID No.	Site Type	Townland	Easting (ITM)	Northing (ITM)	Distance
ACH39	18th century trough & drain	Slane	696179	774216	Within
ACH41	18th century fountain (site of)	Slane	696178	774196	Within

### 13.3.2 Evolution of the Environment in the Absence of the Proposed Scheme

Annex IV of the EIA Directive sets out the information required to be included in an EIAR. This includes “a description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the project as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge”. In the event that the Proposed Scheme does not proceed, an assessment of the future baseline conditions has been carried out and is described within this section.

In the ‘Do-Nothing’ scenario, the Proposed Scheme would not go ahead and the continued effect of heavy vehicles on the structural integrity of Slane Bridge (RMP ME019-024, AH09) may ultimately cause damage to the medieval fabric. There would otherwise be no potential for adverse effects to any known or as yet undiscovered subsurface archaeological deposits, features or finds, nor to any features, sites or monuments of cultural heritage or historic interest or significance.

## 13.4 Description of Likely Significant Effects

**Sections 13.4.1** and **13.4.2** provide a description of the likely significant effects of the Proposed Scheme on archaeological and cultural heritage, including world heritage, in cumulation with other existing development in the area. A description of the likely significant effects in cumulation with other approved development i.e. development not yet built, is presented in **Section 13.4.3** based on a detailed methodology for CIA included in **Chapter 25**.

The impact interactions between archaeological and cultural heritage, including world heritage, and other environmental factors are identified and described in **Chapter 26** and assessed throughout **Sections 13.4.1** to **13.4.3**.

The key considerations for archaeology and cultural heritage during the construction phase relates to disturbance of unrecorded cultural heritage features resulting from site clearance, earthworks and other civil engineering works. The construction phase may also introduce noise and visual disturbance to the setting of known features. During the operational phase visual disturbance is the main consideration for effects.

This section should be read in conjunction with **Figure 13.32(a)-(f)**, which show the locations of the relevant archaeological and cultural heritage assets identified as part of this assessment.

For consistency and ease of cross-reference with **Sections 13.3.1.6** to **13.3.1.8** of the baseline, this section discusses the effects under the headings N2 Mainline, N51 Route Improvements, and Slane Village Traffic Management Works and Public Realm Works.

### 13.4.1 Construction Phase

#### 13.4.1.1 N2 Mainline

A summary of construction phase effects is presented in **Section 13.4.1.2.5** at the end of this section.

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### 13.4.1.1.1 World Heritage Property

The predicted impact of the Proposed Scheme on the OUV of the World Heritage Property has been assessed by testing the Statement of Significance (Section 5 of the HIA report, **Appendix 13.1**) against the changes that would occur in the wider setting as a result of the construction and operation of the Proposed Scheme. The following conclusions have been extracted from the HIA report in **Appendix 13.1** and should be read in conjunction with that report which details the assessment process.

#### Assessment of construction-phase effects

The construction of the scheme is predicted to last for 36 months. During this time period, construction works will be visible within the wider setting of the World Heritage Property, including visibility from important viewpoints that support OUV.

Construction works will include structures and activities that do not form part of the completed scheme, such as temporary works compounds or the presence of cranes during erection of the Boyne Bridge. These will lead to higher levels of visual change and noise levels above those predicted for the operational bypass in some areas.

However, any changes in the visual or noise environment due to these works would be of short-duration and entirely reversed at the end of construction works. As a result of their temporary nature, it is concluded that they would not have any long-term or permanent adverse effect on the setting of the World Heritage Property and therefore no effect on OUV.

### 13.4.1.1.2 National Monuments

#### Hill of Slane, Church and College

The view to the east, towards the WHP and Knowth, is an important aspect in the wider setting of the Hill of Slane national monument and is discussed in the context of the WHP above. This view is part of a panoramic view from the hill that takes in the River Boyne and also has distant views of Tara, Skryne, Mountfortescue and Slieve Breagh. Its association with the Boyne River and the village of Slane to the south is also significant. As noted in **Section 13.3.1.6.1.2**, the views from the Hill of Slane (hilltop and car park) are protected in the County Development Plan (View ID 29 & 30).

The eastern view, in the direction of the Proposed Scheme, includes Knowth. This view will not be obstructed by the Proposed Scheme, however, the construction works will be visible in this view during construction of the Proposed Scheme. For the duration of the proposed construction works, there will be higher levels of visual change and noise levels as part of the road construction above those predicted for the operational bypass in this area. Any changes in the visual or noise environment due to these works would be of short-duration and entirely reversed at the end of construction works. Nonetheless, there will be a negative effect on the setting of the national monument for the duration of the works. This site is statutorily protected and considered to have a high sensitivity value and the magnitude of effect on the setting will be low. Therefore, the overall significance of effect is temporary moderate negative.

#### Knowth Passage Tomb Cemetery, Enclosure and Mound

Knowth, as an integral monument within the WHP, is assessed in the HIA report, as described in **Section 13.4.1.1.1** and detailed in the HIA Report in **Appendix 13.1**.

### 13.4.1.1.3 Recorded Archaeological Sites and Monuments (RMP / SMR)

#### 13.4.1.1.3.1 Direct Effects

There will be a direct, negative effect on the early medieval enclosure complex that lies partly within the Proposed Scheme, resulting in the permanent loss of that part of the site (AH32, ME019-085). A large part of the principal enclosure and annexe to the west, as well as part of a possible field system to the south lie within the Proposed Scheme. This is a large site which continues outside the Proposed Scheme to the east, where geophysical survey undertaken for this assessment identified associated and additional features. This site is statutorily protected and considered to have a medium sensitivity value and the magnitude of effect will be high. Therefore, the significance of effect is very significant negative.

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### 13.4.1.1.3.2 Indirect Effects

There will be a temporary negative effect on the setting of enclosures ME019-062 and ME019-063, which survive partially above ground (AH27 and AH28). The sites are located on a ridge of high ground and views from the two sites take in the Hill of Slane to the north-east, Knowth to the east, and over the river and to Fennor Castle and Church to the south. The setting of the sites is not exclusively agricultural, with the Ledwidge Hall housing estate immediately to the west, Slane village beyond it, and the large Grassland fertiliser plant to the north / north-west. There is no public access to the sites. The near view to the immediate east / north-east, of agricultural fields and field boundaries, will be negatively affected during the proposed construction works for the mainline bypass. There will be no obstruction of the more distant view in this direction of Knowth, nor of the views north-west to the Hill of Slane or south to Fennor. The enclosure sites are statutorily protected and considered to have a medium sensitivity value and the magnitude of effect on the setting during the proposed construction works will be low. Therefore, the significance of effect is slight negative temporary.

There will be a temporary negative effect on the setting of Fennor Church, the graveyard and Fennor Castle (AH20, 21, 24, 25; ME019-035, -035001, -036001, -036002), during construction phase, through the increased noise. Although traffic noise already negatively effects the experience of the heritage assets, there will be additional construction noise during the proposed works. These sites are statutorily protected and considered to have a medium sensitivity value and the magnitude of effect will be low. For the duration of the works there will be an indirect, negative, slight, temporary effect.

### 13.4.1.1.4 Non-Designated Sites

There will be a direct, negative, significant, permanent effect on the confirmed archaeological site that lies partly within the Proposed Scheme, a probable ring-ditch (ACH26). This is a relatively small site, only part of which extends into the Proposed Scheme, therefore the magnitude of effect will be medium. This is not a designated site and is not statutorily protected; however, as a newly identified archaeological site it is considered to have a medium sensitivity value. The overall significance of effect is significant.

The veracity of a possible enclosure site (ACH24) identified through geophysical survey within the Proposed Scheme could not be confirmed by the limited testing carried out. Further archaeological investigation will be required to determine whether any archaeological deposits, features or finds are present at this location. As the importance of the receptor is unknown, the significance of effect is recorded as undetermined in **Table 13-13**.

In the case of the possible archaeological features (ACH01, 07, 33) identified through geophysical survey or aerial survey, the potential for these sites to be archaeological in nature is considered to be low. This is also the case for the six areas containing geophysical anomalies but no definitive archaeological features (ACH28-30, 35-37). These anomalies are not clustered, they are small in scale and nature, and occur throughout the Proposed Scheme. Such features would be readily mitigated through testing and, if necessary, resolved by excavation. Further archaeological investigation will be required to determine whether any archaeological deposits, features or finds are present at these locations. As the importance of the receptors is unknown, the significance of effect is recorded as undetermined in **Table 13-13**.

The potential effect on the three areas of archaeological potential (ACH05, possible milling activity; ACH08, riverine environs; ACH18, flint scatters) and the possible burnt spread (ACH38) identified within the Proposed Scheme is also undetermined. Further archaeological investigation will be required to determine whether any archaeological deposits, features or finds are present at these locations. With regard to the archaeological potential associated with the riverine environs (ACH08), due to the extreme environmental sensitivity of the River Boyne, no works will be permitted within the river. Additionally, a further exclusion zone and set-back of 10m from the riverbank is included in the design proposals. No work will be permitted within this exclusion zone. While this will reduce any potential effects within the areas of archaeological potential associated with the riverine environs and the possible milling activity along the riverbanks, the construction of the bridge piers within this area may effect on any archaeological deposits or features that may be present.

The remaining effects relate to the possible buried foundations of 18th / 19th century structures (most likely small cottages or cabins) that may survive within the Proposed Scheme (ACH02, 04, 12, 21). These would be of local historical and social interest and the effect on any such remains would be direct, negative, slight and permanent. These sites are considered to have a low sensitivity value and the magnitude of effect will be medium. Therefore, the overall significance of effect is slight negative.

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There would also be a direct, negative, slight and permanent effect on the old Dublin to Slane Road (ACH03) that survives in Cullen townland. While the Proposed Scheme will sever the old road near its northern end, this part of the old road is a well-used farm-access track and lacks the historic character that survives further south. The majority of the old road, which continues south as far as the railway line in Knockcommon townland, will remain unaffected. The road is considered to have a low sensitivity and the magnitude of effect will be medium. Therefore, the overall significance of effect is slight negative.

While the extensive archaeological investigations undertaken to date have helped to clarify the extent of the archaeological potential within the Proposed Scheme, there remains a potential for the discovery of discrete, small-scale archaeological features and deposits or additional stray finds.

