Bonneagar Iompair Éireann
Transport Infrastructure Ireland

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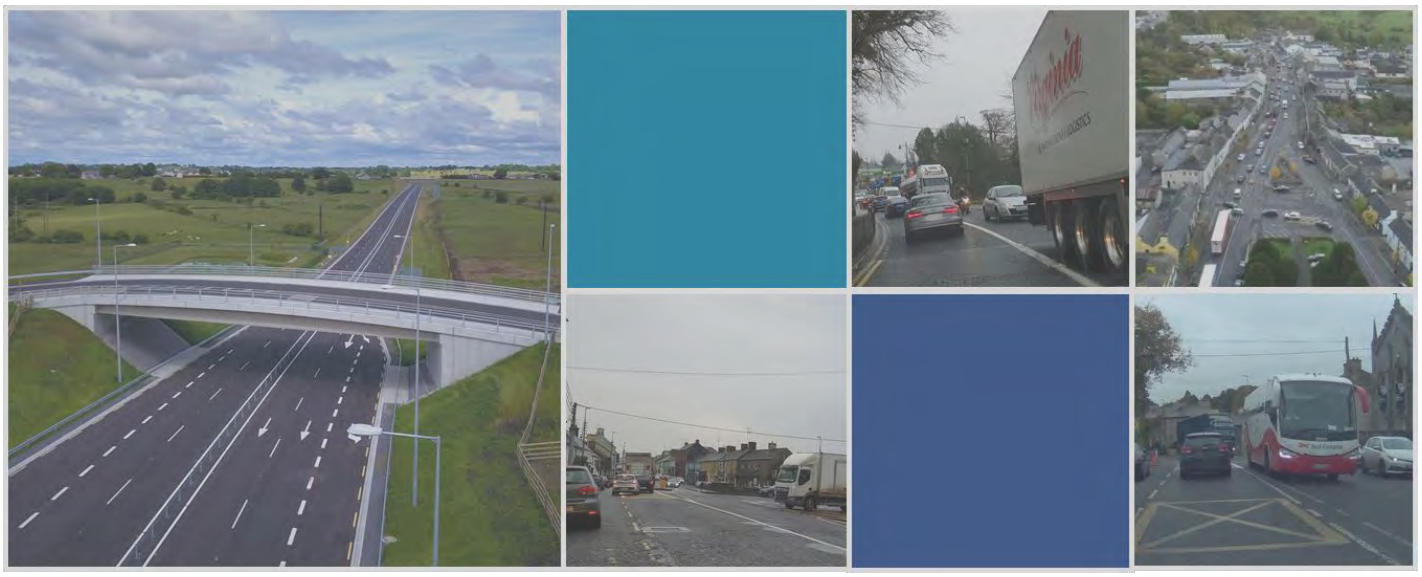
meath county council

Cavan
Comhairle Contae an Chabháin
Cavan County Council

N3 Virginia Bypass

Option Selection Report
Volume 3 Constraints Study



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Overarching Structure of Option Selection Report

Volume Ref. No. & Title	Contents
Volume 0 – Executive Summary	
Volume 1 – Main Report	
Volume 2 – Drawings	Part A – Corridor Drawings Part B – Constraints and Environmental Drawings
Volume 3 – Constraints Study Report	**Main Report**
Volume 4 – Stage 1 Assessment Appendices	Part A – Not Used Part B – Assessment Scoring Matrix
Volume 5 – Stage 2 Environmental Appraisal Report	Main Report & Associated Appendices
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Volume 7 – Project Appraisal Balance Sheet (PABS)	PABS

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SECTION 1: INTRODUCTION

1.1 Background

This constraints study comprises Volume 3 of the Phase 2 Options Selection Report for the N3 Virginia Bypass. The constraints study presents the various anthropogenic and environmental constraints that are within the Zone of Influence (ZoI) of the proposed project. The findings of this report will form a crucial part of the option selection process covered by Phase 2 under the TII Project Management Guidelines (PMG), TII Publications (Technical) PE-PMG-02041 (Jan 2019).

The scope for the N3 Virginia Bypass is to investigate options that would improve road safety and congestion through the town of Virginia and settlements of Maghera and Whitegate, as well as at the collision cluster areas of Murmod Cross and Lisgrea Cross on the N3 National Primary Road.

It should be noted that the constraints study was conducted during the beginning of Phase 2 of the Scheme in 2020. All constraints and policy documents included in this report stand correct as of October 2020.

1.2 Aims and Objectives

The scope of the constraints study is to identify and map the nature and extent of potential anthropogenic and environmental constraints that exist within the identified Study Area of the project. The purpose of completing this exercise is to identify where such constraints may impact upon the development of the proposed roads and in so doing will inform both the stakeholder consultation and Phase 2 Option Selection process. The constraints study has been compiled with reference to the Transport Infrastructure Ireland (TII) planning guidelines[1], the TII PMG (2019) and the environmental factors provided in Article 3 of the EIA Directive (Directive 2011/92/EU as amended by Directive 2014/52/EU), as transposed into Irish legislation by the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018, S.I. No. 296 of 2018. Article 3 states:

"The environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on the following factors:

(a) population and human health;
(b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;
(c) land, soil, water, air and climate;
(d) material assets, cultural heritage and the landscape;
(e) *the interaction between the factors referred to in points (a) to (d)."*

This constraints study presents the constraints in line with the above environmental factors in the following order:

- Population and Human Health (**Section 5**);
- Biodiversity (**Section 6**);
- Land, Geology and Soils (**Section 7**);
- Hydrogeology (**Section 8**)
- Hydrology (**Section 9**);
- Air Quality and Climate (**Section 10**);
- Noise and Vibration (**Section 11**)
- Material Assets – Non-Agricultural (**Section 12**);
- Material Assets – Agriculture (**Section 13**);

[1] NRA (2008) Environmental Impact Assessment of National Road Schemes – a Practical Guide.

- Cultural Heritage including archaeology, architecture and culture (**Section 14**);
- Landscape and Visual Impact Assessment (**Section 15**); and
- External Constraints not included above (**Section 15**).

The constraints study incorporates mapping of the identified constraints across the Study Area established for the project to inform decision making on feasible options. The options should, where possible, avoid constraints. The constraints study also informs the requirement for any additional surveys or targeted investigations.

1.3 Methodology

1.3.1 Study Area and Zone of Influence

The Study Area for the project comprises a sufficiently large area to encompass feasible options to meet the requirements for the project, and to ensure that environmental constraints in the wider area can be adequately considered.

The Zone of Influence (ZoI) for various disciplines may vary and there may be scientifically appropriate reasons for extending this ZoI further afield, depending on the pathway of potential impacts.

The Study Area considered is described in Section 2.

1.3.2 Identifying and Mapping Constraints

Constraints are divided into three principal categories:

- Natural constraints (naturally occurring landscapes and features);
- Artificial constraints (forming part of the built environment); and
- External parameters (design standards, policy, procedural and legal issues).

This constraints study is comprised of a desktop study and windshield surveys, which includes the review of various documentation, including mapping. The available mapping for this scheme consisted of 1:50,000 Ordnance Survey Ireland (OSi) Discovery Series, OSi Vector Mapping and aerial photography which provides information on the physical features of the Study Area. A Geographic Information System (GIS) has been used to map and present the available data within the Study Areas. Additionally, a number of datasets such as the National Parks and Wildlife Service (NPWS) ecological database, the Geological Survey Ireland database and the Water Framework Directive (WFD) surface water characteristics have been utilised. The datasets considered within each discipline are provided in the relevant of this report

The constraints identified are described in **Sections 5 to 16.**

SECTION 2: STUDY AREA

The Study Area is shown in **Figure 2-1** below.

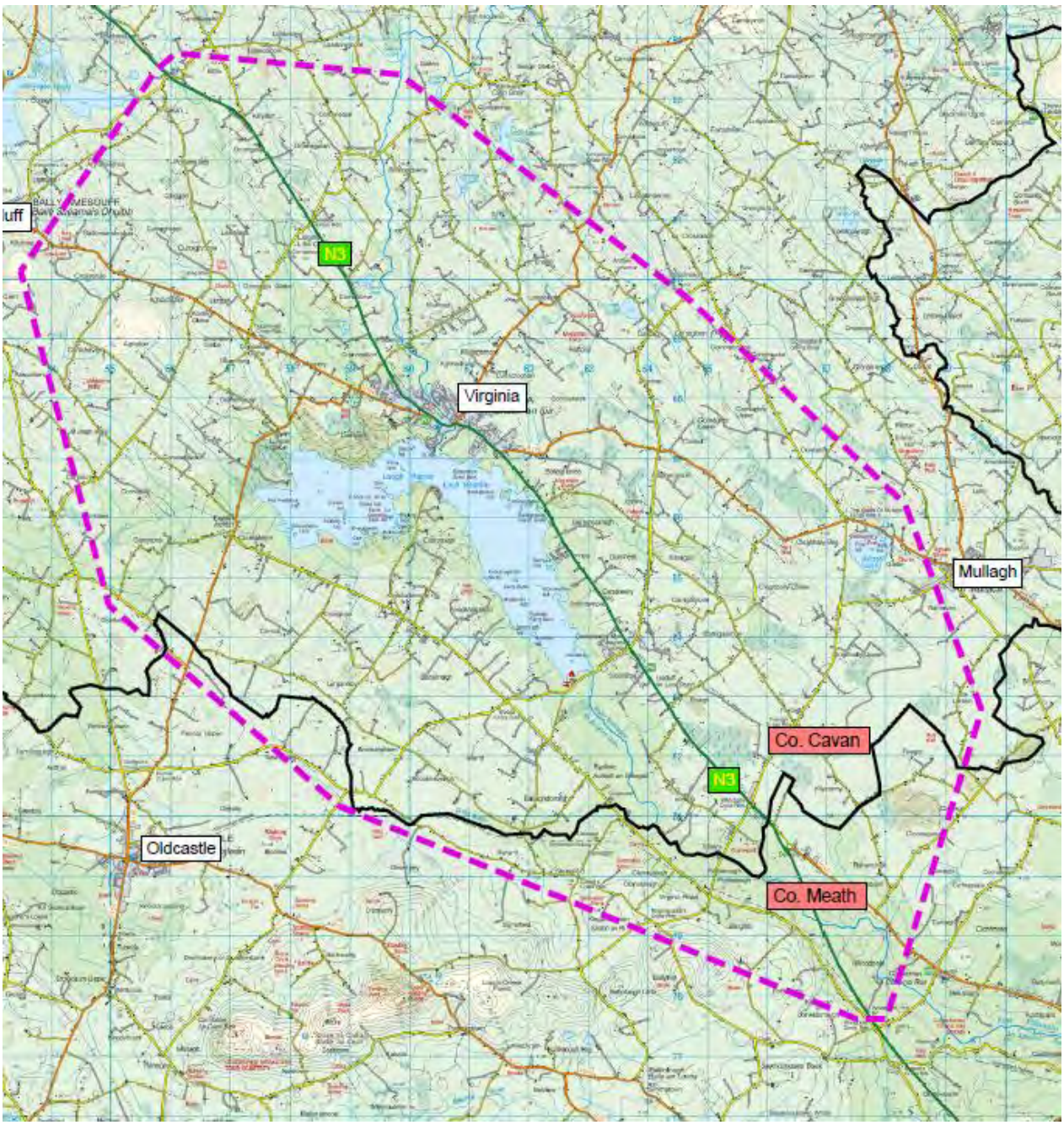

Figure 2-1: Study Area

The Study Area for the N3 Virginia Bypass road scheme is located mainly in south County Cavan and to an extent in north County Meath. The Study Area surrounds Virginia town and Lough Ramor extending west towards Ballyjamesduff and east towards Mullagh village. The Study Area crosses into County Meath to the west of Carnaross village and to the east of Oldcastle town. Virginia is the only urban area within the Study Area.

SECTION 3: ENVIRONMENTAL LEGISLATIVE CONSTRAINTS

Consideration of relevant environmental policy and legal issues at EU, national, regional and local level may influence the development of a proposed road improvement within the Study Area. It is prudent to consider such issues at an early stage and ensure that the project is progressing in line with such policies and legislation. Relevant legal, planning and policy related requirements are set out in **Table 3-1**.

Table 3-1: Legislative, Policy and Planning Constraints

Legislation, Policy and Planning	Constraints/Requirements
EU Legislation	
EIA Directive (Directive 2011/92/EU, as amended by Directive 2014/52/EU)	Environmental Impact Assessment (EIA) is a very significant instrument in the implementation of EU environmental policy. The EIA Directive (Directive 2011/92/EU, as amended by Directive 2014/52/EU) requires that there is an assessment of the effects of certain public and private projects on the environment and is designed to ensure that projects likely to have significant effects on the environment are subject to a comprehensive assessment of environmental effects prior to development consent being given.
Water Framework Directive (2000/60/EC, as amended by Directive 2014/101/EU	The Water Framework Directive, Commission Directive 2000/60/EC (as amended by Directive 2014/101/EU) establishes a framework for community action in the field of water policy. All works during the development and operation of the project must aim to protect surface, ground and coastal waters.
Habitats Directive (92/43/EEC)	The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, better known as “The Habitats Directive”, provides legal protection for habitats and species of European importance. All works during the development and operation of the project must be assessed by a public authority, in view of best scientific knowledge and in view of the conservation objectives of the European site, if the project, individually or in combination with other plans or projects is likely to have a significant effect on the European site [i.e. Special Areas of Conservation (SACs), designated under the Habitats Directive, and Special Protection Areas (SPAs), designated under the Birds Directive (79/409/EEC), as codified by Directive 2009/147/EC].
Floods Directive (2007/60/EC)	The Floods Directive 2007/60/EC establishes a framework for the assessment and management of flood risks. The aim of this Directive is to reduce and manage the risks that floods pose to human health, the environment, cultural heritage and economic activity.
Birds Directive (79/409/EEC, as amended by Directive 2009/147/EC)	The Birds Directive (79/409/EEC), as codified by Directive 2009/147/EC, on the conservation of wild birds seeks to conserve all wild birds, their eggs, nests and habitats in the EU by setting out rules for their protection, management and control. All works during the development and operation of the project must aim to maintain/conserve wild bird species occurring in the Study Area.
National Legislation	
Planning and Development Act, 2000 (as amended)	The planning code is made up of both primary and secondary legislation i.e. acts and regulations. The framework is set out in the Planning and Development Act 2000 (as amended) and the detail is prescribed in the Planning and Development Regulations 2001 (as amended).
Roads Act (1993) as amended.	The project must undergo screening for Environmental Impact Assessment in accordance with the Roads Act 1993 (as amended).
European Communities (Birds and Natural Habitats)	This legislation gives effect to the Birds Directive 2009/147/EC and the Habitats Directive 92/43/EEC.

Regulations 2011, SI 477/2011	
The Inland Fisheries (Amendment) Act 2017, EU (Quality of Salmonid Waters) Regulations 1988	All works during development and operation of the project must aim to conserve fish and other species of fauna and flora habitat; biodiversity of inland fisheries and ecosystems and protect spawning salmon and trout.
National Monuments Acts 1930-2004, Heritage Act 2018, Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act, 1999	All works during development and operation of the project must aim to ensure the satisfactory protection of archaeological remains, which are held to include all man-made structures and to protect and where possible preserve architectural heritage.
Planning and Policy	
Cavan County Development Plan 2014 - 2020	**Core Strategy Objectives** **CSP6** To promote the integration of land use and transportation policies, to prioritise cycling and walking, as sustainable modes of travel and strengthen public transport provision. **CSP16** Recognise the strategic importance of the national road network within the County which links Towns and villages to each other and to Cavan Town and that contribute to the role of large and medium size towns to support Cavan Town and act as drivers of growth. **Road Infrastructure Objectives** **PIO1** To improve all Council roads to an appropriate standard subject to the availability of resources. **PIO2** To improve road safety for all road users and reduce fatalities and accidents on Cavan Roads. **PIO3** To enable people, goods and services to reach their destination safely, efficiently and quickly and to improve access to services in rural parts of Cavan**.** **PIO4** To improve the capacity of the road infrastructure within County Cavan in accordance with national and regional policy. **PIO5** To have a well-maintained road network basis. **PIO6** To improve access for mobility impaired people. **PIO7** To provide safer routes to educational establishments within the County. **PIO8** To preserve, free from development, proposed road realignment/improvement lines and associated corridors where such development would prejudice the implementation of the NRA or County Council plans. **PIO9** To ensure that access to buildings and public spaces are accessible to people with mobility needs. Car parking shall generally be provided in accordance with 'Buildings for Everyone', 2002 published by the National Disability Authority and other relevant documentation. **PIO10** To promote road safety measures in conjunction with Government Departments and other agencies to avoid the creation of traffic hazards and to ensure traffic management and safety issues are adequately addressed at pre-planning and planning application stage. **PIO11** To have regard to the 'Cavan County Local Biodiversity Action Plan,' 2009-2014 in the provision of any new Council roads. **PIO12** To ensure that all new developments are assessed with regard to their impact on the operation of the public road network and where appropriate to require a 'Traffic and Transport Assessment,' in accordance with standards set out in the 'Traffic and Transport Assessment Guidelines' published by the NRA. **PIO13** To ensure that all new developments within the zone of influence of existing public roads or new public roads provide suitable protection against traffic noise in

accordance with the requirements of S.I. No. 140 (2006) 'Environmental Noise Regulations.' The costs of implementing any additional noise mitigation measures shall be borne by the developer.

PIO14 To implement the Roads Programme for the County in association with the NRA. Various road schemes will be subject to EIA and AA, where necessary.

National Roads Objectives

PIO16 To progress and develop the N3 National Primary Route, Edenburt to Cavan Bypass Scheme.

PIO21 To co-operate with the NRA in the upgrading of existing National Routes where appropriate.

PIO22 To restrict accesses onto National Roads along sections of road where the speed limit exceeds 60km per hour and to restrict the intensification of any existing accesses in such locations, except in exceptional circumstances, as defined by Section 2.6 of the DECLG 'Spatial Planning and National Roads Guidelines,' in line with DECLG policy and as supported by the NRA.

PIO23 To have regard to the NRA document 'Traffic and Transport Assessment Guidelines' and 'Spatial Planning and National Roads Guidelines' published by the DECLG, 2012 and, where appropriate, the Inland Fisheries Board Guidelines 'Requirements for the protection of fishery habitat during construction and development works at river sites'.

Regional Roads Objectives

PIO25 To promote and develop the road network linking Cavan and Sligo.

PIO26 To upgrade the Regional Road network to route consistent standards.

Built Heritage & Archaeology Policies

BHP1 To protect, preserve and enhance the architectural heritage of County Cavan by taking into consideration the advice contained in the 'Architectural Protection, Guidelines for Planning Authorities', 2004.To adhere to the standards advocated in the 'Principles of Conservation' published by the Department of the Environment, Heritage and Local Government in undertaking works on elements of the built heritage and to protect all structures or parts of structures, where appropriate, that are of special architectural, historical, archaeological, artistic, cultural, scientific social or technical interest, which are included in the RPS.

BHP2 To encourage the sympathetic retention, reuse and rehabilitation of Protected Structures and their settings. The Planning Authority will require that all works to Protected Structures be carried out in accordance with conservation guidelines and best practice and that the special interest, character and setting of the building be protected

BHP3 To encourage the continued use of protected structures and their curtilage and to promote their sensitive adoption to accommodate modern requirements.

BHP4 To actively encourage and promote the conservation of Cavan's built heritage. To promote best practice conservation in works to protected structures and to encourage the use of tradesmen and professionals trained in the use of traditional skills, materials and building techniques.

Land Use and Transportation Planning Policies

PIP1 Aim to further improve accessibility throughout the life of this Plan and that the economic development of the County will not be constrained by the lack of adequate infrastructure.

PIP2 Maintain, and if possible improve, the current roads infrastructure for the County so that it will be an attractive location for new commercial and residential development.

PIP3 Promote all modes of transport in the County and improve accessibility and connectivity both within the County and to the County by integrating land use planning with a transport system based on sustainability of resources and the development of additional transport infrastructure.

	Land Use and Transportation Planning Objectives **PIO51** To ensure the co-ordination of transport and land use planning.
River Basin Management Plan for Ireland 2018 - 2021	The document (Chapter 4) sets out the condition of Irish waters, and a summary of status for all monitored waters in the 2013 – 2015 period, including a description of the changes since 2007 – 2009. Nationally, the number of monitored river water bodies and lakes at good or high status appears to have declined by 4% since 2007–2009. However, this decline also masks an underlying trend of improvement and disimprovement across monitored river water bodies and lakes since 2009. Figures from the Environmental Protection Agency (EPA) show that over 1,000 river water bodies and lakes have changed status over the period of the first cycle.. In addition, The previously observed long-term trend of decline in the number of high-status (Q5 and Q4-5) river sites is continuing. Chapter 5 of the RBMP presents results of the catchment characterisation process, which identifies the significant pressures on each water body that is *At Risk* of not meeting the environmental objectives of the WFD. Importantly, the assessment includes a review of trends over time to see if conditions were likely to remain stable, improve or deteriorate by 2021. 1,460 water bodies were classed *At Risk* out of a total of 4,829, or 30%. An assessment of significant environmental pressures found that agriculture was the most significant pressure in 780 (53%) river and lake water bodies that are *At Risk*. Urban waste water, hydromorphology and forestry were also significant pressures amongst others.

SECTION 4: CONSULTATIONS

4.1 Stakeholder Consultations

A number of the key stakeholders to the project were identified and contacted in writing to inform them of the proposed N3 Virginia Bypass. The stakeholders were each invited to contribute observations and comments on environmental elements of the project regarding the Constraints Study. **Table 4-1** lists the stakeholders contacted as part of this stage in the project. All constraints, observations and comments received from these stakeholders are to be considered as part of the constraints study, option selection and subsequent environmental impact assessment of the project.

Constraints consultation with key stakeholders ran from 14th January 2020 to 31st January 2020. The consultation letter issued to stakeholders is provided in **Appendix 1**.

Table 4-1: Stakeholders Consulted during the Constraints Study

Stakeholders	Date Issued	Date Observations Received	Constraints/Requirements of the Proposed N3 Virginia Bypass
Office of Public Works (OPW)	14/01/2020		No observations received to date.
Environmental Protection Agency (EPA) Regional Inspectorate	14/01/2020		No observations received to date.
Department of Communications, Climate Action and Environment	14/01/2020	15/01/2020	*Acknowledgement of request for Constraints Feedback*
Department of Culture, Heritage and the Gaeltacht	14/01/2020	31/01/2020	The Department noted that the following designated areas fall within the Study Area (Drawing 19408-BT-GN-XX-DR-C00068): - Killyconny Bog Special Area of Conservation, (Site number 000006) - River Boyne and River Blackwater Special Area of Conservation, (Site number 002299) - River Boyne and River Blackwater Special Protection Area, (Site number 004232) Other areas of Conservation interest within the Study Area include the proposed Lough Ramor Natural Heritage Area (Site no 000008), the river, lake and wetland network north of the N3, areas of heath and the sandpits by the River Blackwater (sand martin). Some dwelling houses and outbuildings within the Study Area provide roosting habitat for bats.
Department of Agriculture, Food and the Marine	14/01/2020	17/01/2020	*Acknowledgement of request for Constraints Feedback*
Department of Housing, Planning & Local Government	14/01/2020		No observations received to date.
National Museum of Ireland	15/01/2020		No observations received to date.

Stakeholders	Date Issued	Date Observations Received	Constraints/Requirements of the Proposed N3 Virginia Bypass
Geological Survey of Ireland (GSI)	14/01/2020	16/01/2020	There are three County Geological Sites (CGS) within the Study Area: • Bruse Hill, Co. Cavan (GR 664471, 784020), under IGH theme 7: Quaternary. This is one of the few discrete examples of a crag and tail ridge throughout the drumlin belt, where composite crag-and-tail features are more common. Crags are formed when a glacier or ice sheet passes over an area that contains a particularly resistant mass of rock (in this case the rock summit of Bruse Hill itself). The force of the glacier erodes the surrounding softer material, leaving the rocky block protruding from the surrounding terrain. The crag then serves as a partial shelter to softer material in the wake of the glacier, which remains as a gradual fan or ridge forming a tapered ramp (called the tail) up the leeward side of the crag. This is seen on the south-eastwards side of the crag itself, tailing into Enagh and Fartagh townlands. The Bruse Hill tail feature extends for a distance of just under 3 kilometres, and the crag reaches a height of 196m O.D. at its summit • Blackwater Valley, Co. Cavan (GR 663660 782360), under IGH theme 7: Quaternary. This is one of the best examples of a pitted sandur in Ireland. Pitted sandur features are hummocky outwash plains, formed either because blocks of dead ice melted out from under the meltwater sediments after they were deposited, or because a large-scale, instantaneous meltwater flood occurred. The source of the Blackwater River is at Lough Ramor and the sandur sediments flank the lake on its western and southern shores. The area between the lake and the Meath county boundary has the best expression of outwash sediments in the entire Blackwater Valley, where the hummocks are high, up to 10m in height, and interspersed with striking hollows, or kettle holes. The theory that a large lake formed under the retreating ice sheet, where Lough Ramor now lies, and deposited the sand and gravel sediments along the Blackwater Valley when the lake burst out through the ice in a 'Jokulhlaup', cannot be discounted and is worthy of future investigation. • Blackwater Valley (Saundur), Co. Meath (GR 267500 278700), under IGH theme 7: Quaternary. The Blackwater Valley stretches from Castlekeeran in Meath to just north of Virginia in Cavan. This represents a large glacially derived valley, which is flooded to the north to form Lough Ramor. To the south of the lake is a glacial outwash feature known as a pitted sandur or pitted outwash plain. The valley catchment covers over 1,000 square kilometres, but the pitted sandur that forms a striking hummocky terrain at the base of the valley is only c. 20 square kilometres in area. A sandur forms when glacial meltwater flowing from a melting ice sheet deposits its load (silt, sand, gravel and boulders), creating a bumpy landscape. The term 'pitted' refers to the small to large depressions within the glacial sediment, created by solitary blocks of melting ice. These features are generally at such a large scale that they are difficult to recognise on the ground and may only be seen from satellite imagery or

Stakeholders	Date Issued	Date Observations Received	Constraints/Requirements of the Proposed N3 Virginia Bypass
			high resolution aerial photography. Unusually, in the Blackwater Valley, the hollows are visible on the ground. The full extent of the feature includes areas within County Cavan. Any development should try to enhance the significance and general awareness of these sites. With regard to Flood Risk Management, there is a need to identify areas for integrated constructed wetlands. Recommend that geohazards be taken into consideration, especially when developing areas where these risks are prevalent. Recommend use of Geothermal Suitability maps to determine the most suitable type of ground source heat collector for use with heat pump technologies. Encourage the use of GSI data on Natural Resources (Minerals/Aggregates) in assessments under the EIAR chapters 'Material Assets'
Royal Irish Academy: Committee for Historical Studies	14/01/2020	20/01/2020	*Acknowledgement of request for Constraints Feedback, correspondence will be shared with the Historical Studies Committee.*
Road Safety Authority	15/01/2020		No observations received to date.
National Museum of Ireland	15/01/2020		No observations received to date.
Inland Fisheries Ireland	14/01/2020	07/02/2020	- The EU Water Framework Directive (2000/60/EC) requires the protection of the ecological status of river catchments. - Article 5 of the 2009 Surface Water Regulations requires that a public authority shall not knowingly cause or allow deterioration in the chemical or ecological status of a body of surface water. - Lough Ramor is currently at bad status and should have been restored to at least good by the end of 2015. The lake is a prominent coarse fishing lake with prominent stocks of bream, roach, eels and pike. It also contains stocks of Brown Trout. - This proposed by-pass will be passing over waters that are tributaries of Lough Ramor and regarded as salmonid waters as they contain Atlantic Salmon and Brown Trout. - These waters also contain freshwater crayfish, contact National Parks and Wildlife for their requirements. All in-stream works should be carried out as per IFI Guidelines.
Teagasc	14/01/2020		No observations received to date.
Transport Infrastructure Ireland	14/01/2020	20/01/2020	*Acknowledgement of request for Constraints Feedback*
Office of the Planning Regulator	14/01/2020	23/01/2020	*Acknowledgement of Stakeholder Constraints Feedback Request. Given that scheme in question is not a statutory plan, within the meaning of the Planning and Development Act 2000, as amended, issuing of observations in this regard does not fall within the statutory remit of the OPR.*

Stakeholders	Date Issued	Date Observations Received	Constraints/Requirements of the Proposed N3 Virginia Bypass
An Taisce	14/01/2020	16/01/2020	*Acknowledgement of request for Constraints Feedback*
The Heritage Council	14/01/2020		No observations received to date.
Irish Water	14/01/2020	29/01/2020	- The Virginia wastewater agglomeration is entirely within the constraints area and parts of the Mullagh and Carnaross agglomerations may also be impacted. - The Bailieboro and Billis Lavey water supply schemes are within the constraints area. Small sections of the Carnaross and Kells/Oldcastle water supply schemes may also be impacted. - The constraints study boundary is in close proximity to Nadregeel Lough which supplies the Billlis Lavey Water Supply Scheme.
Waterways Ireland	14/01/2020		No observations received to date.
Fáilte Ireland	14/01/2020		No observations received to date.
North West Regional Assembly	14/01/2020		No observations received to date.
Irish Aviation Authority	14/01/2020	30/01/2020	*No observations on this application.*
Meath County Council	14/01/2020	15/01/2020 & 29/01/2020	Meath County Council provided details of existing Water Services infrastructure within the Meath section of the Study Area. Referred to the EIS which was prepared for the M3 scheme.
The Arts Council	14/01/2020		No observations received to date.

4.2 Public Consultations

A Public Consultation Event No. 1 (Options Selection – Constraints & Initial Preliminary Options) was held over two days, 14:00 to 20:00 on 11th and 12th March 2020 in the Virginia Show Centre in Virginia Town, County Cavan.

The public consultation event was attended by elected members, landowners, stakeholders and members of the public. At each event, senior members of the project team were available to listen to the views and concerns of attendees and answer any questions they had. The information material available at the event included:-

- Drawings for inspection:
  - N3 Virginia Bypass Study Area;
  - Preliminary Combined Constraints;
  - Stage 1 Option Corridors;
  - Combined Constraints and Stage 1 Option Corridors; and
  - Stage 1 Option Corridors and Townland Boundaries.
- Material provided to attendees:
  - Public Consultation No.1 – Brochure; and
  - Public Consultation No.1 – Feedback Form (Postal Version);

All material on display and issued at the event was also made available to be viewed or downloaded from the project website (http://www.n3virginiabypass.ie/).

4.2.1 Relevant Dates

Feedback forms were initially due to be returned or completed online by 27th March 2020. Due to #COVID19 restrictions, the deadline for return of feedback on this project was initially extended to 17th April 2020. The deadline was further extended until 22nd May 2020 following the extension of #COVID19 restrictions. The public was advised of these extensions to the deadline via local radio, social media, local newspapers and the project website.

4.2.2 Feedback from Public Consultation

Feedback forms were made available to attendees of Public Consultation Event No. 1 and could be returned (using a freepost envelope) to the Road Design Section of Cavan County Council. The same feedback form was also made available for completion online on the project website.

All feedback received by the project team as part of this consultation was recorded and reviewed. Table 4-2 shows the quantity of feedback received through each channel during the consultation period.

Table 4-2 Feedback received by Communication Channel

386 **Consultation Event Attendance**	**194** **Feedback Forms (online & by post)**	**35** **Email Submissions** (up to 4th June 2020)

Note that one feedback form provided group feedback on behalf of residents of Whitegate, Edenburt & Fartagh, Virginia.

One submission provided group feedback on behalf of 174 listed residents / owners of properties, lands and / or businesses impacted by the Light Green East Option Corridor.

The Study Area

Feedback received indicates that respondents predominantly live in County Cavan (82%), as indicated in **Figure 4-1**:

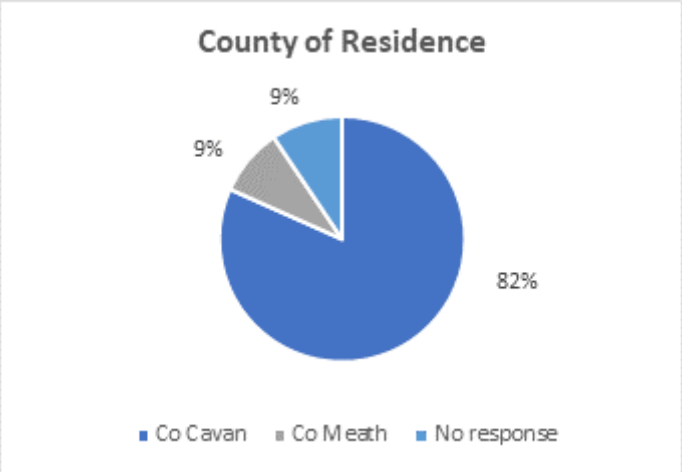

Figure 4-1: County of Residence of Questionnaire Respondents

The majority of respondents live in the Study Area (91%). 50% of respondents work in the Study Area. 72% indicated that they do not go to school / college / university in the Study Area.