There will be no effect on the intangible cultural heritage feature Boyne Currach Making (ACH40), nor on the other two non-designated sites identified outside the study area, a battle site at Rosnaree (associated with the Battle of the Boyne (ACH19) and an Emergency-era pill-box (ACH23).

The Ledwidge Museum represents both tangible and intangible cultural heritage as described in **Section 13.3.1.4.1**. The museum is a designated protected structure and as such is assessed in **Chapter 14 – Architectural Heritage**.

### 13.4.1.1.5 Summary of Construction Phase Effects

The effects are summarised in **Table 13-13**, which should be read in conjunction with **Figure 13.32(a)-(f)**.

**Table 13-13: Summary of Construction Phase Effects (Mainline Bypass)**

Assessment Topic	Potential Effect
Brú na Bóinne, World Heritage Property	No material effect on OUV
Hill of Slane, National Monument	Indirect, Negative, Slight, Moderate
AH20, ME019-035, Church	Indirect, Negative, Slight, Temporary
AH21, ME019-035001, Graveyard	Indirect, Negative, Slight, Temporary
AH22, ME019-035002, Cross - High cross	No effect
AH23, ME019-035003, Graveslab	No effect
AH24, ME019-036001, House - 16th/17th century	No effect
AH25, ME019-036002, Castle - tower house	No effect
AH26, ME019-037, Souterrain	No effect
AH30, ME019-082, Watercourse	No effect
AH31, ME019-083, Weir – fish	No effect
AH32, ME019-085, Enclosure	Direct, Negative, Very Significant, Permanent
AH33, ME019-088, Enclosure	No effect
AH35, ME019-092, Linear earthwork	No effect
AH36, ME019-098, Field system	No effect
AH37, ME019-102, Enclosure	No effect
AH38, ME019-120, Mill - unclassified	No effect
AH39, ME026-003, Mound	No effect
AH27, ME019-063, Enclosure	Indirect, Negative, Slight, Temporary
AH28, ME019-062, Enclosure	Indirect, Negative, Slight, Temporary
ACH01 Possible curvilinear feature (geophysical anomaly)	Undetermined
ACH02 Pre-1830s structure (site of)	Direct, Negative, Slight, Permanent
ACH03 Pre-1830s road	Direct, Negative, Slight, Permanent
ACH04 Pre-1830s structures (site of)	Direct, Negative, Slight, Permanent
ACH05 Possible milling activity	Undetermined
ACH06 Possible cremation burial (vicinity of)	No effect
ACH07 Possible curvilinear feature (geophysical anomaly)	Undetermined
ACH08 Riverine environs (area of archaeological potential)	Undetermined

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Assessment Topic	Potential Effect
ACH12 Pre-1830s structure (site of)	Direct, Negative, Slight, Permanent
ACH13 Mound	No effect
ACH15 Enclosure	No effect
ACH17 Flint scatter	No effect
ACH18 Flint scatters	Undetermined
ACH19 Battle site	No effect
ACH20 Possible enclosure	No effect
ACH21 Pre-1830s structures (site of)	Direct, Negative, Slight, Permanent
ACH22 Possible enclosure	No effect
ACH23 Pill box	No effect
ACH24 Possible enclosure	Undetermined
ACH26 Probable ring-ditch	Direct, Negative, Significant, Permanent
ACH28 Possible archaeological features (geophysical anomalies)	Undetermined
ACH29 Possible archaeological features (geophysical anomalies)	Undetermined
ACH30 Possible archaeological features (geophysical anomalies)	Undetermined
ACH31 Possible enclosure	No effect
ACH32 Possible enclosure	No effect
ACH33 Possible rectilinear feature	Undetermined
ACH34 Possible enclosures	No effect
ACH35 Possible archaeological features (geophysical anomalies)	Undetermined
ACH36 Possible archaeological features (geophysical anomalies)	Undetermined
ACH37 Possible archaeological features (geophysical anomalies)	Undetermined
ACH38 Possible burnt spread	Undetermined
ACH40 Boyne Currach Making	No effect

### 13.4.1.2 N51 Route Improvements

A summary of construction phase effects is presented in **Table 13-14** at the end of this section.

#### 13.4.1.2.1 World Heritage Property

There will be no effect on the World Heritage Property as a result of the proposed N51 road improvements.

#### 13.4.1.2.2 National Monuments

No national monuments or their settings will be effected by this section of the Proposed Scheme.

#### 13.4.1.2.3 Recorded Archaeological Sites and Monuments (RMP / SMR sites)

No recorded archaeological sites will be effected by the proposed N51 road improvements.

#### 13.4.1.2.4 Non-Designated Sites

There will be a direct, negative, significant, permanent effect on the confirmed archaeological site that lies partly within the Proposed Scheme, a probable enclosure (ACH27). This is a relatively small site, only part of which extends into the Proposed Scheme, therefore the magnitude of effect will be medium. This is not a designated site and is not statutorily protected; however, as a newly identified archaeological site it is considered to have a medium sensitivity value. The overall significance of effect is significant.

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The remaining effects relate to the possible buried foundations of 18th / 19th century structures (most likely small cottages or cabins) that may survive within the Proposed Scheme (ACH09, 16, 25) and the site of post-medieval industrial activity at Limekiln Hill (ACH14). These would be of local historical and social interest and the effect on any such remains would be direct, negative, slight and permanent. These sites are considered to have a low sensitivity value and the magnitude of effect will be medium. Therefore, the overall significance of effect is slight negative.

The Ledwidge Museum represents both tangible and intangible cultural heritage as described in **Section 13.3.1.4.1**. The museum is a designated protected structure and as such is assessed in **Chapter 14 – Architectural Heritage**.

### 13.4.1.2.5 Summary of Construction Phase Effects

The effects are summarised in **Table 13-14**, which should be read in conjunction with **Figure 13.32(a)-(f)**.

**Table 13-14: Summary of Construction Phase Effects (N51 Route Improvements)**

Assessment topic	Potential Effect
AH28, ME019-063, Enclosure	No effect
ACH09 Pre-1830s structure (site of)	Direct, Negative, Slight, Permanent
ACH11 Possible enclosure	No effect
ACH14 Lime-kiln & post-medieval industrial activity (site of)	Direct, Negative, Slight, Permanent
ACH16 Pre-1830s structure (site of)	Direct, Negative, Slight, Permanent
ACH25 Pre-1830s structure (site of)	Direct, Negative, Slight, Permanent
ACH27 Probable enclosure	Direct, Negative, Significant, Permanent

### 13.4.1.3 Slane Village Public Realm Enhancement

#### 13.4.1.3.1 World Heritage Property

There will be no effect on the World Heritage Property as a result of the proposed Slane Village Public Realm Enhancement.

#### 13.4.1.3.2 National Monuments

There will be no effect on national monuments as a result of the proposed Slane Village Public Realm Enhancement.

#### 13.4.1.3.3 Recorded Archaeological Sites and Monuments (RMP / SMR sites)

A summary of effects on RMP/SMR sites is presented in **Table 13-15**.

Proposed works directly affecting Slane Bridge (AH09, ME019-024) during construction phase will be restricted to resurfacing and the provision of a footway, which will be physically separated from the carriageway by a pedestrian delineation kerb. The proposed improvements will involve works to the modern surface of the medieval bridge adjacent to the 18th century parapet with potential negative effects on the fabric of the bridge. However, this potential is relatively limited as the depth of proposed ground disturbance is 40mm and the road carriageway was resurfaced as recently as 2019 (to the same depth) during the N2 Slane Approaches Pavement Rehabilitation Scheme. Construction works on the bridge and in its immediate vicinity will also have a temporary negative effect on the setting of the bridge. Although traffic volume and noise already detract from the experience of the heritage asset, there will be additional construction noise during the proposed works. This site is statutorily protected and considered to have a medium sensitivity value and the magnitude of effect will be low, giving a moderate negative effect.

There will be a temporary negative effect on the setting of Fennor Church, the graveyard and Fennor Castle (AH20, 21, 24, 25; ME019-035, -035001, -036001, -036002), during the proposed road and path resurfacing as part of the public realm works on the adjacent existing N2 road to the north, through the increased noise. Although traffic noise already detracts from the experience of the heritage assets, there will be additional construction noise during the proposed works. These sites are statutorily protected and considered to have a

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medium sensitivity value and the magnitude of effect will be low. For the duration of the works there will be an indirect, negative, slight, temporary effect.

There is also the potential that archaeological deposits, features, or finds associated with the recorded monuments or with the post-medieval history of Slane village may survive below the existing road or path surfaces.

### 13.4.1.3.4 Non-Designated Sites

Two sites of archaeological / cultural heritage interest were identified within this section of the Proposed Scheme: ACH39, the subsurface remains of an 18th century trough (possible fountain base) and drain identified during archaeological monitoring on Chapel Street; and ACH41, the site of an 18th century fountain at the centre of the present village cross-roads, the remains of which may survive subsurface. The sites are located beneath the existing road surface in areas proposed for resurfacing.

These features are of local historical and social interest and the effect on any such remains will be direct, negative, slight and permanent. These sites are considered to have a low sensitivity value and the magnitude of effect will be medium. Therefore, the overall significance of effect is slight negative.

### 13.4.1.3.5 Summary of Construction Phase Effects

The effects are summarised in **Table 13-15**, which should be read in conjunction with **Figure 13.32(a)-(f)**.