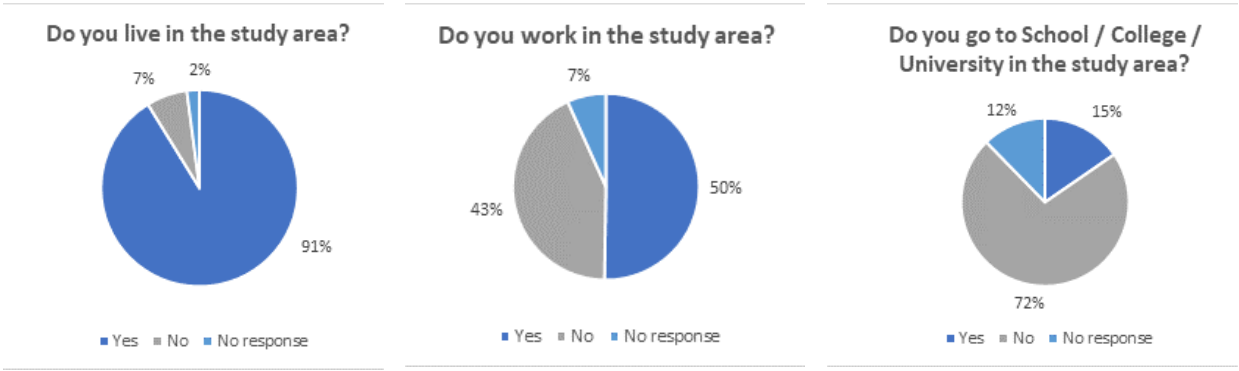

Figure 4-2: Details of respondents living, working and in education in the Study Area

For respondents who live or have property in the Study Area, these types of property primarily fall into two categories; residential (64%) and farm / agricultural land (23%).

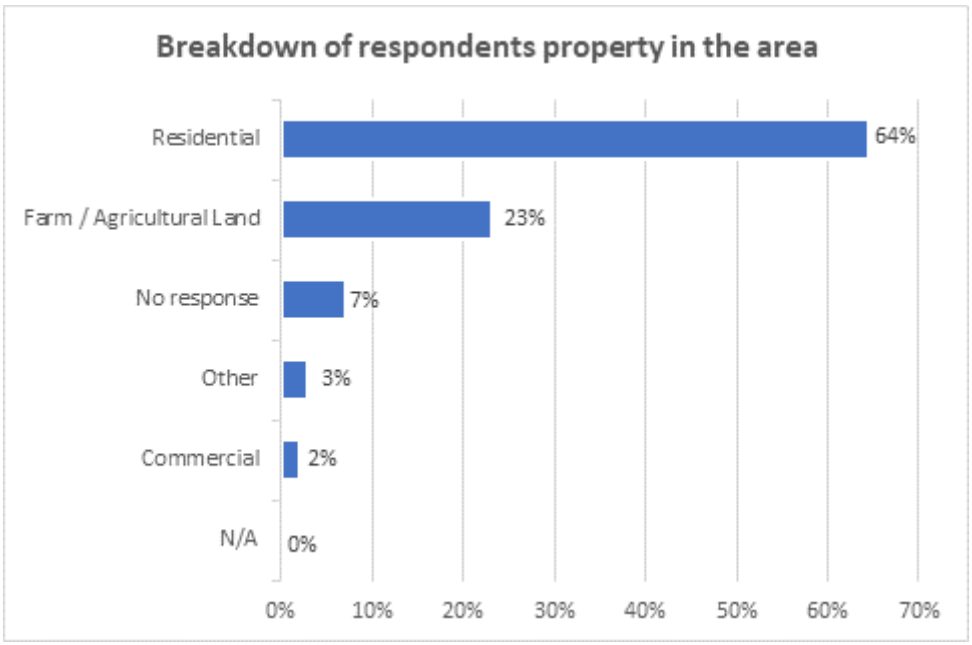

Figure 4-3: Breakdown of respondents property in the Study Area

Constraints

72% of respondents indicated that they were aware of local constraints.

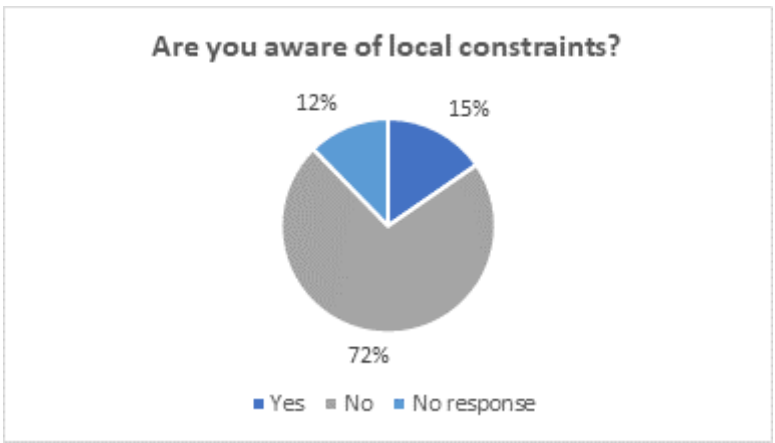

Figure 4-4: Awareness of local constraints

The constraints information provided by respondents fall under five main categories:

- **Flooding** – 36 questionnaires mention flooding issues, with four respondents highlighting historical flooding along the beginning of the Red and Blue West route options. Other respondents refer to flooding in areas including Ryefield / Togher Road, an area near Lough Ramor, Boat Road in Knocktemple, Eighter and on the Magenta West corridor.
- **Bogs** – 16 questionnaires mention bogs as constraints. Specific bogs highlighted include land near Hollow Lane, an area between Gallon Bog and Fartagh Road, Croghan Bog and Bherna Bog.
- **Ecology** – 10 submissions refer to ecological habitats, wildlife and animals.
- **Wells** – 23 respondents made reference to wells in various locations.
- **Archaeology** – 18 questionnaires refer to castle ruins, forts in various locations and archaeological constraints.

Necessity of the N3 Bypass

A majority of respondents (67%) think that the N3 Bypass is necessary.

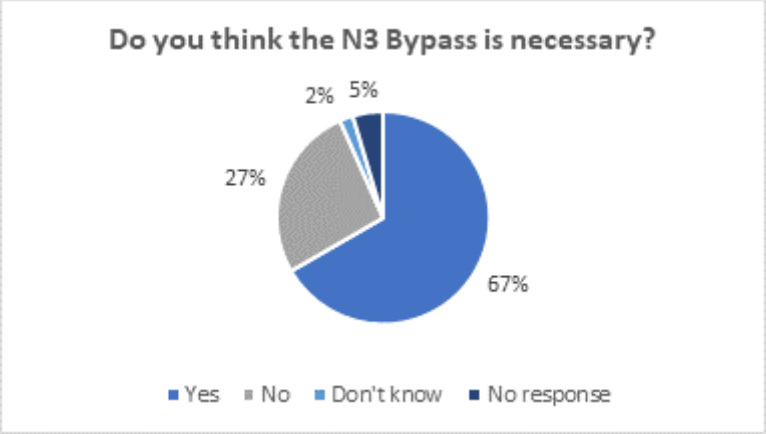

Figure 4-5: Necessity of the N3 Bypass

Of the 67% of respondents who think that the N3 is necessary, 103 believe that it is necessary due to traffic / congestion, 10 respondents mentioned safety / danger issues and a further 7 respondents referred to pollution / carbon footprint.

Of the 27% of respondents who do not think that the N3 is necessary, 8 stated that there is no existing traffic problem, 4 were concerned about the effect of the project on farmland, 4 mentioned disruption as a concern, 3 believed that other routes are available and 3 state that better public transport is required in the area.

Travelling this section of N3

The majority of respondents (71%) travel this section of the N3 on a daily basis.

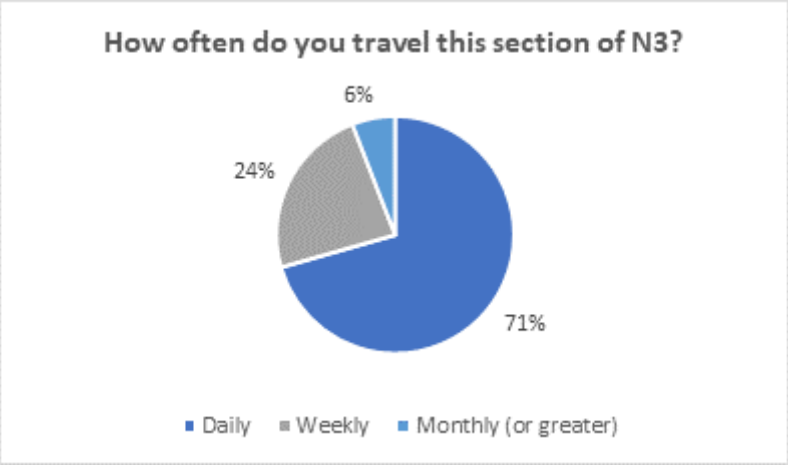

Figure 4-6: Frequency of travel on this section of N3

59% of respondents travel on the N3 by car, either as a driver (33%) or a passenger (26%). The next most used form of transportation is bus, used by 13% of respondents.

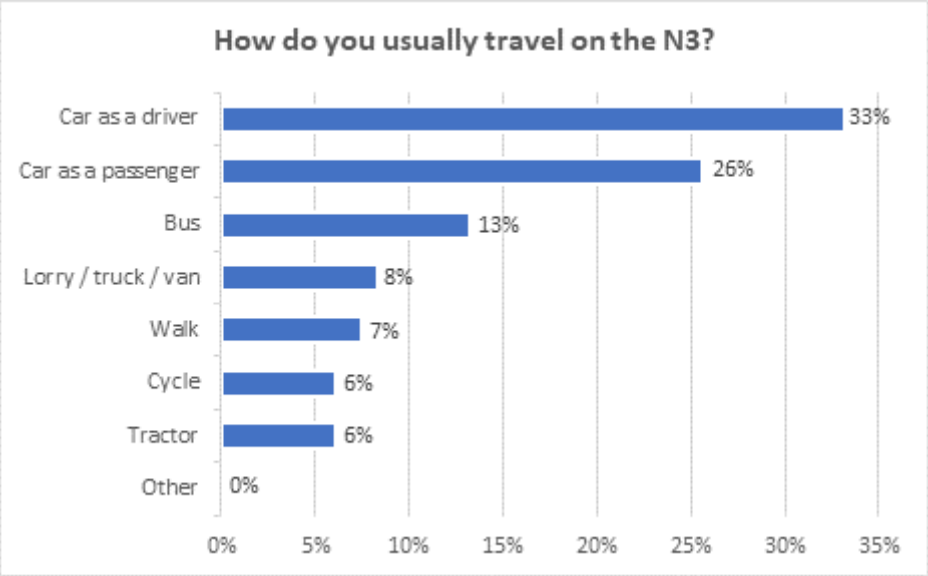

Figure 4-7: How respondents travel on the N3

When asked why they chose that form of transport, 27 respondents said that it was the only option available to them, 20 respondents use their preferred option because of convenience and 24 respondents cited a lack of public transport as their reason for their mode of transport.

With regards to where people are starting their journeys and where they are going to, 62% of respondents start their journey in Virginia and its environs. 15% start their journeys in other places which were not listed on the questionnaire such as Ryefield, Billis, Munterconnaught, Cornaslieve, Lisgrey, Whitegate, Maghera, Eighter, Garryross, Castlerahan, Donegal and Cootehill.

Respondents are travelling to Virginia and environs (40%), Kells and further south (24%) and Cavan and further north (10%). The other areas that 8% of respondents are travelling to include Dublin and Navan.

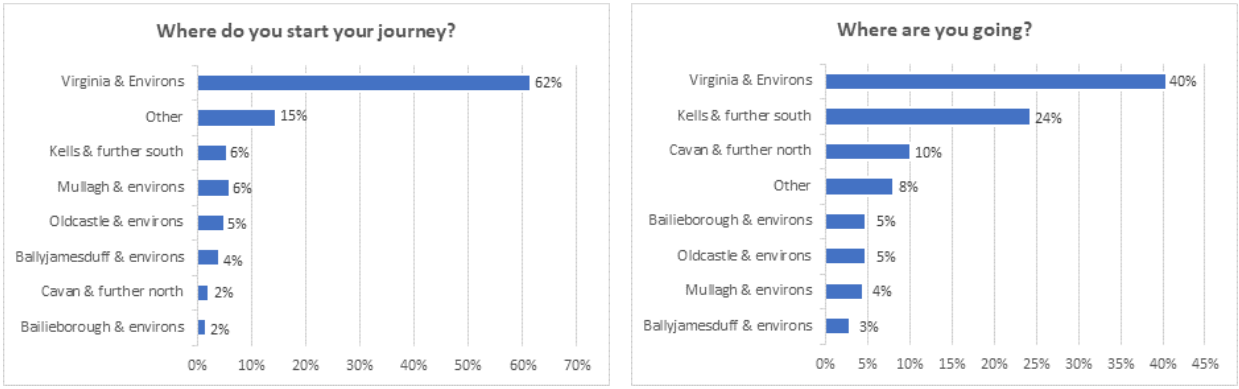

Figure 4-8: Where journeys on the N3 start / where respondents are going

Respondents are mainly using the N3 for travelling to work (42%) and for shopping (25%).

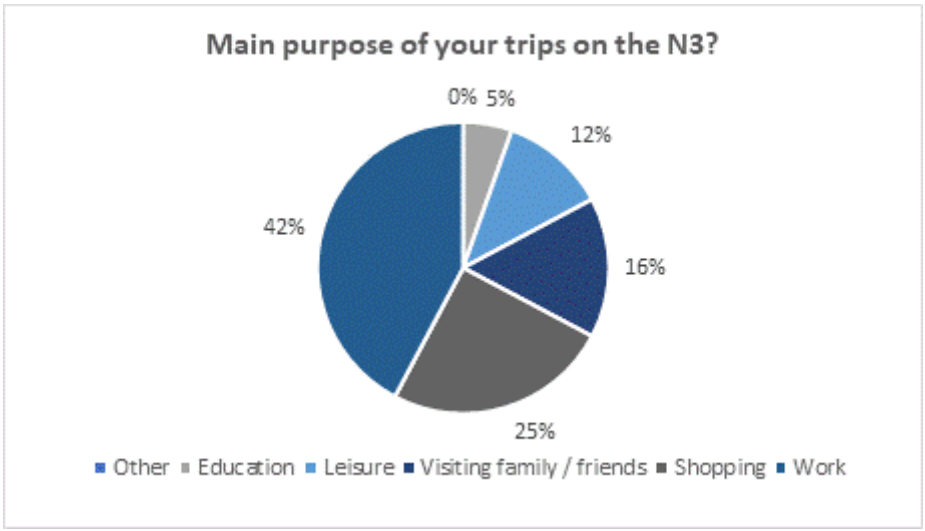

Figure 4-9: Main purpose of trips on the N3

Alternative Routes

60% of respondents stated that they take an alternative route to avoid Virginia either all the time (16%), or sometimes (44%).

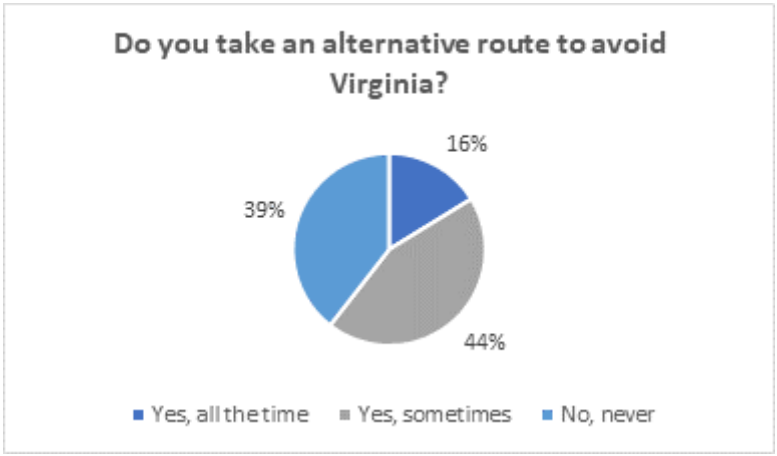

Figure 4-10: Alternative Routes

In terms of what alternative routes they are using, 36 respondents provided information on routes that they are travelling via Munterconnaught and 16 respondents described routes through Murmod.

4.2.3 Additional Feedback from Questionnaires

The feedback form provided respondents with an opportunity to provide any additional comments that they may have on the project.

Main themes expressed by respondents include:-

- Issues with traffic delays, volume of traffic on roads;
- Detours currently taken are dangerous;
- The project is not necessary;
- Concerns about cost issues;
- Recommendations for the use of public transport options;
- Concern for businesses in Virginia if the town is bypassed;
- Noise;
- Impacts on property, agricultural land, farms;
- Environmental concerns;
- Proximity to houses;
- The proposed road has been mooted for many years, the selected route was to be to the north of Virginia which influenced peoples' decisions in selecting the location of their homes; and
- Congestion through Virginia could be better managed by improvements to traffic light systems and improvements to the existing roads.

Comments on specific routes:

Option Corridors East of Lough Ramor

Red East Option Corridors

- Preferred route would be the Red East Option - for accessibility to Virginia town, for trade / commerce for business, because it is relatively a shorter route (not as expensive) and for safety reasons (it goes beyond Lisgrey crossroads (blackspot)).
- Like the red line to the east of the N3.
- The Red and Magenta routes east of Lough Ramor will not age well and could end up being within the town in a few years. The red route east of Lough Ramor goes too close to Carrigabruise N.S.
- Red East Option Corridor - would be running through my farm and dwelling house and purple east option corridor also.

Magenta (purple) East Option Corridor

- The proposed Purple East Option Corridor is the option which runs through my farm at Murmod, Virginia
- Do not believe that any of the options in particular Purple East, Red East and Cyan east, which cut straight through the residential areas in the town and surrounding built up areas, will be of any greater commercial benefit to the town, than any of the other proposed route.
- The purple east option corridor would have a very detrimental effect on the living and farming arrangements of my family and my extended family.
- Going by the map Study Area and initial preliminary options, Option east of Lough Ramor, marked by purple east option corridor appears to be passing right through my home.
- The proposed Purple East Option Corridor, South of Murmod Hill, would divide our farm at 4 locations and decimate our business and future plans. "Result" end of 100 years of business. 1. Last dairy farm in townland of Murmod, 2. Loss of jobs inside farm gate / single farm payment, 3. Transportation of milk, stock, farm inputs, 4. Silage making / slurry spreading, 5. All associated farm works.
  - The proposed Purple East Option Corridor (South of Murmod Hill) would impact hugely on the proposed National Heritage area.

  - The local Luke Delaney WW1 Restoration Committee have completed a successful feasibility study through The Leader Program and are ready to proceed to reconstruct the ancestral home of the WW1 veteran whose name is inscribed on the gate in Minin Gate in Ypres, Belgium.
  - Over 2 years of research and tendering has gone into this project and will be completed in 2020. The proposed route through this site would be strongly opposed to.
- Red/Magenta East Options would be running through my farm and dwelling house.

Blue / Cyan Option Corridors

- Prefer the route options - blue west, cyan east, blue east.
- Choice of route options would be 1st - Blue East option, 2nd - light green East, 3rd - Blue West option.
- Blue east option corridor goes through our property!
- Two of the proposed routes directly affect where we live. These are the turquoise and green route.
- The cyan route is the best route east of Ramor and the blue corridor (if it started from Whitegate) is the best option west of Ramor. To ensure the town still gets passing trade, it is important that the option chosen should start at Whitegate.

Green East Option Corridor

- No notice was given to any owner, resident or user of potentially impacted lands, businesses and homes.
- The proposed route does not show ALL properties along the path. Some are missing.
- The map Legend does not identify that those marked as “business” are very often also residential.
- The proposed route would obliterate not merely newly built family homes, but also homes currently being built and commercial business which would not be financially viable to relocate.
- We would also like to put on the record, that there has been a blanket dismissal of the proposed route by a large number of potentially impacted local people.
- The impact of this proposed route is also environmentally destructive (longest proposed route, bogland which would be impacted, destruction of long stretches of raised bog and Bog Woodland, early medieval settlements).

Option Corridors West of Lough Ramor

Magenta (purple) West Option Corridor

- Seriously opposed to the magenta west option corridor as it goes right by my house
- My home is underneath the Magenta West option.
- Magenta option along southern shore Lough Ramor (Oldcastle side). - Along this route and orange and blue routes, there are many small family farms in region of approximately 20 acres struggling to make a living. This project hugging the south lakeshore will cause a wipe out of these families livelihood. The land impacted is of the finest agricultural quality and of enormous economic importance to all families living on these holdings. In addition many areas along the path of this option are wildlife sanctuaries, i.e. river Blackwater plus many other areas. Many of the locations which would be impacted are sanctuaries for swans, kingfisher, sand martins, moorhens, snipes, grey herons, cormorants, mallards and teal. Some of the areas are of high ornithological importance and supports wildlife species listed in EU Birds Directive and EU Habitat Directive. In addition parts of this area are subject to annual flooding which will cause serious problems for this route on a regular basis in the future. The project dissects and will damage an important river which prevents serious flooding in the area and eventually flows into Lough Ramor. The relevant folio numbers for this river are CN12854, CN12853, CN12852 plus other folios on route to Lough Ramor. This project flies in the face of the Natura 2000 obligation which places a collective obligation on Ireland and its citizens to maintain habitats and species in this region. This project will kill off many obligations contrary to Natura 2000 objectives. In addition it will kill off all very badly needed tourism, camping, fishing, boating, water sports which Lough Ramor provides to this region and any further development being extinguished by this project. A far better solution to the daily commute would have been to reopen the old railway line from Oldcastle via Virginia Road to Dublin with

obvious benefits in massive reductions in pollution, time wasted in traffic congestion and stress reduction for all commuters.

- The proposed purple route is not the best option and intersects a number of small local roads and its very close to the Blackwater and Lough Ramor for wildlife, etc.
- Oppose magenta route. Due to marshlands and flooding.
- If the bypass goes through Munterconnaught and along the lake, it will destroy this area of natural beauty. I think it is protected lake. There is regular flooding along the lake at 3 separate points on the Magenta option. There is swimming lessons annually that run out of the field this magenta option runs through. It would no longer be an option for our children if this route goes ahead. Also there are camping sites and fishing access to lake. This is a recreational peaceful activity that would be absolutely destroyed if this option route (magenta) goes ahead.
- My home is not shown on the map and the Magenta West route runs straight through it.
- The Magenta option is not suitable.
- This magenta route is susceptible to flooding and poor marsh land.
- I sincerely hope that the Magenta West line is not even an option.
- Along this route and orange and blue routes, there are many small family farms in region of approximately 20 acres struggling to make a living. This project hugging the south lakeshore will cause a wipe out of these families livelihood. The land impacted is of the finest agricultural quality and of enormous economic importance to all families living on these holdings. In addition many areas along the path of this option are wildlife sanctuaries, i.e. river Blackwater plus many other areas. Many of the locations which would be impacted are sanctuaries for swans, kingfisher, sand martins, moorhens, snipes, grey herons, cormorants, mallards and teal. Some of the areas are of high ornithological importance and supports wildlife species listed in EU Birds Directive and EU Habitat Directive. In addition parts of this area are subject to annual flooding which will cause serious problems for this route on a regular basis in the future.
- The project dissects and will damage an important river which prevents serious flooding in the area and eventually flows into Lough Ramor. The relevant folio numbers for this river are CN12854, CN12853, CN12852 plus other folios on route to Lough Ramor.
- This project flies in the face of the Natura 2000 obligation which places a collective obligation on Ireland and its citizens to maintain habitats and species in this region. This project will kill off many obligations contrary to Natura 2000 objectives. In addition it will kill off all very badly needed tourism, camping, fishing, boating, water sports which Lough Ramor provides to this region and any further development being extinguished by this project.

Blue West Option Corridor

- Prefer the route options - blue west, cyan east, blue east.
- Blue west option is the best route. West of the lake allows for Virginia town to grow unhindered.
- Choice of route options would be 1st - Blue East option, 2nd - light green East, 3rd - Blue West option.
- Two of the possible option routes for the bypass, 1. Blue West Option Corridor and 2. Magenta West Option Corridor are mapped to destroy my house.
- The routes (pink & blue) are within 100 metres of our rural house
- The cyan route is the best route east of Ramor and the blue corridor (if it started from Whitegate) is the best option west of Ramor. To ensure the town still gets passing trade, it is important that the option chosen should start at Whitegate.

Orange Option Corridor

- The orange west route would be a disaster to our area.
- The orange west option corridor most affects me and my family.
- The orange west option corridor most affects me and my family. My fathers farm would be affected and the bypass would run at the back of my house and would ruin a scenic and ecologically sensitive part of the area.
- The orange west route would be a disaster to our area. It would cause great hardship to farmers in this area. It is also a very ecologically sensitive area.

- The Orange route seems very impractical and unnecessary.

Red West Option Corridors

- Red, orange and blue west routes are potentially damaging to local existing businesses in Virginia.
- Object to the red and orange bypass. Both of these options would cut through our family farm and would make farming our holding very difficult and unsustainable. The red and orange options seem extremely long in distance for a bypass for Virginia.
- The longest option by a significant distance. Likely to result in higher costs during the construction phase, in addition to higher maintenance costs on completion. A longer route is also likely to have a greater environmental impact. Taking into account the topography, the northernmost 2km section of the proposed Red West Option Corridor appears to have an excessive gradient, with approximately 90m difference in elevation between Billis Bridge and Aghaloughan. A similar gradient is evident on the northern section of the proposed Orange West Option Corridor. Dependent on the type of road layout proposed, this section of road may require a climbing lane, thereby adding to the overall cost. The alternative proposed routes do not have the same topographical constraints, and therefore provide more suitable options.
- Aligned closest to Loughcrew, an area of great historical importance. Loughcrew is home to a group of megalithic tombs dating back to 3000 BC, which sit on top of a range of hills, designated as a National Monument. All of the proposed routes to the west of Lough Ramor have the potential to introduce light and noise pollution to this historical area due to the proximity and increased volume of traffic along the proposed routes.
- Could potentially have a detrimental environmental impact due to its proximity to Nadreegeel Lough at its northernmost section. Nadreegeel Lough has been identified as an "Area for Action" under the Government's "River Basin Management Plan 2018- 2021" due to a deterioration of water quality (EPA 2018). This lake supplies water to a Public Water Scheme and a proposed Red West Option Corridor crosses two watercourses entering Nadreegeel Lough, and is aligned approximately 150m metres from the lake itself. Any further deterioration in water quality could have a significant impact on public health in the local area.

General Route Comments

- Bypass should be put east of Lough Ramor on the Virginia side.
- Not happy with any of the routes west of the lake on the Oldcastle side.
- Any route proposed east of Virginia will have a detrimental impact on our heritage as well as killing off trade in the town itself.
- The proposed corridor options for the west side travel through huge amounts of land.
- The proposed roads showed on the map (West of Lough Ramor side, between Eighter, Carrick and Castlerahan, are areas frequently used by neighbouring children walking to & from the nearby schools. Also many European fishermen, outside sports activities members, camping sites would be very deeply affected by any development road there.
- The proposed routes to the West are more costly and traverse a scenic and important archaeological landscape.
- The most feasible option is a shorter route which is close to the town. This would be the most economical option which would add value and benefit Virginia town and reduce the impact on communities and the environment in the region. The options west of Lough Ramor and the longer routes East of the lake would not achieve this and we would suggest that these options would not be included in the short list.
- The bypass should be put east of Lough Ramor on the Virginia side. It makes more sense to keep it east as the N3 itself is east and putting the bypass west would hurt the town of Virginia economically.
- South of the lake is not ideal as it breaks up many communities whereas route north of Virginia avoids lake and meets the M3 on other side much sooner
- Object to the routes south of the Lough Ramor as it will break up numerous town land and communities.
- Object to the plan to bypass Virginia especially to the southern options which will impact the lake environment, biodiversity and visual landscape. This natural amenity will be impacted for tourism, fishing

and nature visitors. This area needs to hold onto its natural environment. Alternatives need to be considered to minimise cars by including more public transportation.

- If the route decided upon goes south side of the lake, many more places of natural beauty and historical importance will be lost.
- A far better solution to the daily commute would have been to reopen the old railway line from Oldcastle via Virginia Road to Dublin with obvious benefits in massive reductions in pollution, time wasted in traffic congestion and stress reduction for all commuters.

SECTION 5: POPULATION AND HUMAN HEALTH

5.1 Population

The Cavan County Development Plan 2014 - 2020 classifies the settlement hierarchy of Cavan into six tiers as follows:

- Tier Six: (Small Villages)
- Tier Five: (Villages)
- Tier Four: (Small Towns)
- Tier Three: (Medium Towns)
- Tier Two: (Large Towns)
- Tier One: (Principle Town)

A brief summary on the population statistics and the property types within the N3 Virginia Bypass Study Area is provided below. The population figures from Census 2016 for each of the main settlements are provided in **Table 5-1**. Population density is mapped in terms of each Small Area (**Figure 5-1**), from the Census 2016 population data from CSO.

Table 5-1: Census 2016 Populations in Virginia Town

Census	Virginia
Population	2,648
Male	1,280
Female	1,368

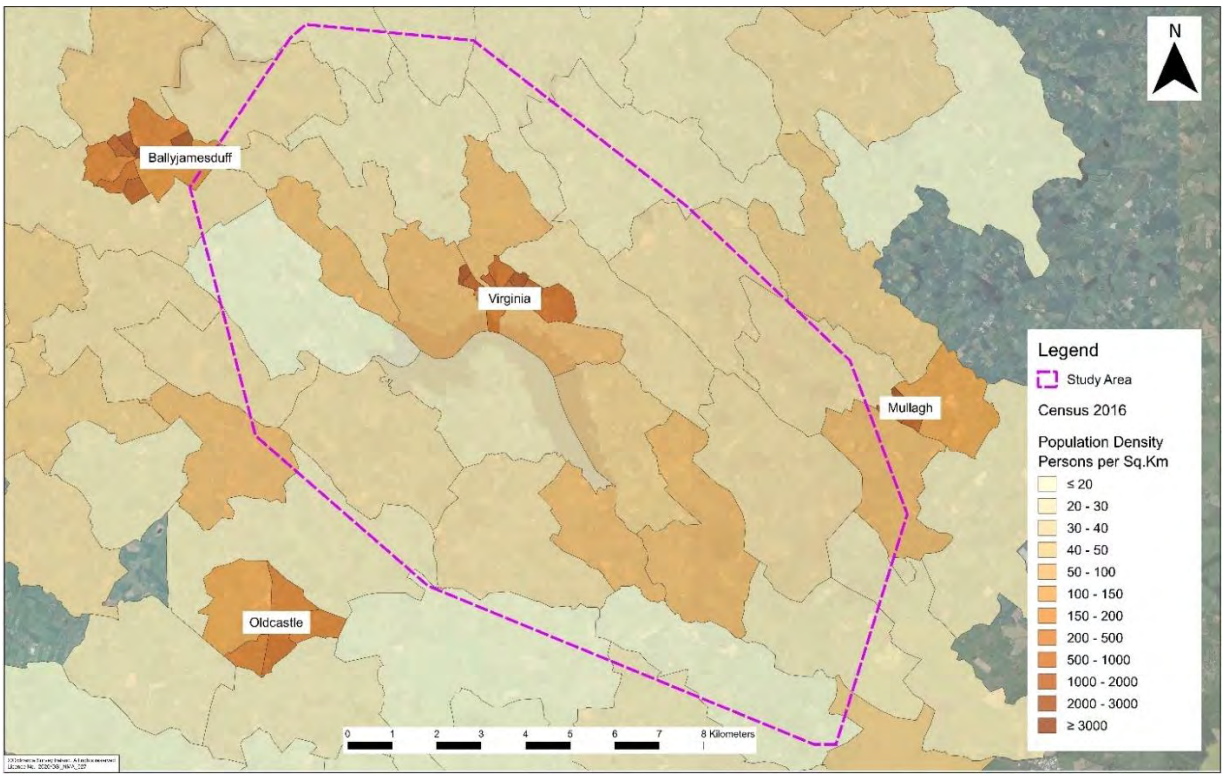

Figure 5-1: Population density mapped in terms of each Small Area

Error! Not a valid bookmark self-reference. provides details on the land supply adopted from Cavan County Development Plan 2014-2020. Table 5-3 presents property types on the number of residential, commercial or other property types within the Study Area for this project. This data is taken from Geodirectory 2019, as shown in **Figure 5-2**.

Table 5-2: Residential Land Supply within Virginia

Location	Virginia*
Target Population Growth from 2011-2020	585
Housing Land Requirement (Ha) for Target Population Growth	17.4
Proposed Residential Land Zoning/ Designation (Ha) with 50% over zoning	26
Housing yield (units) from Proposed Residential Land Zoning	312
Housing yield (units) from other lands	There is additional capacity within the existing residential zoned land to cater for one-off dwellings. This will vary from town to town and includes both the potential for one-off dwellings as well as considerable capacity to re-use and re-develop un-used and derelict buildings.