**Table 13-15: Summary of Construction Phase Effects (Slane Village Public Realm Enhancement)**

Assessment topic	Potential Effect
AH01, ME019-008 Souterrain	No effect
AH02, ME019-013 Souterrain	No effect
AH03, ME019-022 Burial	No effect
AH04, ME019-023001 Tomb – effigial (present location)	No effect
AH05, ME019-023002 Graveslab (present location)	No effect
AH06, ME019-023003 Architectural feature	No effect
AH07, ME019-023004 Armorial plaque (present location)	No effect
AH08, ME019-023005 Graveslab (present location)	No effect
AH09, ME019-024, Bridge	Indirect, negative, moderate, temporary
AH10, ME019-025 Font (present location)	No effect
AH11, ME019-025001 Cross – high cross (present location)	No effect
AH12, ME019-026 Religious house – Franciscan Third Order Religious	No effect
AH13, ME019-026001 Stone sculpture (present location)	No effect
AH14, ME019-026002 House – medieval	No effect
AH15, ME019-026003 Stone sculpture	No effect
AH16, ME019-026004 Tomb – chest tomb	No effect
AH17, ME019-026005 Burial	No effect
AH18, ME019-026006 Cross	No effect
AH19, ME019-034 Souterrain	No effect
AH20, ME019-035, Church	Indirect, negative, slight, temporary
AH21, ME019-035001, Graveyard	Indirect, negative, slight, temporary
AH22, ME019-035002, Cross - High cross	No effect
AH23, ME019-035003, Graveslab	No effect
AH24, ME019-036001, House - 16th/17th century	Indirect, negative, slight, temporary
AH25, ME019-036002, Castle - tower house	Indirect, negative, slight, temporary
AH26, ME019-037, Souterrain	No effect
AH29, ME019-079 Cross (present location)	No effect

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Assessment topic	Potential Effect
AH34, ME019-089 Linear earthwork	No effect
AH38, ME019-120 Mill – unclassified	No effect
ACH39, 18th century trough & drain	Direct, negative, slight, permanent
ACH41, 18th century fountain (site of)	Direct, negative, slight, permanent

## 13.4.2 Operational Phase

### 13.4.2.1 World Heritage Property

The predicted impact of the Proposed Scheme on the OUV of the World Heritage Property has been assessed by testing the Statement of Significance (Section 5 of the HIA report, **Appendix 13.1**) against the changes that would occur in the wider setting as a result of the construction and operation of the proposed N2 mainline bypass. The following conclusions have been extracted from the HIA report in **Appendix 13.1** and should be read in conjunction with that report which details the assessment process and contains the relevant photomontages referenced here.

#### Predicted operational effects on functional associations

The Statement of Significance identifies two distinct functional associations relevant to the wider setting around Slane:

- The relationship between Knowth and Slane in the Early Medieval Kingdom of Brega; and
- The role of the River Boyne in the development of the monumental landscape of Brú na Bóinne.

The relationship between Knowth and Slane is experienced in the reciprocal views between these places (PV29, PV30 and PV59), all illustrated by photomontages (**Figure A12.18a-f; Figure A12.17.1a-d, Figure A12.17.2a-d; Figure A12.1a-d in Volume 4, Appendix 12.1**). Operation of the Proposed Scheme would not materially change the view from Knowth towards the Hill of Slane.

Parts of the proposed N2 mainline bypass north of the N51 Roundabout and a re-aligned section of the N51 would be visible in the foreground of views from the Hill of Slane towards Knowth (PV29 and PV30) with Knowth visible beyond the Grassland Agro buildings from PV29 and the north end of the cutting past Norris Hill from PV30. The cutting, carriageway and moving vehicles would be visible here at Year 1.

The view of Knowth would not be obstructed by the operation of the bypass which would simply add a new man-made feature in the foreground of the view, but it would cause a low level of visual distraction.

From the lower vantage point at the car park (PV29), the visible sections of the bypass and N51 in the view towards Knowth would be seen as part of a foreground already dominated by man-made structures including the Grassland Agro buildings, overhead power lines and metal fencing around a covered reservoir.

From the higher vantage point on the hill, in the churchyard (PV30), the foreground of the view towards Knowth has a more rural character so the proposed N2 mainline would be a more prominent addition. However, it would still represent a relatively minor change in the character of a panoramic view that includes the visually prominent Ledwidge Hall housing estate immediately to the south. The visible section of re-aligned N51 would be a negligible change and have no material impact on the character of the landscape in this view.

Taking these two viewpoints together, it is concluded that the presence of the proposed N2 mainline at Year 1 would have a very limited effect on our ability to experience the relative locations of Slane and Knowth and a very limited effect on our appreciation of their connected histories in the Early Medieval period. There would be an adverse effect of negligible magnitude on OUV.

The photomontages from both PV29 and PV30 indicate that growth of screening vegetation by Year 10 would largely avoid any visibility of the proposed N2 mainline and of vehicles travelling along it, further reducing the limited degree of visual distraction in these views of Knowth. Therefore, by Year 10, there would be no effect on OUV.

Turning to the second functional relationship with the wider setting, the role of the River Boyne in the development of the monumental landscape of Brú na Bóinne is illustrated by views out from the World

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Heritage Property at Knowth (PV59) and reciprocal views of Knowth from along the Boyne Navigation Towpath (V3) and the Rossnaree Road (V4).

The east-facing viewpoints on the towpath (V3) and Rossnaree Road (V4) are located east of the bypass and would therefore be unaffected by its operation in terms of visual change. However, V3 is the only location in the wider setting where predicted change in noise levels has the potential to affect OUV.

Viewpoint V3 comprises a sequence of views towards Knowth when walking east along the canal towpath of the Boyne Navigation. Knowth can first be appreciated c.500m downstream of the proposed Boyne Bridge so there would be no visual change in views looking east. However, the noise model for the Proposed Scheme predicts an increase in noise levels such that traffic crossing the bridge is likely to be audible, especially if the wind is from the west.

This traffic noise would slightly degrade a viewer's experience of the more-distant views towards Knowth but, as they walked east towards the World Heritage Property, this impact would reduce to undetectable levels. This predicted level of change is considered to have only a negligible impact on our ability to appreciate the historical relationship of Brú na Bóinne and Knowth with the River Boyne.

The bypass would be visible from the top of the mound at Knowth (PV59) and the photomontage at Year 1 indicates how there would be partial visibility of the road cutting south of the Boyne Bridge and of the south end of the bridge itself. It is the visibility of the bridge in the valley of the Boyne that is of particular relevance to the functional relationship under consideration here.

The bridge has been designed to be visually recessive and, in so far as it is visible at all from Knowth (with most of the structure permanently screened from view) it will not be a prominent feature. The scale of the visible section of bridge would be similar to the scatter of houses already present in the same part of the view at Fennor and immediately adjacent to the bridge along the Rossnaree Road. It would therefore not noticeably change the character of this important view up the valley.

Vehicles travelling over the bridge could be more noticeable than the static bridge structure, depending on their height and colour; however, any one vehicle would only be visible for a few seconds over a distance of c.25m. It may be noted that, at a distance of 2.7km from Knowth, they would only appear a little closer on the bridge than traffic on the much longer visible section of the existing N2 south of Fennor, 3.0km up the valley from Knowth.

The existing traffic on the N2 is visible but it is not visually distracting at this range and serves as a predictive illustration of the visual impact of traffic on the proposed bridge (which would be slightly closer but visible over a much shorter distance). It should also be noted that the traffic expected to use the proposed bridge currently uses the existing N2 and therefore is already visible in the view looking west from Knowth. There would therefore not be a cumulative visual impact from traffic flows on both roads.

It is concluded that the presence of the bypass would have only a very limited impact on our ability to experience the close physical links between the western end of Brú na Bóinne and the River Boyne and would have a very limited impact on our appreciation of the role that the river may have played in the evolution of this remarkable monumental landscape. There would be an adverse impact of negligible magnitude on OUV at Year 1 and Year 10.

### Predicted Impacts on Views of the World Heritage Property from its Wider Setting

The Statement of Significance identifies a range of viewpoints within the wider setting around Slane where views of the World Heritage Property in its landscape setting add to our appreciation of how and why the monuments were placed in the landscape.

All nine of the viewpoints identified in the wider setting around Slane contribute to a greater or lesser extent to this aspect of OUV. Six of these would be unchanged by the proposed bypass (PV32, PV34, V2, V3, V4, V5) and it follows that their support of the OUV would be unaffected. The three views where there would be some visual change are PV29 and PV30 on the Hill of Slane (Photomontages, **Figure A12.18a-h** [Hill of Slane Carpark SE and Hill of Slane Carpark S]; **Figure A12.17.1a-e** [Hill of Slane Graveyard NE] and **A12.17.2a-e** [Hill of Slane Graveyard S]; in **Volume 4, Appendix 12.1**) and HIA View V1 on the N2 south of Fennor (**Figure A12.9a-d**).

The viewpoints on the Hill of Slane have already been discussed for their role in illustrating the historical relationship between Slane and Knowth. These elevated viewpoints also offer more general views eastwards over the western end of the World Heritage Property but with a clear focus still on Knowth and its position within the wider landscape.

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The preceding analysis of visual change in PV29 and PV30 applies equally to this second aspect of OUV and arrives at the same conclusion: that the predicted level of visual change by Year 10 would not materially diminish the contribution these views make to our experience and appreciation of the setting of the World Heritage Property. There would be no impact on OUV

Viewpoint V1 on the existing N2 south of Fennor provides a sequence of views into the World Heritage Property that are much less informative than those from the Hill of Slane and less-readily appreciated as they are usually only experienced from a moving vehicle. Nevertheless, it is possible to see the mound at Knowth on the skyline in views to the east and there is a brief and partial view of Newgrange from the N2 at Fennor.

The lip of the cutting for the mainline of the bypass might be detected in the foreground in Year 1 with the tops of high-sided vehicles also potentially visible. This would not materially diminish our experience of the glimpsed views to Knowth. Growth of planted vegetation by Year 10 would entirely screen the bypass from view but not obstruct the view to Knowth and there would be no impact on OUV. At Fennor Crossroads, the proposed Boyne Bridge would be briefly visible in combination with partial views towards Knowth and Newgrange. Given the limited contribution this view makes to appreciation of the World Heritage Property, this is considered to be an impact of negligible magnitude both at Year 1 and Year 10 when the bridge structure would be partially screened.

### **Predicted operational effect on views from the World Heritage Property and its buffer zone**

The third and final aspect of OUV supported by the wider setting around Slane relates to its role as a rural agricultural 'backdrop' to views looking out westwards from within the World Heritage Property and its buffer zone.

Viewpoints relevant to this aspect of OUV fall into two groups: views out from the three large tomb mounds (Knowth PV59, Newgrange PV87b and Dowth PV88) and views across the World Heritage Property from its buffer zone (PV62, PV63, PV64 and PV92).

The views from Knowth (PV59, Photomontage **Figure A12.1a-d**) have already been discussed for their relevance to the functional relationships with Slane and the River Boyne. In this case it is the wider rural landscape that is relevant. The predicted visual change at the Boyne Bridge and cutting to the south of the bridge remain as previously described but should now be assessed as part of a wider panoramic view from Knowth. In this context, the very limited level of visual change at both Year 1 and Year 10 has no impact on our appreciation of the landscape to the west of the World Heritage Property and their relationship.