*Cavan County Development Plan 2014 - 2020, Table 2.19

Table 5-3: Property Types

Building Category[2]	Total
Business	447
Commercial	183
Residential	2,839
Total	3,469

Note: Geodirectory Data accessed 2019

[2] Categories abbreviations are according to Geodirectory.ie classifications: “C” indicates Commercial Buildings; “R” indicates Residential properties; and “B” indicates Business properties.

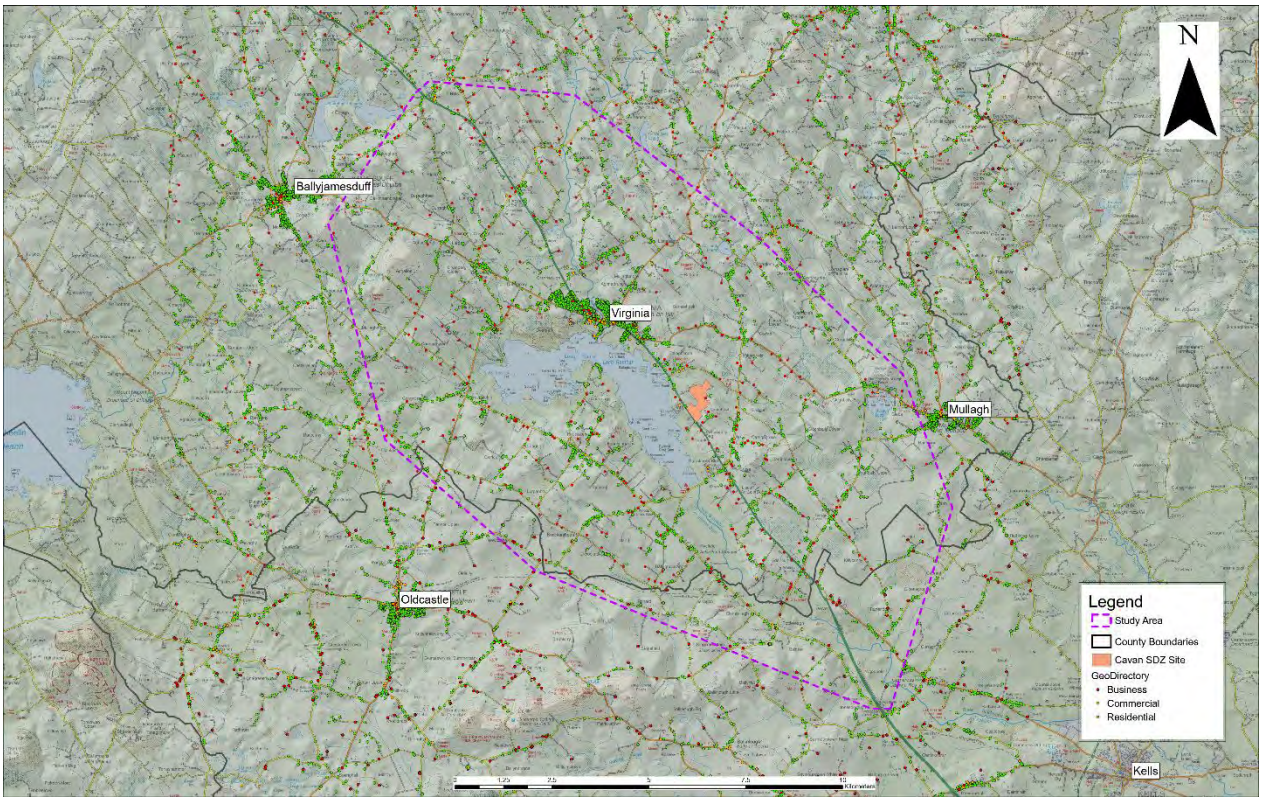

Figure 5-2: Property Locations and Associated Use Categories

Population

Virginia is located on the N3, which along with the regional roads, makes the town one of the most accessible in the county, providing direct linkages to Cavan town, Ballyjamesduff, Mullagh and Bailieborough. Its strategic location on the N3 provides easy access to private and public transport to Dublin city and towns such as Kells and Navan. Cavan County Development Plan 2014 – 2020 classifies Virginia as a Tier Two town (Large Town). The town's population has undergone a significant population growth of 52.7% in the decade between 2006 and 2016, rising to 2,648 in 2016.

Properties

The development of the Virginia town core is constrained by its linear layout along N3. The residential development is in an irregular fashion on the approach roads to the town centre. The presence of Lough Ramor to the South has acted as constraint on the physical expansion of the town. This has resulted in a compact form with linear tendencies, as expansion has mainly occurred towards the North West and South East of the town. Apart from the Virginia town centre, residential buildings are spread throughout the Study Area majorly along the regional and local roads towards Kells and Mullagh as ribbon development. The Core Strategy of the Cavan County Development Plan 2014 – 2020 identifies a requirement of 17.4 Ha for housing land for the target population. Table 5-2 provides details on the land supply adopted from Cavan County Development Plan 2014-2020. Table 5-3 presents property types on the number of residential, commercial or other property types within the Study Area for this project. This data is taken from Geodirectory 2019, as shown in Figure 5-2.

The Cavan County Development Plan 2014 – 2020, identifies the zoning for lands within Virginia Town as shown in **Figure 5-3** below.

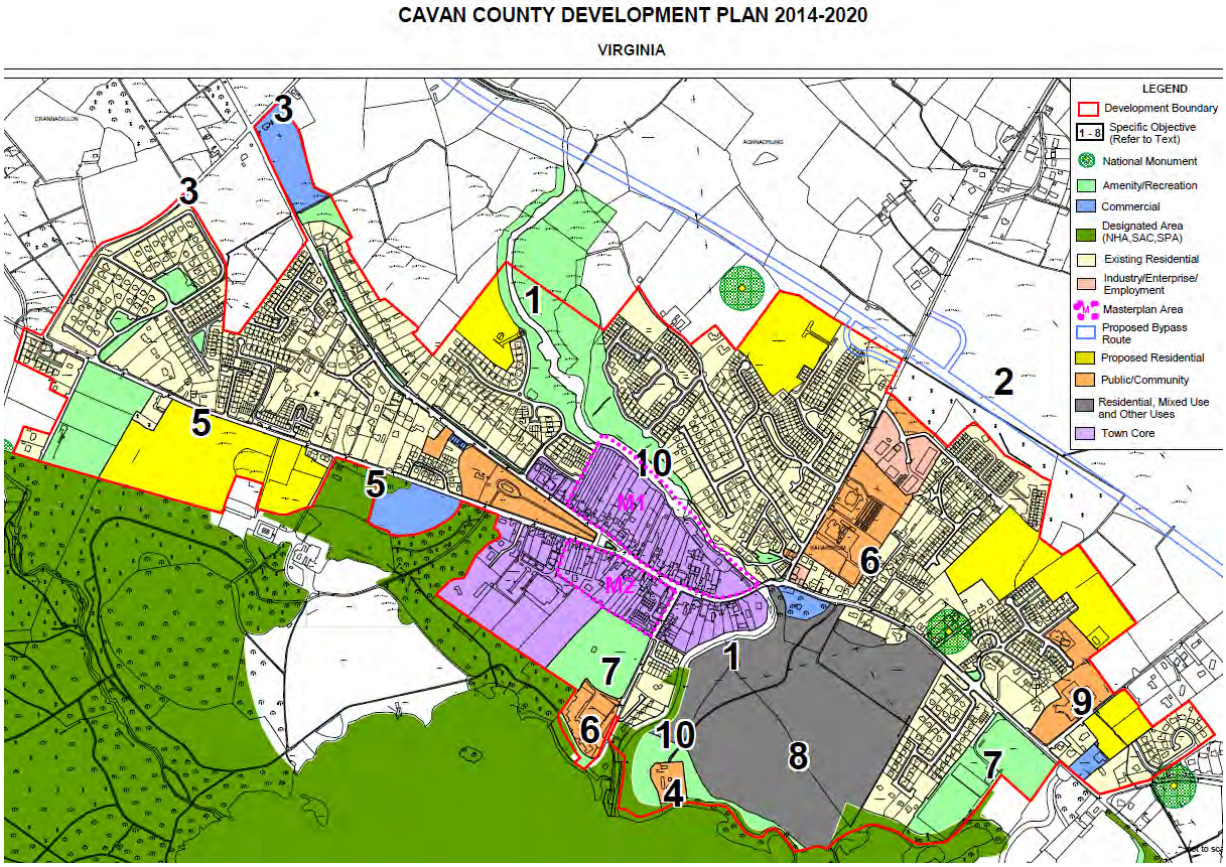

Figure 5-3: County Development Plan Zoning for Virginia Town

There is a mix of commercial and business development in the Study Area, densely concentrated in Virginia town and scattered throughout. Virginia has a good mix of professional, business, retail and other services within the town that provide employment. The commercial properties are majorly along the N3 while the business properties are more widely distributed.

The Cavan County Development Plan 2014 – 2020, references a Strategic Development Site to the south of Virginia Town that was previously identified as suitable for the development of a Regional Hospital, that is considered to be potentially suitable for the development. Cavan County Council have identified these lands for economic use primarily and are referred to as Burrencarragh Economic Lands. The area is shown in **Figure 5-4** below.

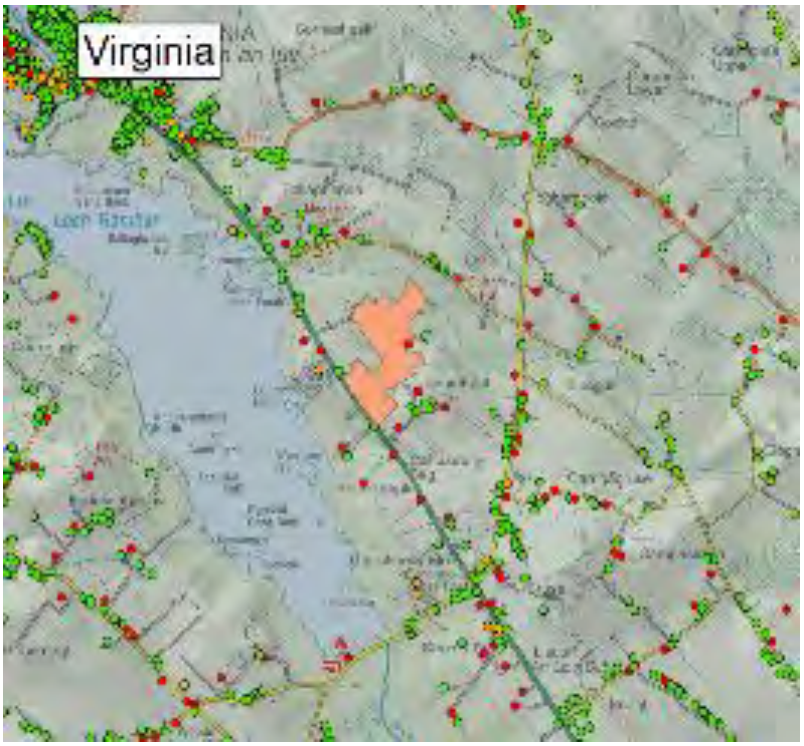

Figure 5-4: Strategic Development Site - Burrencarragh Economic Lands

5.2 Human Health

The population of County Cavan as recorded in Census 2016 was 76,176. A large majority (66,611) reported to be in 'good' or 'very good' health in 2016. This accounted for 87.44% of the county's population which is slightly higher than the national average of 87%. Fewer than a thousand people reported 'bad' health and 210 people said they had 'very bad' health, which cumulatively accounted for 1.53% of county's population.

Figure 5-5 shows the location of health centres in and around the Study Area. Virginia Primary Care Team delivers primary health care to people living in Virginia & the surrounding areas as part of the Health Service Executive. The team is based at Virginia Primary Care Centre, Dublin Road which lies within the Study Area. The Primary Care Team facilitates the provision of a range of healthcare services to the community, such as access to GPs, physiotherapy, psychology and social work. Other health centres near the Study Area are in Oldcastle, Mullagh and Ballyjamesduff.

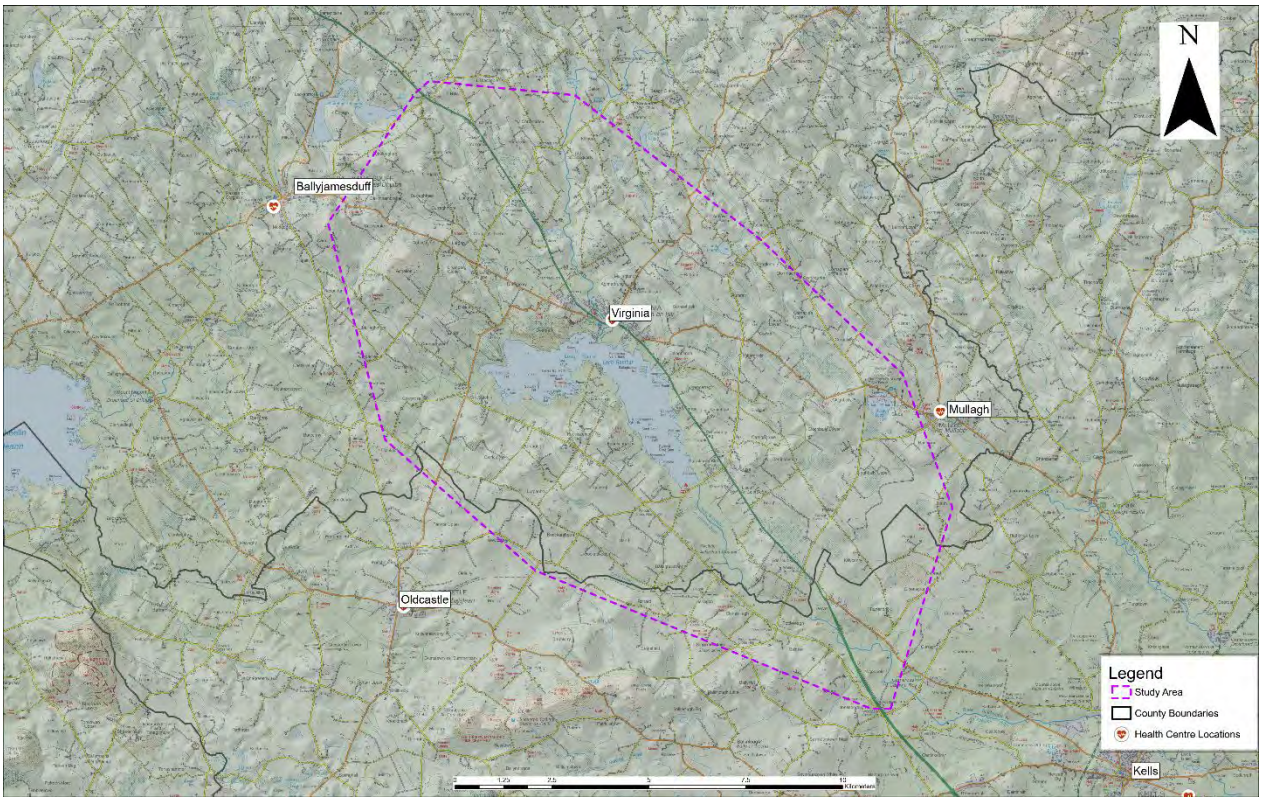

Figure 5-5: Health Centre Locations

5.3 Identified Constraints

Socio-economic and community facilities have been identified in the Study Area. Consideration of the locations of these facilities will be considered as part of the development of the Phase 2 Options Selection process. The settlement distribution pattern across the Study Area shows a range of population densities from rural to urban. Cognisance of potential impacts to the commercial and residential aspects of these areas is required when considering potential options.

There is a total of 11,226 properties in the Study Area. These properties represent a constraint which should, where practicable, be avoided during the options selection process. Properties, whether residential or commercial, generally represent a considerable constraint and avoidance is preferred. However, this may not be practicable in some cases and as such the compulsory purchase or other measures to acquire the properties, or part thereof (including land), may be necessary.

SECTION 6: BIODIVERSITY

6.1 Introduction

This report presents an overview of the principle ecological constraints within the Study Area defined for the N3 Virginia Bypass. The assessment was undertaken by Paul Murphy of EirEco Environmental Consultants.

6.1.1 Methodology

An initial desktop study and review of readily available information formed the basis of this constraints identification and assessment. The review has been undertaken in accordance with the TII Guidelines for Assessment of Ecological Impacts on National Road Schemes (2009).

A review of the National Parks and Wildlife Service (NPWS) website database was undertaken to identify designated and protected sites within and in the vicinity of the Study Area.

The NPWS, National Biodiversity Data Centre (NBDC) and the Botanical Society of Britain and Ireland (BSBI) databases were used to identify the occurrence of protected plant and faunal species within the Study Area. Important areas for birds within and in the vicinity of the Study Area were identified from the BirdWatch Ireland and the NBDC databases. Information on watercourses within the Study Area was derived from the Environmental Protection Agency (EPA) online Map Viewer database (Envision) and a review of existing literature on fisheries. Information on wetland sites was derived from the Irish Wetlands database managed by Wetland Surveys of Ireland (http://www.wetlandsurveysireland.com/index.html).

The Bat Conservation Ireland database and other bat specialists were consulted regarding records of bat activity from the Study Area.

In addition to the aforementioned designated sites, other areas of potential ecological interest within the Study Area were identified from a review of recent aerial imagery (www.bing.com/maps). The evaluation assigned to sites of ecological interest is presented in **Table 6-1** below and is based on the TII Guidelines for Assessment of Ecological Impacts on National Road Schemes (2009).

Table 6-1: Ecological Valuation Criteria (adapted from NRA 2009)

Importance	Ecological Valuation
International Importance	• 'European Site' including Special Area of Conservation (SAC), Site of Community Importance (SCI), Special Protection Area (SPA) or Candidate Special Area of Conservation (cSAC). • Features essential to maintaining the coherence of the Natura 2000 Network. • Site containing 'best examples' of the habitat types listed in Annex I of the Habitats Directive. • Resident or regularly occurring populations (assessed to be important at the national level) of species of animal and plants listed in Annex II and/or IV of the Habitats Directive. • Salmonid water designated pursuant to the European Communities (Quality of Salmonid Waters) Regulations, 1988, (S.I. No. 293 of 1988). • Major salmon river fisheries.
National Importance	• Site designated or proposed as a Natural Heritage Area (NHA). • Statutory Nature Reserve. • Refuge for Fauna and Flora protected under the Wildlife Acts 1976 to 2012. • National Park. • Resident or regularly occurring populations (assessed to be important at the national level) of species protected under the Wildlife Acts 1976 to 2012; and/or; species listed on the relevant Red Data list.

Importance	Ecological Valuation
	• Site containing 'viable areas' of the habitat types listed in Annex I of the Habitats Directive. • Major trout river fisheries. • Commercially important coarse fisheries. • Waterbodies with high amenity value.
County Importance	• Area of Special Amenity. • Area of High Amenity, or equivalent, designated under a County Development Plan. • Resident or regularly occurring populations (assessed to be important at the County level) of: species of animal and plants listed in Annex II and/or IV of the Habitats Directive; species protected under the Wildlife Acts 1976 to 2012; and/or, species listed on the relevant Red Data list. • Site containing area or areas of the habitat types listed in Annex I of the Habitats Directive that do not fulfil the criteria for valuation as of International or National importance.
Local Importance (Higher Value)	• Locally important populations of priority species or habitats or natural heritage features identified in the Local Biodiversity Action Plan (BAP), if this has been prepared; • Resident or regularly occurring populations (assessed to be important at the Local level) of: • species of animal and plants listed in Annex II and/or IV of the Habitats Directive; • species protected under the Wildlife Acts 1976 to 2012; and/or, • species listed on the relevant Red Data list. • Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or populations of species that are uncommon in the locality; • Sites or features containing common or lower value habitats, including naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value. • Sites of 'High' water quality status (Q4-5, Q5). • Waterbodies with some fisheries value and potential salmonid habitat.
Local Importance (Lower Value)	• Sites containing small areas of semi-natural habitat that are of some local importance for wildlife. • Sites or features containing non-native species that are of some importance in maintaining habitat links. • Waterbodies with no fisheries value and poor fisheries habitat.

6.2 Overview of Study Area

The Study Area is underlain by Mudstone, greywacke and conglomerate bedrock. The area lies at the southern end of the Cavan drumlin swarm and the landscape is characterised by low hills with shallow valleys mostly on a north-west to southeast orientation. The majority of the Study Area is comprised of moderate permeability subsoil overlain by poorly drained gley soils, though many of the valleys in the south east have basin peat deposits in the form of raised bogs and a few contain small mesotrophic lakes. Lough Ramor, a lake of 7.4km^2, dominates the Study Area and is drained by the River Blackwater, a tributary of the River Boyne.

6.3 Designated Conservation Areas

A total of five designated conservation areas occur within the Study Area. These are detailed in **Table 6-2** and a brief description of them is given below. Designated area boundaries are shown in **Figure 6-1**.

Table 6-2: Designated Conservation Areas within the Study Area.

Site No.	Site Name	Description	Evaluation
002299	River Boyne & River Blackwater SAC	River channel only.	A
004232	River Boyne & River Blackwater SPA	Includes some adjacent floodplain.	A
000008	Lough Ramor pNHA	Includes entire lake and extensive areas of adjacent woodland and grassland.	**B**
000006	KIllyconny Bog pNHA	Large area of partially cutover bog in SE of Study Area.	**B**
000006	KIllyconny Bog SAC	Large area of partially cutover bog in SE of Study Area.	A

Lough Ramor and part of its surrounding shoreline are designated as a proposed Natural Heritage Area (site code 000008). The pNHA extends to include large areas of woodland at the northern end of the lake to the west of Virginia town.

The out-flowing Blackwater River is designated as part of the River Boyne and River Blackwater Special Area of Conservation (site code 002299). The SAC boundary extends to include adjacent floodplain habitats along either side of the river. The qualifying interests for the SAC are:

- Alkaline fens;
- Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae);
- River Lamprey (*Lampetra fluviatilis*);
- Salmon (*Salmo salar*); and
- Otter (*Lutra lutra*).

The River Blackwater is also designated as the River Boyne and River Blackwater Special Protection Area (site code 004232), the boundaries of which are confined to the river channel and banks. The special conservation interest for the SPA is Kingfisher (*Alcedo athis*).

Killyconny Bog (Cloghbally) SAC (site code 000006) occurs in the south-east of the Study Area and is also designated as pNHA. The qualifying interest for the SAC are Active Raised Bog (a Priority habitat under Annex II) and Degraded Raised Bog. Though some marginal drainage and cutting has taken place, the central part of the bog is relatively intact.

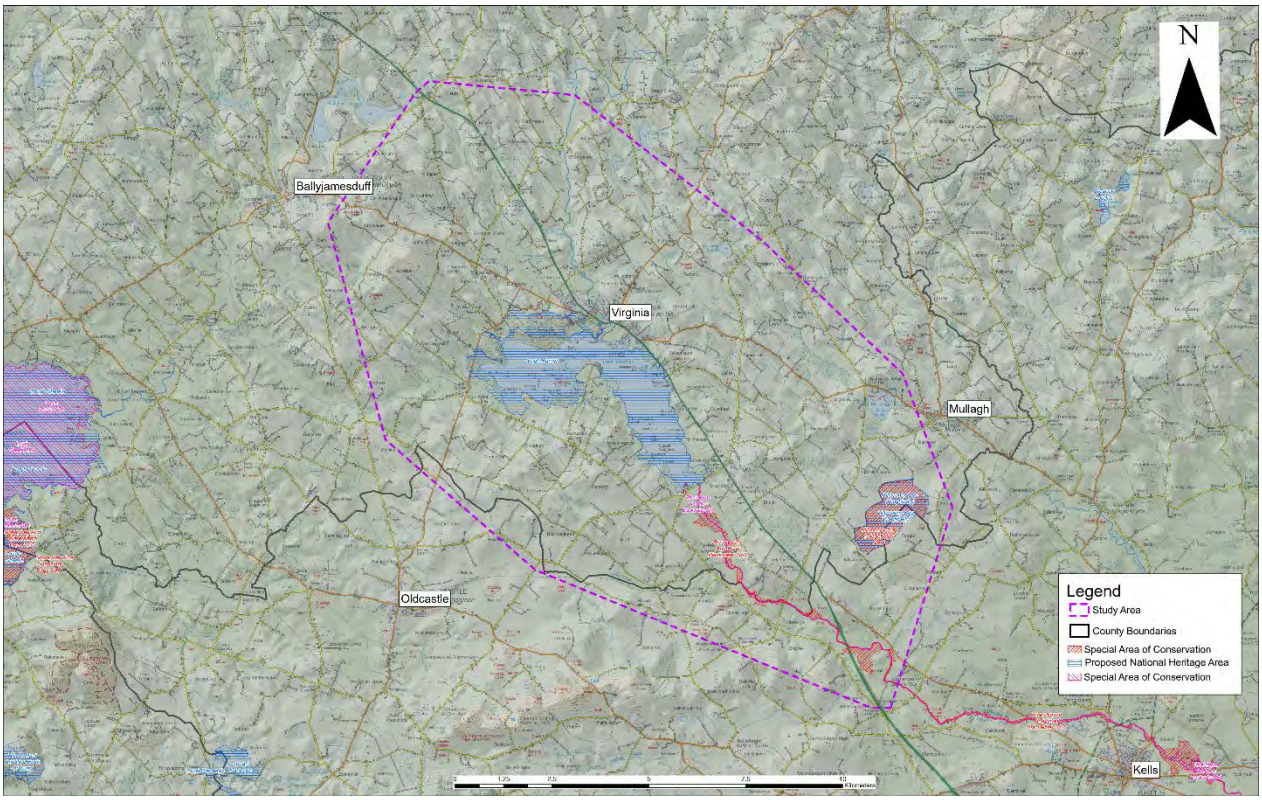

Figure 6-1: Designated Conservation Areas

6.4 Protected Flora

A data request was submitted to NPWS on 30th May 2020. The data provided listed two rare plants and one rare bryophyte (moss) from the Study Area.

Heath or Wood Cudweed (*Omalotheca sylvatica*,syn. *Gnaphalium sylvaticum*), a species listed under the Flora Protection Order (2015) has been recorded at both Mullagh Lough and Lough Ramor, though all records are over a century old. Heath cudweed is a plant of upland pastures and damp sandy places found mainly in the north according to *Webbs An Irish Flora* (Parnell and Curtis, 2012).

Shepherds needle (*Scandix pectin-veneris*) was recorded at Oldcastle in 1896. This introduced annual plant was typically associated with tillage and is noted in W*ebbs An Irish Flora* (ibid) as being "very rare, probably extinct".

The River Bristle-moss (*Orthotrichum rivulare*), has been recorded at Deerpark at the northern edge of Lough Ramor. The moss is listed in the Rare and Threatened Bryophyte Survey (2001), but is not listed under the Flora Protection Order (2015).

6.5 Protected Fauna

6.5.1 Mammals

Data on the occurrence of protected faunal species within the Study Area was derived from a data request submitted to NPWS on 30th May 2020 and from a review of the on-line National Biodiversity Data Centre (NBDC) database.

Records of Otter (*Lutra lutra*) exist for all the major watercourses and lakes in the Study Area on the NBDC website. The species is likely to be widespread and numerous along the main stem of the Blackwater and

throughout Lough Ramor, with considerable movement expected between the various smaller stream and lake systems within the Study Area.

The NPWS database also lists Fallow Deer (*Dama dama*) as occurring in the west of the Study Area in tetrad N57 and N58, while Red Deer (*Cervus elaphus*) are recorded immediately to the southeast of the Study Area in N77. There are numerous records of Pine Marten (*Martes martes*) from the western side of Lough Ramor and a scatter of records from the eastern side, suggesting the species is widespread in suitable habitat. Red Squirrel (Sciurus vulgaris) records occur from the northern end of Lough Ramor, most recently from 2016 suggesting there may still be an extant population despite the spread of the invasive Grey Squirrel (*Sciurus carolinensis*) which has undergone considerable range expansion in the eastern half of the country.

Other species including Badger (*Meles meles*), Irish Stoat (*Mustela erminea hibernica*), Hedgehog (*Erinaceus europaeus*), Irish Hare (*Lepus timidus hibernicus*), Red Fox (*Vulpes vulpes*) and a range of small rodents including the Pygmy Shrew (*Sorex minutus*), are expected to be widespread throughout the Study Area.

6.5.2 Bats

Data on the occurrence of protected bat species within the Study Area was derived from a review of data held within the Bat Conservation Ireland (BCI) database, the National Biodiversity Data Centre records and from consultation with other bat specialists.

The Bat Conservation Ireland database contains records of roosts and other records made from ad hoc observations, car monitoring transect surveys, dedicated EIS work by other bat specialists, and the BATLAS 2010 project. These are presented below in **Table 6-3**.

These include records of the following species:

- Soprano pipistrelle (*Pipistrellus pygmaeus*);
- Common pipistrelle (Pipistrellus pipistrellus);
- Unidentified pipistrelle (*Pipistrellus* spp.);
- Nathusius's pipistrelle (*Pipistrellus nathusii*);
- Daubenton's bat (*Myotis daubentonii*);
- Leisler's bat (Nyctalus leisleri);
- Natterer's bat (*Myotis nattereri*);
- Brown long-eared bat (*Plecotus auritus*); and
- Myotis sp.

There are a number of known roosts in the vicinity of Virginia town, mostly clustered around the north and north eastern side of Lough Ramor. Other roosts from outside the Study Area are also known.

Table 6-3: Records held in the Bat Conservation Ireland database

Bat Species	Record	Distance from Study Area	County
Nyctalus leisleri; Pipistrellus pygmaeus; Plecotus auritus	Roost	Within	Cavan
Pipistrellus pygmaeus	Roost	Within	Cavan
Pipistrellus pygmaeus; Pipistrellus spp. (45kHz/55kHz); Unidentified bat	Roost – bat box scheme	Within	Cavan
Plecotus auritus	Roost	Within	Cavan

Bat Species	Record	Distance from Study Area	County
Nyctalus leisleri; Pipistrellus (45kHz)	Ad Hoc Records collected during Monitoring	Within	Cavan
Myotis natterreri; Myotis spp.; Nyctalus leisleri; Pipistrellus (45kHz); Pipistrellus pygmaeus; Pipistrellus spp. (45kHz/55kHz)	Bat Conservation Ireland Woodland Bat Monitoring Pilot Scheme	Within	Cavan
Myotis natterreri; Myotis spp.; Nyctalus leisleri; Pipistrellus (45kHz); Pipistrellus pygmaeus; Plecotus auritus	General record	Within	Cavan
Myotis daubentonii	BATLAS 2010	Within	Cavan
Myotis spp.; Pipistrellus pygmaeus	BATLAS 2010	Within 5km	Cavan
Nyctalus leisleri; Pipistrellus (45kHz); Pipistrellus pygmaeus	BATLAS 2010	Within	Cavan
Pipistrellus (45kHz)	BATLAS 2010	Within 5km	Cavan
Myotis daubentonii; Myotis spp.; Nyctalus leisleri; Pipistrellus nathusii; Pipistrellus (45kHz); Pipistrellus pygmaeus; Plecotus auritus	BATLAS 2010	Within	Cavan
Pipistrellus (45kHz); Pipistrellus pygmaeus	Roost	Within 5km	County
Pipistrellus (45kHz)	Roost	Within 5km	Meath
Myotis natterreri; Plecotus auritus	Roost	Within 5km	Meath
Myotis daubentonii	Ad Hoc Records collected during Monitoring	Within 5km	Meath
Nyctalus leisleri; Pipistrellus pygmaeus	Ad Hoc Records collected during Monitoring	Within	Meath
Pipistrellus pygmaeus	BATLAS 2010	Within 5km	Meath
Nyctalus leisleri; Pipistrellus pygmaeus	BATLAS 2010	Within 5km	Meath
Myotis spp.; Pipistrellus (45kHz); Pipistrellus pygmaeus; Pipistrellus spp. (45kHz/55kHz)	BATLAS 2010	Within	Meath
Pipistrellus pygmaeus	BATLAS 2010	Adjacent	Meath
Myotis spp.; Nyctalus leisleri; Pipistrellus (45kHz); Pipistrellus pygmaeus; Pipistrellus spp. (45kHz/55kHz)	BATLAS 2010	Within	Meath
Nyctalus leisleri; Pipistrellus (45kHz); Pipistrellus pygmaeus	BATLAS 2010	Within 5km	Meath

The bat landscape habitat suitability mapping project has confirmed the suitability of the general environs of Lough Ramor for a wide variety of bat species. The maps are a visualisation of the results of the analyses based on a 'habitat suitability' index. The index ranges from 0 to 100 with 0 being least favourable (green colour) and 100 (red colour) most favourable for bats.

The Study Area is outside the known distribution of Lesser horseshoe bat (*Rhinolophus hipposideros*), which is a species restricted in its range to the western seaboard of Ireland.

The key locations of importance for bats for commuting and foraging within the Study Area include water bodies, watercourses, treelines and hedgerows. Additional habitats include areas of woodland, scrub and scattered trees. Older, mature trees in the area also offer roosting opportunities for bats. Some of these and indeed younger trees also have ivy *Hedera helix* cover that may be used for roosting by bats on occasion. Older buildings, derelict and underground structures have potential as winter roosting sites in which bats can hibernate. Loughcrew Passage Tomb Cemetery (National Monument Ref. 155 & 290) is located c. 1 km outside the Study Area, at the southwest, within County Meath – this is a potential hibernation site for bats.