The tomb mounds at Newgrange and Dowth also provide views out to the landscape west of the World Heritage Property (EIAR Vol.4 **Figure 12.2a-d** and **12.3a-d**). In these two cases, only the higher parts of the landscape around Slane are visible, including the hills at Cullen, Fennor and Slane. The route of the proposed bypass would be entirely hidden from Dowth by the intervening landform. Visibility of a short section of the mainline south of the Boyne Bridge is predicted at Newgrange but comparison of the photomontage with baseline photography in **Figure 12.2** demonstrates that this does not lead to any detectable change in the landscape.

A cluster of four protected views within the buffer zone to the south of the River Boyne all provide the same open elevated view northwest across the World Heritage Property towards Slane. The precise routing of the proposed bypass has resulted in a scheme that would be entirely invisible from these viewpoints (Viewshed for PV63; Photomontage EIAR Vol.4 **Figure 12.5a-d**). South of the River Boyne, the route taken by the bypass is screened by the higher ground of Cullen Hill. The Boyne Bridge crosses the river at a low level and therefore is screened by the steep valley sides immediately to the east. North of the river, the route taken lies behind higher ground at Crewbane and Cashel which provides screening as far as the north roundabout.

Drawing together the findings on this third aspect of OUV, it is concluded there would be no impact on OUV.

### **Summary of Operational Effect**

The assessment of predicted operational impacts has considered each of the three aspects of OUV that are supported by elements of the wider setting of the World Heritage Property around Slane.

It is concluded that the only aspect of OUV that would be adversely affected by the operation of the proposed bypass would be the functional relationship between the World Heritage Property and its wider

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setting; specifically, the role of the River Boyne in the development of the monumental landscape of Brú na Bóinne.

It is concluded that partial visibility of the proposed Boyne Bridge in the view looking west from Knowth (PV59) combined with visibility of the bridge from the Fennor Cross Roads (V1) and audible traffic noise at the west end of Viewpoint V3 on the towpath would have a very limited impact on our ability to experience the close physical links between the western end of Brú na Bóinne and the River Boyne and on our appreciation of the role that the river may have played in the evolution of this remarkable monumental landscape. This is considered to be an adverse impact of **negligible magnitude** and **minor significance** on OUV.

### Acceptability of the Proposed Scheme

UNESCO guidance on the assessment of impacts on OUV gives the following advice regarding the acceptability of proposed actions:

*“The evaluation should result in a clear conclusion about whether the likely impacts of a proposed action on OUV overall are acceptable or not. If the proposed action would have negative impacts on OUV, the report should give one of three conclusions:*

- The negative impact would be negligible and raises no concerns;
- The negative impact would be significant, but with avoidance and mitigation measures it could be eliminated or minimized to an acceptable level; and
- The negative impact would be significant and could not be avoided or mitigated, so the proposed action should not proceed”. (UNESCO 2022, s.6.9, page 44).

Assessment has concluded that operation of the Proposed Scheme (with all relevant mitigation measures embedded in the scheme design) would result in a negligible negative impact on the OUV of the World Heritage Property. This conclusion applies to an assessment of the impact of the Proposed Scheme alone and to its contribution to cumulative impact on OUV since inscription in 1993.

In terms of the UNESCO 2022 guidance, avoidance and mitigation measures implemented during the design of the Proposed Scheme have reduced any negative impacts on OUV to an acceptable level. The impact is therefore judged to be acceptable in a World Heritage context.

### 13.4.2.2 N2 Mainline

#### 13.4.2.2.1 National Monuments

##### Hill of Slane, Church and College

The operational bypass will be visible in the views to the east / south-east from the Hill of Slane (as discussed in **Section 13.4.1.1.2**), primarily the nearest section, between Norris Hill and the north roundabout. The national monument has a high sensitivity value and, without any mitigation, the magnitude of effect on its wider setting would be medium, resulting in an indirect, negative, moderate, effect.

##### Knowth Passage Tomb Cemetery, Enclosure and Mound

Knowth, as an integral monument within the WHP, is assessed in the HIA report, as described in **Section 13.4.1.1.1** and detailed in the HIA Report in **Appendix 13.1**.

#### 13.4.2.2.2 Recorded Archaeological Sites and Monuments (RMP / SMR)

The reduction of traffic on Slane Bridge (AH09, ME019-024), as a result of the proposed N2 mainline, will greatly help to ameliorate the present significant adverse effects of heavy traffic on the bridge. It will also allow pedestrians to safely use the bridge, facilitating access on foot from the village to the tow path walk along the river. The view eastwards from the bridge takes in the river valley as far as the bend, with Slane Mill to the north-west being an important aspect of it. The immediate setting of Slane Bridge will be enhanced by planting and the removal of the gantries on the hill to the north-west as part of the proposed public realm enhancement (see **Section 13.4.1.3.3**), and the visual connection between the bridge and the mill will be unaffected. The proposed bridge crossing downstream will partly detract from the river view to the east, though the proposed bridge will be c. 630m east and below the horizon. As such any negative effect on the

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overall setting is considered to be low. This site is statutorily protected and considered to have a medium sensitivity value and the magnitude of effect on the setting will be high in terms of positive effect. Therefore, the overall significance of effect is significant positive.

The proposed N2 mainline will be visible from Fennor Church and graveyard (AH20, 21; ME019-035, -035001), but mostly screened from view at Fennor Castle (AH24, 25; ME019-036001, -036002) by a stand of large mature trees. The most important aspect of the setting of the ecclesiastical remains at Fennor is the larger pasture field within which the graveyard and nearby Fennor Castle sit. The existing N2 road acts as a busy, noisy boundary on the north side, separating it from the river and detracting from the available view north-eastwards along the valley, where Knowth is visible. The proposed N2 mainline will cross the river within this viewpoint and while it will not obstruct the view, it will further detract from it. However, there will be a considerable reduction in traffic along the existing N2 road and improvements to the public realm on the existing N2 road and Slane Bridge to the north-west of the church. These sites are statutorily protected and considered to have a medium sensitivity value and the magnitude of effect on the setting will be low. Therefore, the overall significance of effect is slight negative.

The operational bypass will be visible from enclosures ME019-062 and ME019-063, which survive partially above ground (AH27 and AH28). The movement of vehicles on the proposed N2 mainline would cause a visual and noise distraction to the immediate east / north-east, however, there will be no obstruction of the views eastwards in the direction of Knowth, nor of the views north-west to the Hill of Slane or south to Fennor Church and Castle. The enclosure sites are statutorily protected and considered to have a medium sensitivity value and the magnitude of effect on the setting during the operational phase will be low. Therefore, the significance of effect is slight negative.

### 13.4.2.2.3 Non-Designated Sites

There will be no effect on the intangible cultural heritage feature Boyne Currach Making (ACH40).

The Ledwidge Museum represents both tangible and intangible cultural heritage as described in **Section 13.3.1.4.1**. The museum is a designated protected structure and as such is assessed in **Chapter 14 – Architectural Heritage**.

### 13.4.2.2.4 Summary of Operational Phase Effects

The effects are summarised in **Table 13-16**, which should be read in conjunction with **Figure 13.32(a)-(f)**.

**Table 13-16: Summary of Operational Phase Effects (Mainline Bypass)**

Assessment Topic	Potential Effect
Brú na Bóinne, World Heritage Property	Negligible Negative on OUV
Hill of Slane, National Monument	Indirect, Negative, Moderate, Permanent
AH20, ME019-035, Church	Indirect, Negative, Slight, Permanent
AH21, ME019-035001, Graveyard	Indirect, Negative, Slight, Permanent
AH09, ME019-024, Bridge	Direct, Positive, Significant, Long-term

### 13.4.2.3 N51 Route Improvements

No operational phase effects were identified.

The Ledwidge Museum represents both tangible and intangible cultural heritage as described in **Section 13.3.1.4.1**. The museum is a designated protected structure and as such is assessed in **Chapter 14 – Architectural Heritage**.

### 13.4.2.4 Slane Village Public Realm Enhancement

The considerable reduction of traffic on Slane Bridge (AH09, ME019-024), as a result of the proposed mainline bypass, will help to greatly ameliorate the significant adverse effects of heavy traffic on the bridge, through a reduction in wear and tear and impact damage. It will also allow pedestrians to safely use the bridge, facilitating access on foot from the village to the tow path walk along the river. The immediate setting of the bridge will also be enhanced through the removal of the gantries on the hill to the north-west, the

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planting of verges, and the new tree planting to enhance the character of the N2 in the vicinity of the existing lay-by south of the bridge. This landscaping will have the added benefit of creating a more pedestrian-friendly environment. There will be a positive significant long-term effect following completion of the public realm works.

Once completed, the public realm works and associated greening strategy will enhance the immediate setting of Fennor Church, the graveyard and Fennor Castle (AH20, 21, 24, 25; ME019-035, -035001, -036001, -036002), resulting in positive Moderate long-term effect.

No other operational phase effects were identified.

**Table 13-17: Summary of Operational Phase Effects (Slane Village Public Realm Enhancement)**

Assessment topic	Potential Effect
AH09, ME019-024, Bridge	Positive, significant, long-term
AH20, ME019-035, Church	Positive, moderate, long-term
AH21, ME019-035001, Graveyard	Positive, moderate, long-term
AH24, ME019-036001, House - 16th/17th century	Positive, moderate, long-term
AH25, ME019-036002, Castle - tower house	Positive, moderate, long-term

### 13.4.3 Cumulative Impact

A cumulative impact assessment (CIA) has been undertaken to consider potential for cumulative impact of the Proposed Scheme with other approved development. The detailed methodology for the CIA is described in **Chapter 25 – Cumulative Effects**. The assessment has considered cumulative sources and impact pathways which could impact on archaeological and cultural heritage, including world heritage.

The projects listed in **Appendix 25.2** have been assessed. Each project has been considered on a case-by-case basis for screening in or out of this chapter's assessment based upon data confidence, effect-receptor pathways and the spatial/ temporal scales involved.