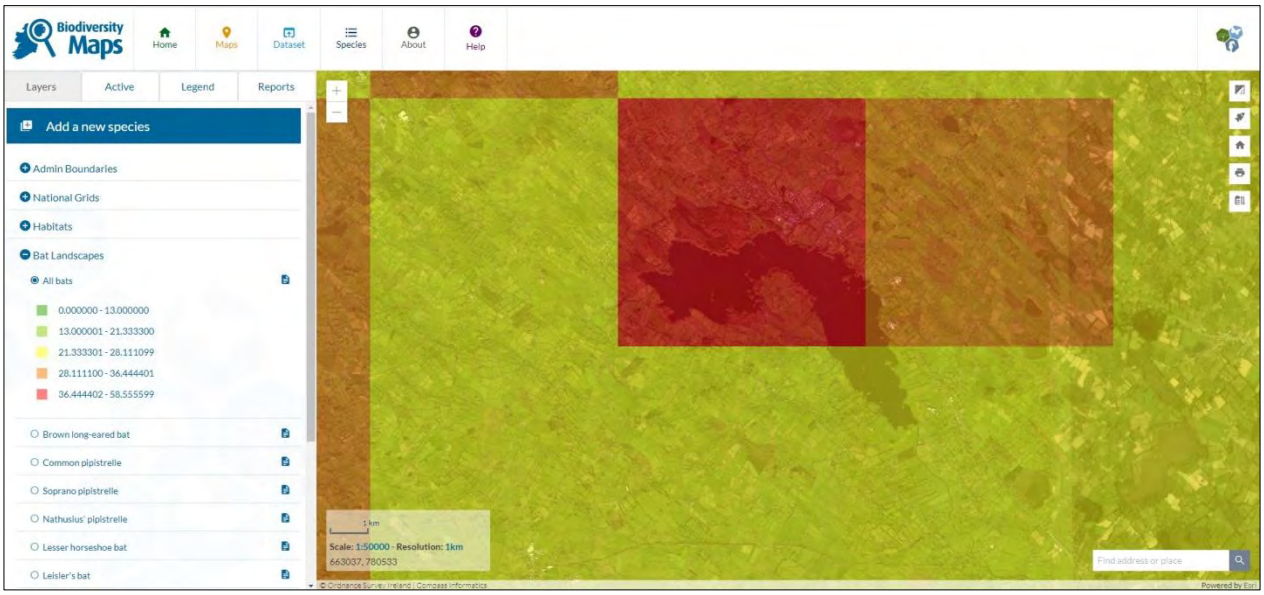

Figure 6-2: Habitat Suitability Mapping – All Bat Species

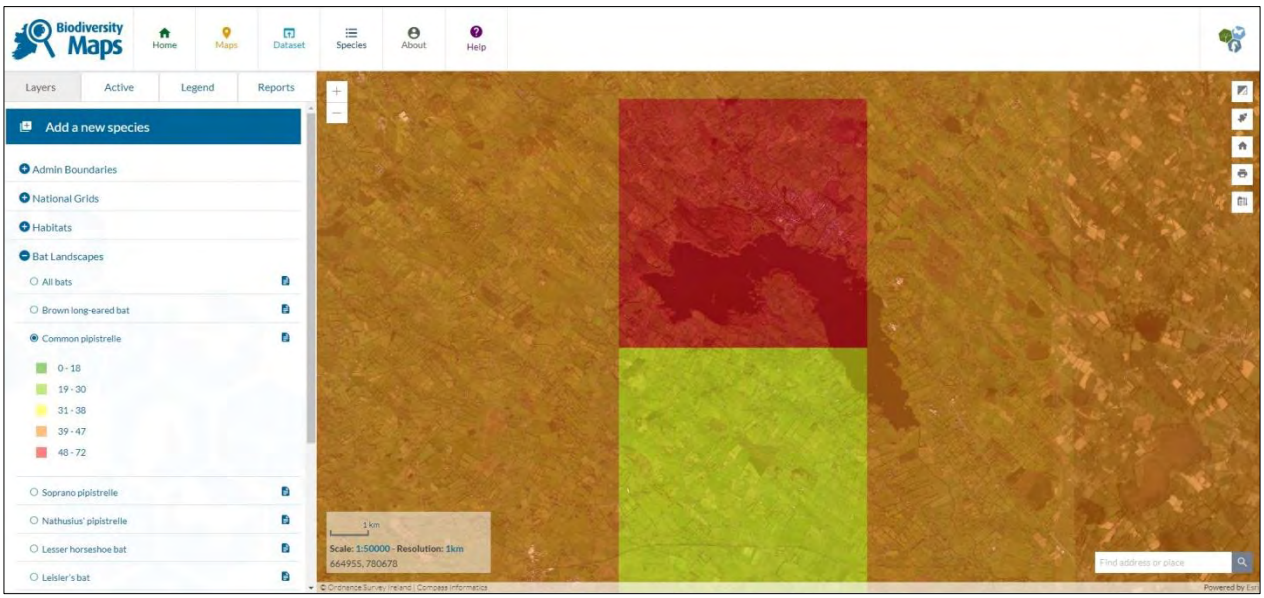

Figure 6-3: Habitat Suitability Mapping – Common Pipistrelle bat

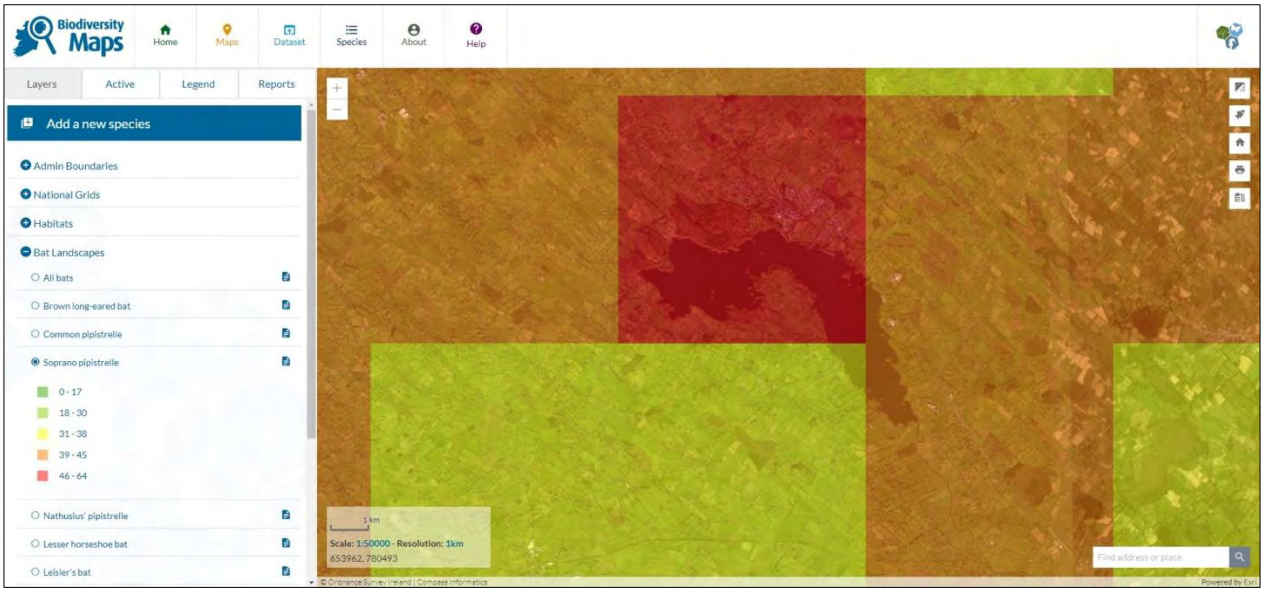

Figure 6-4: Habitat Suitability Mapping – Soprano Pipistrelle bat

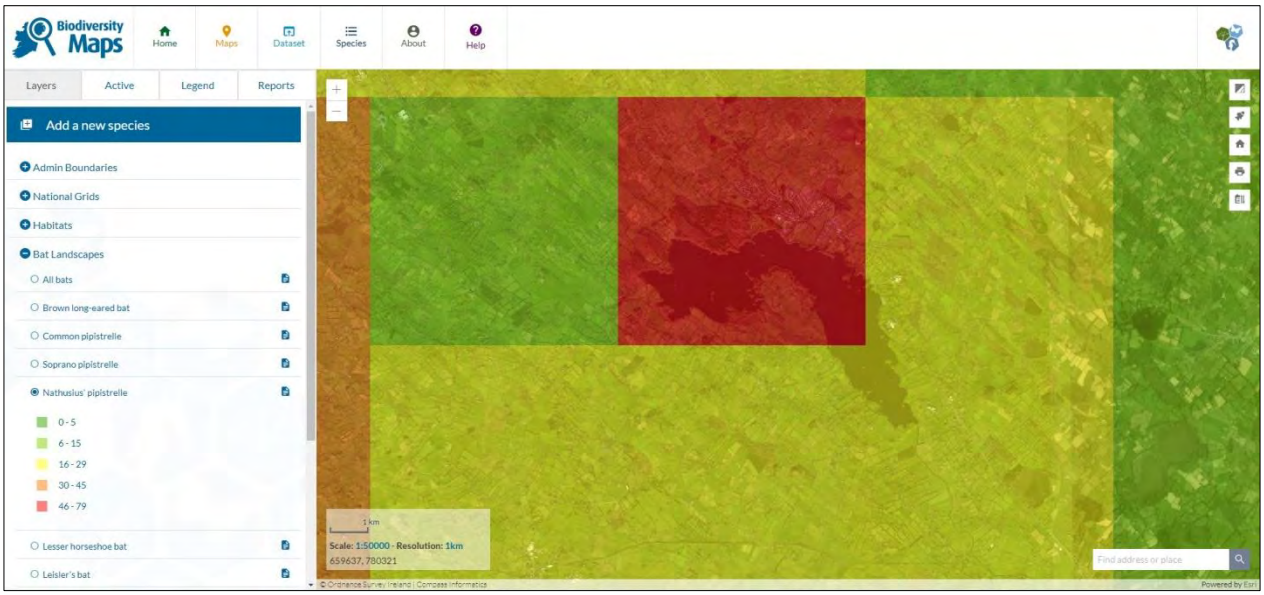

Figure 6-5: Habitat Suitability Mapping – Nathusius Pipistrelle bat

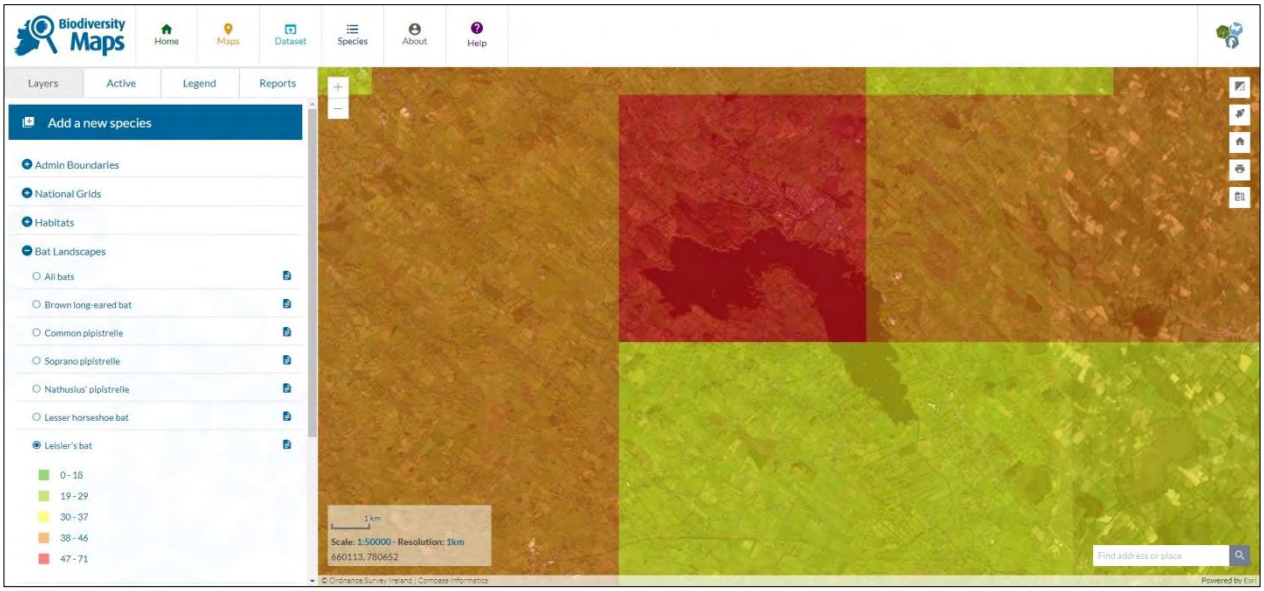

Figure 6-6: Habitat Suitability Mapping – Leisler's bat

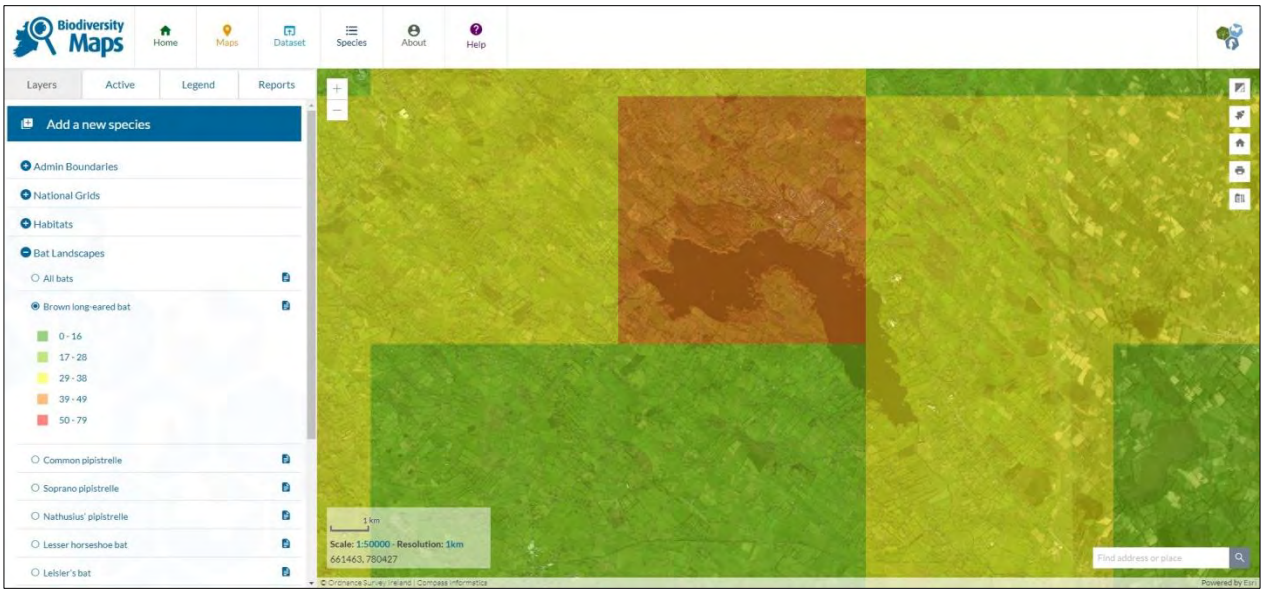

Figure 6-7: Habitat Suitability Mapping – Brown long-eared bat

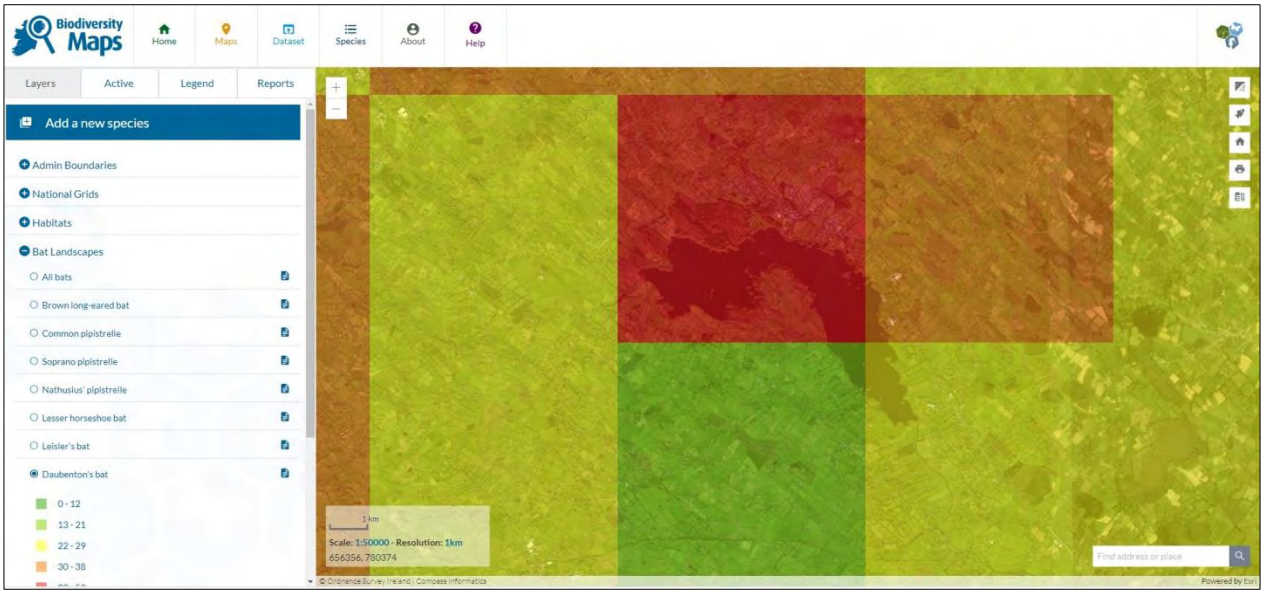

Figure 6-8: Habitat Suitability Mapping – Daubenton's bat

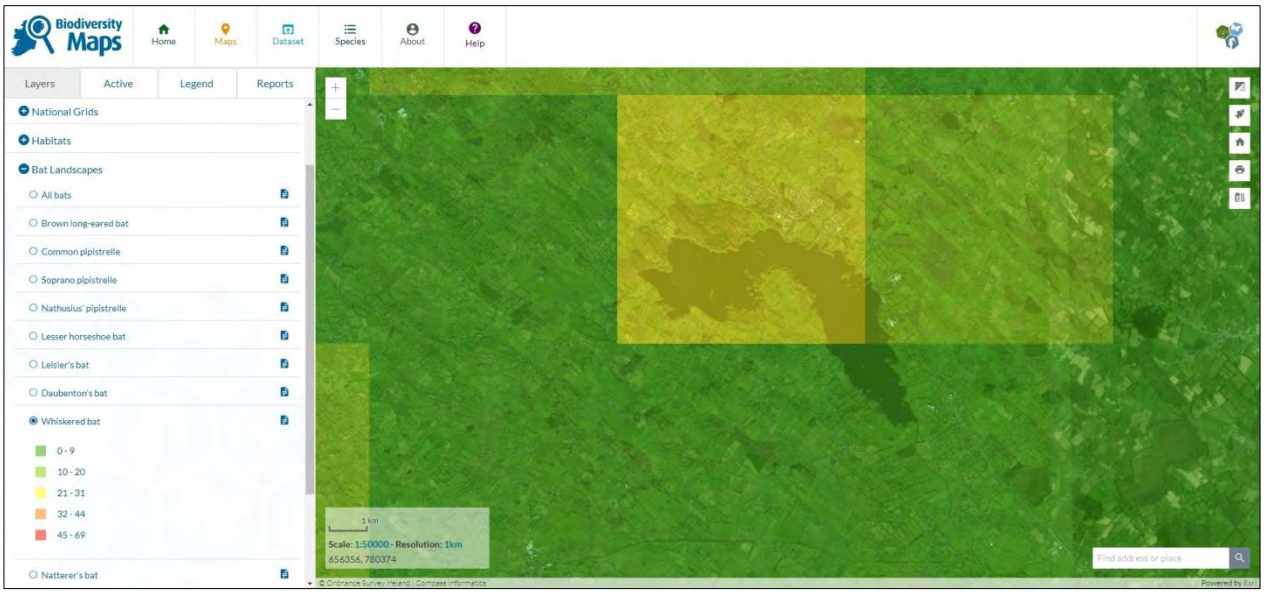

Figure 6-9: Habitat Suitability Mapping – Whiskered bat

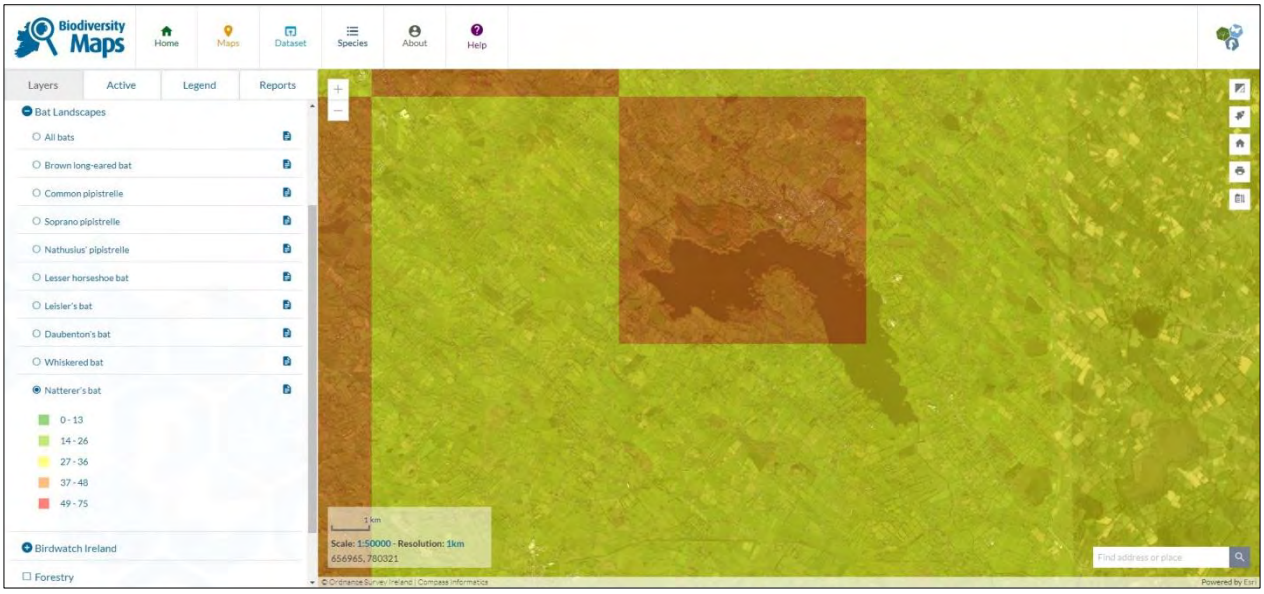

Figure 6-10: Habitat Suitability Mapping – Natterer's bat

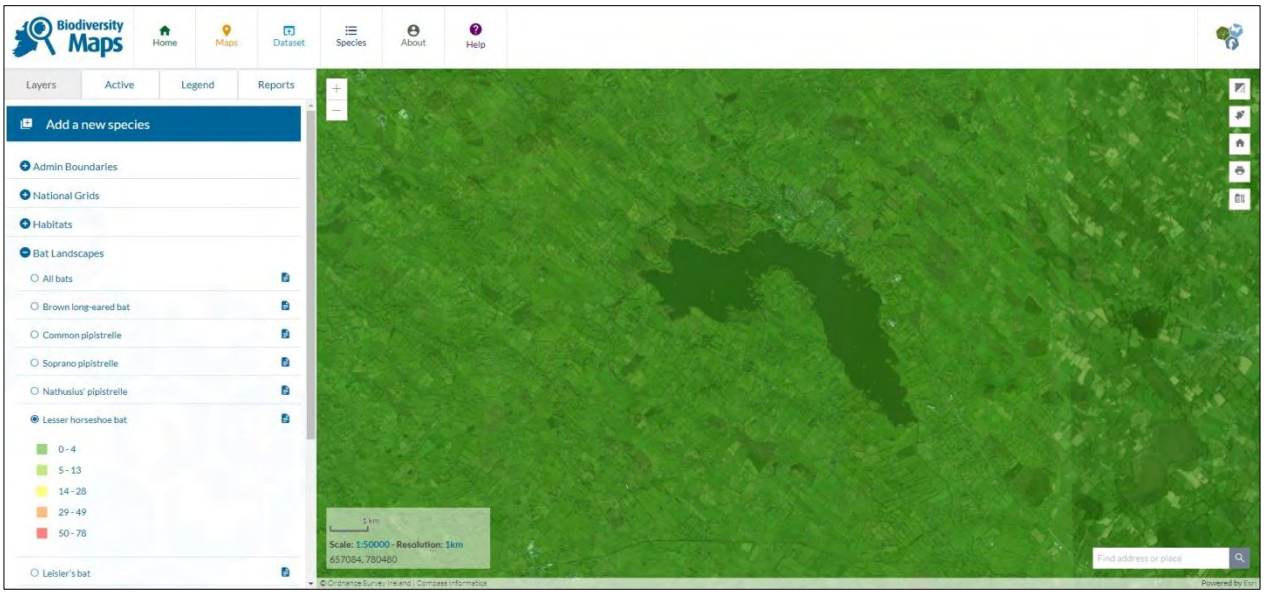

Figure 6-11: Habitat Suitability Mapping – Lesser Horseshoe bat

6.5.3 Birds

There are records of breeding Curlew (*Numenius arquata*) from the grid square N68 at Kilnagun and at Corronagh adjacent to Lough Ramor (NBDC database). This red listed species of conservation concern may also breed at other wetland sites within the Study Area. Lapwing (*Vanellus vanellus*), similarly a red-listed species, are also recorded breeding from the grid squares N58 and N68. Other red-listed species likely to breed include Black-headed gull (*Larus ridibundus*), Woodcock (*Scolopax rusticola*), Grey Wagtail (*Motacilla cinerea*) and Yellowhammer (*Emberiza citrinella*). No recent definitive breeding records are listed for Barn Owl (*Tyto alba*) from within the Study Area, though this red-listed species is recorded on the NBDC website as occurring throughout the Study Area and would be expected to breed in suitable sites.

A range of amber-listed breeding species are expected to occur within the Study Area including Kingfisher (*Alcedo athis*) which are listed under Annex I of the EU Birds Directive and are a conservation interest for the River Boyne and River Blackwater SPA. Lough Ramor supports breeding populations of a range of waterbirds including Mallard (*Anas platyrhynchos*), Teal (*Anas crecca*), Red-breasted Merganser (*Mergus*

serrator), Coot (*Fulica atra*), Moorhen (*Gallinula chloropus*) and both Great-crested Grebe (*Podiceps cristatus*) and Little Grebe (*Tachybaptus ruficollis*). Cormorant (*Phalacrocorax cristata*) breed in nationally important numbers (c200 pairs) in the fringing woodland and Heron (*Ardea cinerea*) are also likely to occur in significant numbers.

Lough Ramor also supports wintering populations of a variety of wetland birds including the Annex I listed Whooper Swan (*Cygnus cygnus*). Some of these species, including Whooper Swan, would be expected to utilise river floodplains and open grassland habitats throughout the Study Area. **Table 6-4** provides Irish Wetland Bird Survey (IWeBS) mean counts for Lough Ramor over a six-year period (2006 to 2012), the most recent period for which data is available.

Table 6-4: IWeBS Bird count data for Lough Ramor (2006-2012)

Species Name	Mean Count
Mute Swan	12
Whooper Swan	75
Wigeon	46
Teal	12
Mallard	40
Shoveler	2
Pochard	14
Tufted Duck	16
Goldeneye	26
Little Grebe	4
Great Crested Grebe	12
Cormorant	80
Little Egret	4
Grey Heron	20
Moorhen	8
Golden Plover	550
Lapwing	40
Snipe	6
Curlew	14
Black-headed Gull	11
Common Gull	40
Lesser Black-backed Gull	4
Kingfisher	6

6.5.4 Other Protected Species

The White-clawed crayfish (*Austropotamobius pallipes*) is recorded from numerous locations within the Blackwater River system and also from Nadrageel Lough (NPWS, EPA). The White-clawed crayfish is listed under Annex II of the EU Habitats Directive and is found in alkaline waters (both rivers and lakes) throughout the country. In recent years however, there have been numerous outbreaks of Crayfish Plague in various locations around the country, which have apparently eliminated populations at a local level. There appear

to be no records of outbreaks in the Meath – Cavan region so crayfish are likely to occur on all watercourses given the suitability of the water chemistry.

There are no records of any other Annex listed invertebrate species from the Study Area. Common frog (*Rana temporaria*) and Smooth Newt (*Lissotriton vulgaris*), both afforded protection under the Wildlife Acts, are likely to be widespread in suitable habitats (ditches, ponds and seasonally flooded areas).

6.6 Sites of Ecological Interest