#### 13.4.3.1 Archaeological and Cultural Heritage

The CIA for Archaeological and Cultural Heritage considers the impact associated with the Proposed Scheme together with other projects. The projects identified as being relevant to the consideration of cumulative effects are based upon the results of a screening exercise. Each project has been considered on a case-by-case basis for screening in or out of this chapter's assessment based on the potential for that project to have a cumulative effect on archaeological and cultural heritage; refer also to **Section 13.4.3.2** which looks specifically at cumulative effects in relation to the World Heritage Property. Six projects were screened-in on the basis of their relative proximity to the Proposed Scheme and/or the type of project, as set out in **Table 13-18**.

**Table 13-18: Projects Screened-in for Potential Cumulative Effects on Archaeological and Cultural Heritage**

Project Code	Project Location	Project Type	Potential for Cumulative Effect
PR 2	Millhouse, Slane, Co. Meath	Restaurant	None – Ground disturbance will be minimal, with only a small extension to existing building
PR 3	Ledwidge Hall, Drogheda Road, Slane, Co. Meath ( <i>now constructed</i> )	Residential Development	The results of archaeological investigations at this site have added to the body of knowledge for Slane's history. The increase in extent of built development in foreground of views from Hill of Slane will be relatively slight. Taken in conjunction with the Proposed Scheme, the potential cumulative effect is not significant
PR 4	Ledwidge Hall Green, Drogheda Road, Slane, Co. Meath ( <i>now constructed</i> )	Residential Development	The increase in extent of built development in foreground of views from Hill of Slane will be relatively slight. Taken in conjunction with the Proposed Scheme, the potential cumulative effect is not significant

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Project Code	Project Location	Project Type	Potential for Cumulative Effect
PR 5	Former Parochial House, The Square, and adjacent Art Gallery, Main Street, Slane, Co. Meath	Commercial Building	None – Ground disturbance will be minimal, with only a small extension to existing buildings
PR 6	Conyngham Arms Hotel, Main Street, Slane, Co. Meath	Hotel	None – Ground disturbance will be minimal, with relatively small extensions to existing buildings
PR 7	Slane Wastewater Treatment Plant, Castle Hill, Navan Road, Slane, Co. Meath	Wastewater Treatment Plant	None – Ground disturbance will be minimal, within the existing plant boundaries

Four of the six projects represent extensions or amendments to existing buildings (PR 2, PR 4 to PR 6) and an existing wastewater treatment plant (PR 7), with minimal ground disturbances. The remaining two projects comprise relatively minor extensions to the existing Ledwidge Hall residential development on the eastern edge of Slane. PR 3 results in a small northwards extension of the existing area of houses; PR4 infills an existing gap site within the current area of houses.

Both residential developments are visible in views looking southeast from the top of the Hill of Slane (a national monument) towards Knowth – an important aspect of the panoramic view from the national monument – and can therefore be seen in combination with that part of the mainline of the proposed N2 bypass running north from the proposed N51 roundabout. However, these two residential developments are experienced from the Hill of Slane as part of the existing extensive Ledwidge Hall Estate and do not significantly increase the visual prominence of built development in the foreground of this view. Therefore, the potential cumulative effect when taken in conjunction with the Proposed Scheme is not significant.

### 13.4.3.2 World Heritage

The CIA for World Heritage considers the impact associated with the Proposed Scheme together with other projects. The projects identified as being relevant to the consideration of cumulative effects are based upon the results of a screening exercise. Each project in the project screening list has been considered on a case-by-case basis for screening in or out of this assessment based on the potential for that project to affect Outstanding Universal Value (OUV) by materially changing the World Heritage Property, its buffer zone or wider setting. Two projects have been screened-in to the World Heritage CIA, as set out in **Table 13-19**.

**Table 13-19: Projects Screened-in for Potential Cumulative Effects on the World Heritage Property**

Project Code	Project Location	Project Type	Potential for Cumulative Effect (Predicted change in World Heritage Property or Setting)
PR 3	Ledwidge Hall, Drogheda Road, Slane, Co. Meath (now constructed)	Residential Development	Increase in extent of built development in foreground of views from Hill of Slane (PV30) towards World Heritage Property
PR 4	Ledwidge Hall Green, Drogheda Road, Slane, Co. Meath (now constructed)	Residential Development	Increase in extent of built development in foreground of views from Hill of Slane (PV30) towards World Heritage Property

Both of the projects screened-in to the assessment are relatively minor extensions to the existing Ledwidge Hall residential development on the eastern edge of Slane. PR 3 would result in a small northwards extension of the existing area of houses; PR4 would infill an existing gap site within the current area of houses.

Both residential developments would be visible in views looking southeast from the top of the Hill of Slane (Protected View 30) towards the World Heritage Property and would therefore be seen in combination with that part of the mainline of the proposed bypass running north from the proposed N51 Roundabout.

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However, these two residential developments would be experienced from the Hill of Slane as part of the existing extensive Ledwidge Hall Estate and would not significantly increase the visual prominence of built development in the foreground of this view to the World Heritage Property.

It is therefore concluded that there would be no cumulative impact on OUV as a result of the operation of the Proposed Scheme in combination with any other approved development project.

The reader is further referred to **Appendix 13.1 – Heritage Impact Assessment**, for a wider discussion on the combined impact of development since 1993 (year of inscription of the World Heritage Property) to present.

### 13.5 Mitigation Measures

Mitigation of the effect of development on the archaeological resource can take the form of ‘preservation by record’ (full hand excavation, i.e. sterilisation of archaeological area); and ‘preservation in situ’ (excluded from development, i.e. avoidance through design in a location where the future protection and interpretation of the site can be assured) or a combination of both.

All archaeological works will take place under Ministerial Direction or Section 26 Consent Licence to the Department of Housing, Local Government and Heritage (DHLGH).

#### 13.5.1 World Heritage Property

The key aim of the HIA has been to avoid or minimise any adverse impacts on OUV, consistent with the delivery of the public benefits of the project and recognising the need to resolve potential conflicts of interest with other environmental disciplines.

This aim, as reported in Section 6 of the report, was achieved in two main stages:

- Option selection: comparison of the likely impact of the available route options on OUV, leading to a choice of preferred route for the bypass by Meath County Council that takes sufficient account of any implications for the World Heritage Property; and
- Design and Environmental Evaluation: advice to the project design team based on an understanding of OUV, leading to a detailed design proposal that incorporates all opportunities to minimise adverse impacts on OUV from the preferred route of the bypass.

The route option selection process led to the selection of a preferred route for the bypass to the east of Slane, between Slane and the World Heritage Property. This was not the preferred choice from the perspective of protection of OUV as all eastern route option corridors were predicted to cause adverse impacts of some magnitude and moderate significance in the absence of detailed design mitigation. Most western and on-line options were predicted to have no impact on OUV but other material environmental considerations led to the rejection of these route options.

From the perspective of the World Heritage Property, the choice of preferred route represented a compromise, but one that already delivered considerable mitigation embedded in the design. It was the best of the eastern route options from the perspective of predicted impacts on the OUV of the World Heritage Property. This is because it offered more embedded design mitigation at the two most sensitive locations affected by the various eastern route options, minimising visibility of the proposed road in:

- The view looking west from Knowth; and
- The view of the World Heritage Property from the Hill of Slane.

Accepting that the selected route option could have an adverse impact on OUV, the subsequent design and environmental evaluation stage of the project provided an opportunity to reduce these adverse impacts. The primary aim of mitigation measures at this stage was to reduce the visibility or visual prominence of the proposed bypass, and vehicles using it, in views from Knowth and the Hill of Slane.

This was achieved through refinements to the design of the bypass as follows:

- Selection of a design and materials for the Boyne Bridge that minimise its visual prominence in views from Knowth;

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- Addition of a planted bund that creates additional screening of vehicles immediately to the south of the bridge structure when viewed from Knowth;
- Planting of hedgerows and trees beside the mainline cutting south of the Boyne Bridge to integrate the cutting into the existing landscape of enclosed fields and to screen the upper parts of high-sided vehicles in views from Knowth; and
- Planting of a woodland strip along the west side of the mainline between the N51 Roundabout and the north roundabout to screen the bypass and vehicles moving along it when viewed from the Hill of Slane.

The net effect of these additional mitigation measures, after growth of screening vegetation, would significantly reduce the visibility of the proposed bypass in key views from Knowth and the Hill of Slane. This, in turn, would reduce the magnitude of impact on OUV of the World Heritage Property below that identified in the option selection assessment.

### 13.5.1.1 Opportunities for enhancement of OUV

Good practice guidance emphasises the need not only to avoid or minimise adverse impacts but also to identify opportunities to enhance OUV as part of the impact assessment process (UNESCO, 2022, s.6.10.2).

In the present assessment, mitigation measures have been dominated by the avoidance or reduction of adverse impacts and opportunities to incorporate enhancement measures have proved very limited. In so far as any potential for enhancement has been identified, attention has been focussed on potential for improvement of access to, and appreciation of the World Heritage Property from Slane.

The proposed removal of traffic from the existing N2 as it crosses Slane Bridge and passes through the village will create the opportunity for Slane to become a much more attractive destination for visitors with a strong focus on heritage. This potential would be enhanced by the proposed public realm measures that form part of the Proposed Scheme.

These enhancements in Slane village do not, of themselves, offer any direct enhancement for the World Heritage Property. However, they would provide the necessary starting point for future opportunities to enhance access to the World Heritage Property from the west, along the River Boyne.

Proposals for a Boyne Greenway Oldbridge to Navan (currently only in the early stages of design) envisage the creation of a continuous walking and cycling route along the Boyne from Navan to Drogheda (Drogheda to Oldbridge is already complete). At Slane, this route is likely to adopt the existing towpath of the Boyne Navigation and would create public access along the right bank of the river, connecting Slane Bridge with the Brú na Bóinne Visitor Centre. This route would also create new and informative public views into the World Heritage Property, enhancing public appreciation of the key prehistoric monuments, such as Knowth and Newgrange, in their landscape setting.

It should be noted that the design of the new Boyne Bridge for the Slane bypass avoids any disruption to the Boyne Navigation and its towpath. There will also be a direct pedestrian link from the footpath beside the bypass carriageway down on to the towpath.

It must be emphasised that delivery of the enhancement to OUV offered by the Boyne Greenway proposals lies outside the scope of the Proposed Scheme. However, the public realm enhancements that the Proposed Scheme would deliver in Slane, will greatly improve visitor access to the River Boyne and Boyne Navigation at Slane Bridge with additional access to the Boyne Navigation from the new Boyne bridge. These measures would facilitate any future local access to the long-distance route envisaged in the Boyne Greenway project, enhancing access and appreciation of the World Heritage Property.

### 13.5.2 Setting of Archaeological Monuments

#### 13.5.2.1 National Monuments

The landscape specialist has developed appropriate planting and screening strategies to ensure the sensitive incorporation of the Proposed Scheme into the existing landscape (detailed in **Chapter 12 – Landscape and Visual**). It is proposed to create a continuous strip of woodland along the west side of the mainline from the N51 Roundabout northwards, including the North Roundabout. The mixed species woodland planting will aid the integration and screening of cuttings and embankments in southern views available from Hill of Slane. It is predicted that after 10 years of growth this will be sufficient to screen the cutting and carriageway from view (Photomontages, **Figure A12.17.1a-e** [Hill of Slane Graveyard NE] and

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**Figure A12.17.2a-e** [Hill of Slane Graveyard S] in **Volume 4, Appendix 12.1**; the woodland will also screen vehicles (and their lights) from view, although the upper parts of high-sided vehicles may remain visible for a longer time.

### 13.5.2.2 Recorded Archaeological Monuments

The landscape specialist has developed appropriate planting and screening strategies to ensure the sensitive incorporation of the proposed road development into the existing landscape (referenced below and detailed in **Chapter 12**).

Woodland planting along the Proposed Scheme (Mainline Bypass) in Slane townland will serve to screen the proposed road from the two recorded enclosures (AH27 & AH28, ME019-062 & -063). It is proposed to create a continuous strip of woodland along the west side of the mainline from the N51 Roundabout northwards, including the North Roundabout. The mixed species woodland planting will aid the integration and screening of cuttings and embankments in the vicinity of the recorded enclosures.

While it is not possible to screen the proposed new bridge crossing in the view from Slane Bridge (AH09, ME019-024), appropriate planting on the riverbanks and the embankment slopes will be provided. This will include woodland planting on the embankment slopes and wet meadow seeding to all riverbank lands disturbed as part of the Proposed Scheme. This will serve to aid visual integration and screening in these areas. In addition, once completed, the public realm works and associated greening strategy will greatly enhance both the bridge and its immediate setting.

Appropriate planting on the riverbanks and the embankment slopes (as discussed above) will provide visual integration and screening in these areas when viewed from Fennor Church and graveyard (AH20, 21; ME019-035, -035001). In addition, once completed, the public realm works and associated greening strategy will enhance its immediate setting.

### 13.5.3 Archaeological Testing within the Proposed LMA

A detailed programme of archaeological test excavation will be undertaken within the LMA well in advance of construction. This will involve the excavation of a centreline test-trench, with off-sets placed at regular intervals. The quantity of testing will, where conditions allow, typically represent a 12% sample coverage of the area being tested. Archaeological testing will be carried out by a team (or teams) of suitably qualified archaeologists, under ministerial directions.

The purpose of this blanket-testing strategy is to help determine the location, date, nature and extent of any previously unknown archaeological features, deposits, or finds. Given the investigations carried out to date, it is anticipated that any such features would be discrete and small in scale. The test-trenching will also target the potential archaeological sites or specific areas of archaeological potential identified in this assessment to examine their exact nature, extent, origin and significance.

As part of the testing strategy, the following will also take place:

- The entire area containing possible enclosure ACH24 (where previous limited testing proved unsuccessful) will first be stripped of topsoil under archaeological supervision (from Ch. 2300 to Ch. 2360) to aid in the identification of any archaeological features that may be present;
- A percentage of the soil from the test-trenches will be sieved and metal-detected. This will facilitate the identification of any archaeological artefacts that may be present, that may otherwise go unrecognised;
- Core samples will be taken in the floodplain of the River Boyne. Analysis of the environmental material will contribute to our understanding of this riverine landscape, facilitating a reconstruction of its environment in the past;
- The two sections of townland boundary affected by the Proposed Scheme (Slane / Cashel and Fennor / Cullen boundaries) will be investigated during archaeological test-trenching and mitigated by preservation by record in the form of a survey. The aim of this survey shall be to make a representative written and photographic record of the townland boundary affected by the proposed development; and
- At ACH14 (Lime-kiln & post-medieval industrial activity, site of), areas that may have been less affected by past quarrying (i.e. the north and east sides of the hilltop) will be targeted in the testing strategy. This will include preservation by record in the form of a survey of the access track, the stone-faced boundary

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around the tree copse to the west, and any surviving lime-kiln foundations. The aim of this survey shall be to make a representative written and photographic record of the features.

Where sites of archaeological significance are identified, due regard will be given to the feasibility of preserving such remains *in-situ*. Where preservation *in-situ* is not deemed feasible, all features of agreed archaeological significance will, subject to ministerial directions, be preserved by record (by means of archaeological excavation, post-excavation analysis, reporting and dissemination).

During the archaeological testing, existing field access points / routes will be used to avoid disturbance / removal of hedgerows, trees and scrub. Where this is not possible (and in the case of townland boundaries requiring investigation), the TII Project Archaeologist will liaise with the Project Ecologist for the Proposed Scheme, in advance of any disturbance, with regard to the mitigation strategy for terrestrial ecology.

The testing strategy will have regard for the Guidelines for the testing and mitigation of the wetland archaeological heritage for national road schemes (NRA 2005).

### 13.5.3.1 Archaeological works within the River Boyne floodplain and in proximity to watercourses

In line with the mitigation strategy for the River Boyne floodplain and other watercourses in **Chapter 16 – Biodiversity: Aquatic Ecology**, the following will take place:

- Archaeological testing of areas of archaeological potential located within the floodplain of the River Boyne (ACH05 & ACH08) will minimise ground disturbance. To achieve this, testing within the floodplain will be carried out (ground conditions allowing) after the advanced testing programme, within the footprint of the coffer dams and attenuation ponds, if necessary during the site preparation works phase and before construction takes place;
- Core sampling within the River Boyne floodplain will take place during the bridge foundation construction period and at the same locations as the bridge piers to avoid further ground disturbance;
- No test-trenches will be placed within 10m of the River Boyne or any other waterways crossed by the Proposed Scheme; and
- Where trenches are in proximity to watercourses, the material taken out of test trenches shall be placed, as far as possible, on the landward side of the trench.

The TII Project Archaeologist for the proposed scheme will liaise with the Project Ecologist appointed by Meath County Council to supervise the GI and archaeological works with regard to these measures.

### 13.5.4 Archaeological Monitoring

Archaeological monitoring will take place where any preparatory ground-breaking or ground reduction works are required for the public realm works along the existing N2 road at Fennor, in the vicinity of Fennor Church and Fennor Castle (AH20, 24, 25; ME019-035, -036001, -036002), at Slane Bridge (AH09, ME019-024), and in Slane village, where further deposits or features associated with the 18th century estate village may survive (including any remains that survive of the fountain, ACH41).

In order to mitigate any potential negative effects on the fabric of Slane Bridge (AH09, ME019-024) during the proposed works, archaeological monitoring of any ground disturbance works will be undertaken.

The Contractor will engage suitably qualified conservation specialist to prepare a method statement. The works are to be carried out in accordance with the method statement in consultation with the TII Project Archaeologist.

### 13.5.5 Archaeological Excavation (Preservation by Record)

Any archaeological features revealed by the test-trenching, or by any other means (e.g. through archaeological monitoring), which will be directly affected by the proposed works, will be preserved by record by means of archaeological excavation, recording and publication of results. This includes the three confirmed archaeological sites – the early medieval enclosure site in Slane (ME019-085, AH32), the probable enclosure in Cashel (ACH27), and the probable ring-ditch in Fennor (ACH26) – where they lie within the Proposed Scheme LMA. It also includes the subsurface remains of the 18th century trough and drain (ACH39) identified by archaeological monitoring in Slane village.

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Where deemed appropriate by the National Monuments Service (DHLGH), archaeological features or sites revealed by the test trenching, which will be directly affected by the proposed works, may be preserved in-situ (by avoidance or design). It is anticipated that where possible all archaeological excavation will be completed pre-construction, or if not, then during the early stages of construction phase. This is in accordance with the Code of Practice for Archaeology agreed between the Minister for Arts, Heritage, Regional, Rural and Gaeltacht Affairs and Transport Infrastructure Ireland (TII), 2017.

### 13.5.6 General

Archaeological and cultural heritage issues will be resolved at the pre-construction and construction stages of the development. This will include any necessary archaeological monitoring and inspection work required along the Proposed Scheme during the site preparation / advanced works phase of the project. This is in accordance with the TII Code of Practice for Archaeology, 2017. During the construction phase, a mechanism for recording, protecting and (where necessary) resolving existing archaeological monuments and newly revealed sites within the Lands Made Available (LMA) will have to be agreed with the TII Project Archaeologist and the National Monuments Service of the DHLGH.

If features are to be left *in-situ*, detailed plans shall be prepared by the Project Archaeologist as to the layout and extent of these features/ sites as well as a geographical location. Before and after photographs will be required as well as a full report on the preservation of the site and how this was achieved. This will be submitted to the National Monuments Service.

In accordance with TII policy on all road schemes, the results generated from archaeological investigations on the Proposed Scheme will be made freely and publicly available. The enhanced dissemination of information is a key part of TII's policy with regard to archaeology and can help in promoting a greater awareness of the past among local communities. As such, the results will be communicated at intervals throughout the project and at its conclusion, through a variety of means, including public open days, the presentation and publication of academic and community papers, and digital story maps. The technical reports will be uploaded to the TII Digital Heritage Collection.

## 13.6 Residual Effects

No significant negative residual effects were identified in relation to the Proposed Scheme.

Implementation of all of the mitigation measures embedded in the design of the Proposed Scheme would result in no significant residual effects on the OUV of the World Heritage Property.

The following residual effects were identified for the Proposed Scheme with regard to archaeology and cultural heritage:

- The photomontages at Year 10 (see **Chapter 12 – Landscape and Visual**) indicate the growth of screening vegetation along the west side of the carriageway sufficient to obstruct views of the carriageway and vehicles from the Hill of Slane national monument. The north roundabout would continue to be visible and the area of illuminated road at the roundabout would also be visible. Given the elevation of the viewpoints on the Hill of Slane there would be no light spill into these views. The implementation of the mitigation strategy will serve to reduce the Moderate negative effect identified, resulting in a post-mitigation, residual effect of Not Significant.
- The reduction in traffic, particularly heavy vehicles, as a result of the proposed mainline bypass, will help to ameliorate the present significant adverse effects of heavy traffic on the existing Slane bridge. In addition, once completed, the proposed public realm works and associated greening strategy will greatly enhance both Slane Bridge (AH09, ME019-024) and its immediate setting. This will result in a positive significant long-term residual effect.
- Following the implementation of the proposed mitigation strategy, the residual effect on the setting of the two recorded enclosures (AH27 & AH28, ME019-062 & -063) will be Not Significant.
- Following the implementation of the proposed mitigation strategy and completion of the public realm works, the residual effect on the setting of Fennor Church and graveyard (AH20, AH21; ME019-035, -035001) and Fennor Castle (AH24, AH25; ME019-036001, -035002) will be positive Moderate long-term.
- Sites AH32 (ME019-085, Enclosure), ACH26 (Probable ring-ditch), ACH27 (Probable enclosure), and ACH39 (18th century trough and drain) will be permanently removed, in whole or in part from the

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landscape. However, the archaeological excavation of the sites or parts thereof that lie within the Proposed Scheme, will involve full recording of all archaeological features, finds and deposits, and the results of the excavations will be published and disseminated, thus adding to the body of knowledge. This will result in a Slight positive residual effect.

A summary of the potential effects, the proposed mitigation measures, and the residual effects following the implementation of the mitigation measures for the Proposed Scheme is provided in **Table 13-20**.

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Table 13-20: Summary of Potential Effects and Mitigation Measures

Assessment Topic	Potential Effect (Pre-Mitigation)	Sensitivity Value	Magnitude of Effect	Significance of Effect	Mitigation Measure	Residual Effect
<b>Designated Sites</b>						
Brú na Bóinne, World Heritage Property	Construction and operation of the Proposed Scheme within the wider setting of the World Heritage Property has the potential to effect on the ways in which that setting currently supports OUV.	Very High	Negligible	Minor	Mitigation measures have been embedded in the design of the Proposed Scheme, with additional measures aimed to reduce the visibility or visual prominence of the proposed bypass, and vehicles using it, in views from Knowth and the Hill of Slane, i.e. selection of appropriate materials for the proposed bridge and additional screening using a planted bund, hedgerows, trees and a woodland strip at sensitive locations (as described in <b>Section 13.5.1</b> ).	Implementation of all of the mitigation measures embedded in the design of the Proposed Scheme will result in no significant residual effects on the OUV of the World Heritage Property.
Hill of Slane, National Monument	Indirect effect on setting	High	Low	Moderate	Screening in the form of a woodland strip. Growth by Year 10 would be sufficient to obstruct views of the carriageway and vehicles from the Hill of Slane national monument.	Not Significant, following implementation of the proposed mitigation strategy.
AH09, ME019-024, Bridge	Moderate negative effect on setting during construction & operational phase, but overall significant positive effect as a result of the considerable reduction of traffic on the bridge	Medium	High	Significant positive	The operational bypass will greatly help to ameliorate the present significant adverse effects of heavy traffic on the bridge. Appropriate planting on the riverbanks and the embankment slopes will provide visual integration and screening in these areas when viewed from the site. Archaeological monitoring of any ground disturbance works will be undertaken. The works are to be carried out in accordance with a method statement to be prepared by a suitably qualified conservation specialist, in consultation with the TII Project Archaeologist.	Significant positive long-term, following implementation of the proposed mitigation strategy, the opening of the mainline bypass, and completion of the proposed public realm works and associated greening strategy.
AH20, ME019-035, Church	Indirect effect on setting	Medium	Low	Slight	Appropriate planting on the riverbanks and the embankment slopes will provide visual integration and screening in these areas when viewed from the site.	Moderate positive, following implementation of the proposed mitigation strategy and completion of the proposed public realm works.

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Assessment Topic	Potential Effect (Pre-Mitigation)	Sensitivity Value	Magnitude of Effect	Significance of Effect	Mitigation Measure	Residual Effect
AH21, ME019-035001, Graveyard	Indirect effect on setting	Medium	Low	Slight	Appropriate planting on the riverbanks and the embankment slopes will provide visual integration and screening in these areas when viewed from the site.	Moderate positive, following implementation of the proposed mitigation strategy and completion of the proposed public realm works.
AH24, ME019-036001, House - 16th/17th century	Indirect effect on setting	Medium	Low	Slight	Appropriate planting on the riverbanks and the embankment slopes will provide visual integration and screening in these areas when viewed from the site.	Moderate positive, following implementation of the proposed mitigation strategy and completion of the proposed public realm works.
AH25, ME019-036002, Castle - tower house	Indirect effect on setting	Medium	Low	Slight	Appropriate planting on the riverbanks and the embankment slopes will provide visual integration and screening in these areas when viewed from the site.	Moderate positive, following implementation of the proposed mitigation strategy and completion of the proposed public realm works.
AH32, ME019-085, Enclosure	Large part of this early medieval complex lies within the LMA. Direct and permanent construction effect due to ground disturbance.	Medium	High	Very Significant	Site confirmed by testing. Full archaeological excavation of the site within the LMA.	Slight Positive. Archaeological excavation will involve full recording of all archaeological features, finds and deposits. The results will be published and disseminated, thus adding to the body of knowledge.
AH27, ME019-063, Enclosure	Indirect effect on setting	Medium	Low	Slight	Woodland planting in Slane townland will serve to screen the proposed road from the enclosures	Not Significant
AH28, ME019-062, Enclosure	Indirect effect on setting	Medium	Low	Slight	Woodland planting in Slane townland will serve to screen the proposed road from the enclosures	Not Significant
<b>Undesignated Sites</b>						
ACH01 Possible curvilinear feature (geophysical anomaly)	Located within the LMA. Potentially direct and permanent construction effect due to ground disturbance, should the feature prove to be archaeological.	Unknown	Potentially medium	Undetermined	Targeted archaeological testing as part of the blanket testing strategy. Archaeological excavation in full or part of any identified remains (preservation by record).	Potentially Slight Positive. Archaeological excavation will involve full recording of all archaeological features, finds and deposits. The results will be published and disseminated, thus adding to the body of knowledge.
ACH02 Pre-1830s structure (site of)	Located within the LMA. Direct and permanent construction effect due to ground disturbance if	Low	Medium	Slight	Targeted archaeological testing as part of the blanket testing strategy. Archaeological excavation in full or part of any identified remains (preservation by record).	Potentially Slight Positive. Archaeological excavation will involve full recording of all archaeological features, finds and deposits. The results will be published and

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Assessment Topic	Potential Effect (Pre-Mitigation)	Sensitivity Value	Magnitude of Effect	Significance of Effect	Mitigation Measure	Residual Effect
	any subsurface remains survive.					disseminated, thus adding to the body of knowledge.
ACH03 Pre-1830s road	Located within the LMA. Direct and permanent construction effect due to ground disturbance if any subsurface remains survive.	Low	Medium	Slight	Targeted archaeological testing as part of the blanket testing strategy. Archaeological excavation in full or part of any identified remains (preservation by record).	Potentially Slight Positive. Archaeological excavation will involve full recording of all archaeological features, finds and deposits. The results will be published and disseminated, thus adding to the body of knowledge.
ACH04 Pre-1830s structures (site of)	Located within the LMA. Direct and permanent construction effect due to ground disturbance if any subsurface remains survive.	Low	Medium	Slight	Targeted archaeological testing as part of the blanket testing strategy. Archaeological excavation in full or part of any identified remains (preservation by record).	Potentially Slight Positive. Archaeological excavation will involve full recording of all archaeological features, finds and deposits. The results will be published and disseminated, thus adding to the body of knowledge.
ACH05 Possible milling activity	Located within the LMA. Potentially direct and permanent construction effect should any archaeological features be present.	Unknown	Potentially medium	Undetermined	Targeted archaeological testing. As this area is within the River Boyne floodplain, it is necessary to minimise ground disturbance in line with the mitigation strategy for <b>Chapters 15 and 16</b> and the Natura Impact Statement (NIS). To achieve this, testing within the floodplain will be carried out (ground conditions allowing) after the advanced testing programme, within the footprint of the coffer dams and attenuation ponds, if necessary during the site preparation works phase and before construction takes place. Archaeological excavation in full or part of any identified remains (preservation by record).	Potentially Slight Positive. Archaeological excavation will involve full recording of all archaeological features, finds and deposits. The results will be published and disseminated, thus adding to the body of knowledge.
ACH07 Possible curvilinear feature (geophysical anomaly)	Partly within the LMA. Potentially direct and permanent construction effect due to ground disturbance, should the feature prove to be archaeological.	Unknown	Potentially medium	Undetermined	Targeted archaeological testing as part of the blanket testing strategy. Archaeological excavation in full or part of any identified remains (preservation by record).	Potentially Slight Positive. Archaeological excavation will involve full recording of all archaeological features, finds and deposits. The results will be published and disseminated, thus adding to the body of knowledge.

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Assessment Topic	Potential Effect (Pre-Mitigation)	Sensitivity Value	Magnitude of Effect	Significance of Effect	Mitigation Measure	Residual Effect
ACH08 Riverine environs (area of archaeological potential)	Located within the LMA. Potentially direct and permanent construction effect should any archaeological features be present.	Unknown	Potentially medium	Undetermined	Targeted archaeological testing. As this area is within the River Boyne floodplain, it is necessary to minimise ground disturbance in line with the mitigation strategy for <b>Chapters 15 and 16</b> and the Natura Impact Statement (NIS). To achieve this, testing within the floodplain will be carried out (ground conditions allowing) after the advanced testing programme, within the footprint of the coffer dams and attenuation ponds, if necessary during the site preparation works phase and before construction takes place. Archaeological excavation in full or part of any identified remains (preservation by record). Palaeo-environmental sampling.	Potentially Slight Positive. Archaeological excavation will involve full recording of all archaeological features, finds and deposits. The results will be published and disseminated, thus adding to the body of knowledge.
ACH09 Pre-1830s structure (site of)	Located within the LMA. Direct and permanent construction effect due to ground disturbance if any subsurface remains survive.	Low	Medium	Slight	Targeted archaeological testing as part of the blanket testing strategy. Archaeological excavation in full or part of any identified remains (preservation by record).	Potentially Slight Positive. Archaeological excavation will involve full recording of all archaeological features, finds and deposits. The results will be published and disseminated, thus adding to the body of knowledge.
ACH12 Pre-1830s structure (site of)	Located within the LMA. Direct and permanent construction effect due to ground disturbance if any subsurface remains survive.	Low	Medium	Slight	Targeted archaeological testing as part of the blanket testing strategy. Archaeological excavation in full or part of any identified remains (preservation by record).	Potentially Slight Positive. Archaeological excavation will involve full recording of all archaeological features, finds and deposits. The results will be published and disseminated, thus adding to the body of knowledge.
ACH14 Lime-kiln & post-medieval industrial activity (site of)	Partly within the LMA. A direct and permanent construction effect due to ground disturbance.	Low	Medium	Slight	Targeted archaeological testing as part of the blanket testing strategy in areas that may have been less effected by past quarrying (i.e. the N and E sides of the hilltop). This will include preservation by record in the form of a survey of the access track, the stone-faced boundary around the tree copse to the west, and any surviving lime-kiln foundations. The aim of	Slight Positive. The survey record will add to the body of knowledge.

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Assessment Topic	Potential Effect (Pre-Mitigation)	Sensitivity Value	Magnitude of Effect	Significance of Effect	Mitigation Measure	Residual Effect
					this survey shall be to make a representative written and photographic record of the features.	
ACH16 Pre-1830s structure (site of)	Located within the LMA. Direct and permanent construction effect due to ground disturbance if any subsurface remains survive.	Low	Medium	Slight	Targeted archaeological testing as part of the blanket testing strategy. Archaeological excavation in full or part of any identified remains (preservation by record).	Potentially Slight Positive. Archaeological excavation will involve full recording of all archaeological features, finds and deposits. The results will be published and disseminated, thus adding to the body of knowledge.
ACH18 Flint scatters	Located within the LMA. Potentially direct and permanent construction effect should any archaeological features be present.	Unknown	Potentially medium	Undetermined	Targeted archaeological testing as part of the blanket testing strategy. Archaeological excavation in full or part of any identified remains (preservation by record).	Potentially Slight Positive. Archaeological excavation will involve full recording of all archaeological features, finds and deposits. The results will be published and disseminated, thus adding to the body of knowledge.
ACH21 Pre-1830s structures (site of)	Located within the LMA. Direct and permanent construction effect due to ground disturbance if any subsurface remains survive.	Low	Medium	Slight	Targeted archaeological testing as part of the blanket testing strategy. Archaeological excavation in full or part of any identified remains (preservation by record).	Potentially Slight Positive. Archaeological excavation will involve full recording of all archaeological features, finds and deposits. The results will be published and disseminated, thus adding to the body of knowledge.
ACH24 Possible enclosure	Located within the LMA. Potentially direct and permanent construction effect should any archaeological features be present.	Unknown	Potentially medium	Undetermined	Previous testing failed to identify any archaeological features. Underlying geology may have interfered with the survey, but it is also possible that there are still archaeological features here which limited testing failed to isolate. As part of the blanket testing strategy, the entire area containing ACH24 will first be stripped of topsoil under archaeological supervision (from Ch. 2300 to Ch. 2360) to aid in the identification of any archaeological features that may be present.	Slight Positive. Archaeological excavation will involve full recording of all archaeological features, finds and deposits. The results will be published and disseminated, thus adding to the body of knowledge.
ACH25 Pre-1830s structure (site of)	Located within the LMA. Direct and permanent construction effect due to ground disturbance if	Low	Medium	Slight	Targeted archaeological testing as part of the blanket testing strategy. Archaeological excavation in full or part of any identified remains (preservation by record).	Potentially Slight Positive. Archaeological excavation will involve full recording of all archaeological features, finds and deposits. The results will be published and

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Assessment Topic	Potential Effect (Pre-Mitigation)	Sensitivity Value	Magnitude of Effect	Significance of Effect	Mitigation Measure	Residual Effect
	any subsurface remains survive.					disseminated, thus adding to the body of knowledge.
ACH26 Probable ring-ditch	Partly within the LMA. Direct and permanent construction effect due to ground disturbance.	Medium	Medium	Significant	Site confirmed by testing. Full archaeological excavation of the site within the LMA.	Slight Positive. Archaeological excavation will involve full recording of all archaeological features, finds and deposits. The results will be published and disseminated, thus adding to the body of knowledge.
ACH27 Probable enclosure	Partly within the LMA. Direct and permanent construction effect due to ground disturbance.	Medium	Medium	Significant	Site confirmed by testing. Full archaeological excavation of the site within the LMA.	Slight Positive. Archaeological excavation will involve full recording of all archaeological features, finds and deposits. The results will be published and disseminated, thus adding to the body of knowledge.
ACH28 Possible archaeological features (geophysical anomalies)	Located within the LMA. Potentially direct and permanent construction effect should any archaeological features be present.	Unknown	Potentially medium	Undetermined	Targeted archaeological testing as part of the blanket testing strategy. Archaeological excavation in full or part of any identified remains (preservation by record).	Potentially Slight Positive. Archaeological excavation will involve full recording of all archaeological features, finds and deposits. The results will be published and disseminated, thus adding to the body of knowledge.
ACH29 Possible archaeological features (geophysical anomalies)	Located within the LMA. Potentially direct and permanent construction effect should any archaeological features be present.	Unknown	Potentially medium	Undetermined	Targeted archaeological testing as part of the blanket testing strategy. Archaeological excavation in full or part of any identified remains (preservation by record).	Potentially Slight Positive. Archaeological excavation will involve full recording of all archaeological features, finds and deposits. The results will be published and disseminated, thus adding to the body of knowledge.
ACH30 Possible archaeological features (geophysical anomalies)	Located within the LMA. Potentially direct and permanent construction effect should any archaeological features be present.	Unknown	Potentially medium	Undetermined	Targeted archaeological testing as part of the blanket testing strategy. Archaeological excavation in full or part of any identified remains (preservation by record).	Potentially Slight Positive. Archaeological excavation will involve full recording of all archaeological features, finds and deposits. The results will be published and disseminated, thus adding to the body of knowledge.
ACH33 Possible rectilinear feature	Located within the LMA. Potentially direct and permanent construction effect should any archaeological features be present.	Unknown	Potentially medium	Undetermined	Targeted archaeological testing as part of the blanket testing strategy. Archaeological excavation in full or part of any identified remains (preservation by record).	Potentially Slight Positive. Archaeological excavation will involve full recording of all archaeological features, finds and deposits. The results will be published and disseminated, thus adding to the body of knowledge.

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Assessment Topic	Potential Effect (Pre-Mitigation)	Sensitivity Value	Magnitude of Effect	Significance of Effect	Mitigation Measure	Residual Effect
ACH35 Possible archaeological features (geophysical anomalies)	Located within the LMA. Potentially direct and permanent construction effect should any archaeological features be present.	Unknown	Potentially medium	Undetermined	Targeted archaeological testing as part of the blanket testing strategy. Archaeological excavation in full or part of any identified remains (preservation by record).	Potentially Slight Positive. Archaeological excavation will involve full recording of all archaeological features, finds and deposits. The results will be published and disseminated, thus adding to the body of knowledge.
ACH36 Possible archaeological features (geophysical anomalies)	Located within the LMA. Potentially direct and permanent construction effect should any archaeological features be present.	Unknown	Potentially medium	Undetermined	Targeted archaeological testing as part of the blanket testing strategy. Archaeological excavation in full or part of any identified remains (preservation by record).	Potentially Slight Positive. Archaeological excavation will involve full recording of all archaeological features, finds and deposits. The results will be published and disseminated, thus adding to the body of knowledge.
ACH37 Possible archaeological features (geophysical anomalies)	Located within the LMA. Potentially direct and permanent construction effect should any archaeological features be present.	Unknown	Potentially medium	Undetermined	Targeted archaeological testing as part of the blanket testing strategy. Archaeological excavation in full or part of any identified remains (preservation by record).	Potentially Slight Positive. Archaeological excavation will involve full recording of all archaeological features, finds and deposits. The results will be published and disseminated, thus adding to the body of knowledge.
ACH38 Possible burnt spread	Located within the LMA. Potentially direct and permanent construction effect should any archaeological features be present.	Unknown	Potentially medium	Undetermined	Targeted archaeological testing as part of the blanket testing strategy. Archaeological excavation in full or part of any identified remains (preservation by record).	Potentially Slight Positive. Archaeological excavation will involve full recording of all archaeological features, finds and deposits. The results will be published and disseminated, thus adding to the body of knowledge.
ACH39, 18th century trough & drain	Located within the LMA. A direct and permanent construction effect due to ground disturbance.	Low	Medium	Slight	Site identified during archaeological monitoring. Full archaeological excavation of the site within the LMA.	Slight Positive. Archaeological excavation will involve full recording of all archaeological features, finds and deposits. The results will be published and disseminated, thus adding to the body of knowledge.
ACH41, 18th century fountain (site of)	Located within the LMA. A direct and permanent construction effect due to ground disturbance.	Low	Medium	Slight	Archaeological monitoring of ground disturbance works in the village centre to determine if any remains survive.	Potentially Slight Positive. Archaeological excavation will involve full recording of any archaeological features, finds and deposits. The results will be published and disseminated, thus adding to the body of knowledge.

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Assessment Topic	Potential Effect (Pre-Mitigation)	Sensitivity Value	Magnitude of Effect	Significance of Effect	Mitigation Measure	Residual Effect
Townland boundaries	Fennor / Cullen and Slane / Cashel boundaries partly within the LMA. Direct and permanent construction effect due to ground disturbance.	Low	Medium	Slight	Targeted archaeological testing as part of the blanket testing strategy. This will include preservation by record in the form of a survey. The aim of this survey shall be to make a representative written and photographic record of the affected sections of boundary. The TII Project Archaeologist will liaise with the Project Ecologist for the proposed scheme, in advance of any disturbance, with regard to the mitigation strategy for terrestrial ecology.	Slight Positive. The survey record will add to the body of knowledge.

## 13.7 Monitoring

Any necessary archaeological monitoring and inspection work required along the Proposed Scheme during the site preparation / advanced works phase of the project shall be undertaken. There will be no requirement for monitoring post-construction.

## 13.8 Chapter References

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