Apart from the designated sites detailed in Section 6.3 above, a total of 56 sites of ecological interest were identified from the review of the aerial imagery. These are listed in **Table 6-5** which gives the townland name, provides a brief description of the principle habitat types and presents a preliminary evaluation using the criteria adapted from the NRA (2009) presented in **Section 6.1**. The ecological sites are demarcated in **Figure 6-12**.

At least half of the sites (23) are associated with areas of peatland. Most of these have been subject to some level of turf cutting in the past or have had their hydrology altered through drainage and consequently have partially dried out. As a result they have typically developed a mosaic of scrub or bog woodland, though in some instances have also been partially planted with coniferous plantations. The more intact of these sites (i.e. those that have retained some raised bog habitat capable of regeneration) are rated as being of county importance (C), while those that are heavily degraded are likely to be of local (higher) importance (D). Without field survey to verify their condition, many are rated as intermediate between the two evaluations.

There are a number of small lakes in the eastern half of the Study Area, most of which have some degree of woodland cover around their periphery. Kilmore Lough (site 8), Lisgrea Lough (site 9), Cornaslieve Lough (site 10), Cuilcagh Lough (site 15) and Mullagh Lough (site 23) are all likely to be mesotrophic lakes in basin hollows. These sites are all rated of County importance.

Other wetland sites within the Study Area are mainly concentrated along the river systems where floodplains support wet grassland and possible marsh habitats. The River Blackwater downstream of Lough Ramor has large areas of fringing floodplain which is within the River Boyne and River Blackwater SAC so is not treated as a separate ecological site. An extensive area of floodplain occurs along the Blackwater upstream of Lough Ramor at Stramaquerty (site 7), while a nearby area at Stramaquerty South (site 55) occurs on the Drumagolan Stream which flows in the Blackwater. Both sites are rated of Local Importance (Higher) value / County Importance. A strip of what may be alluvial woodland occurs along the river floodplain at Correagh Glebe (site 49) on the Nadreegeel Stream. Site 36 at Ballaghdorragh encompasses a narrow wooded valley along the Cross Water Stream, which is likely to consist of dry woodland on account of the topography.

The most extensive woodland habitat within the Study Area occur at Deerpark at the northern end of Lough Ramor. The woodland is within the Lough Ramor pNHA and therefore not treated as a separate site. Part of the woodland complex at Deerpark is listed with the Ancient and Long-established Woodland Inventory by NPWS (2010) and in the National Survey of Native Woodlands (NPWS, 2003-2008). An area listed as Bog Woodland at Knocktemple on the south-western shores of Lough Ramor (also within the pNHA boundary) is listed in the National Survey of Native Woodlands (NPWS, 2003-2008). A block of mixed broadleaved woodland at Woodpole (site 37) in the south-eastern corner of the Study Area, is also listed in the National Survey of Native Woodlands (NPWS, 2003-2008).

Apart from the woodland or scrub associated with the degraded raised bog sites or lake fringes, dry woodland occurs in small pockets throughout the Study Area. Some of these occur as discrete blocks but in close proximity such as at Gallonnambraher (site 1) which is associated with hilly ground and rock outcrops. The largest single block of deciduous woodland occurs to the east of the existing N3 at Burrencarragh (site 32). Two areas of mixed deciduous – conifer woodland occur on the south-eastern end of the Study Area at Cloonagrouna / Feegat Bog (site 50) and Cabragh (site 51), though these appear to be

on peat. Scrub or possibly young woodland occurs at a number of locations mainly associated with rough ground or as in the south of the Study Area, with the old railway track.

A number of coniferous plantations also occur within the Study Area, many of these presumably located on either degraded raised bogs or other sites with poor soils. These are not treated as ecological sites unless they support associated semi-natural habitats of potential ecological value.

Table 6-5: Ecological Sites identified within the Study Area

Site No.	Site Name	Description	Evaluation
1	Gallonnambraher	Blocks of deciduous woodland, scrub and heath on hilly ground with rock outcrop.	C
2	Carn, Kildorough	Heath and gorse scrub on elevated land.	D
3	Pollamalady, Correagh	Deciduous woodland, scrub and grassland with network of well-developed hedgerows and treelines. Outlier of wet woodland / marsh in north-west (Irish Wetlands WMI_CN482)	D
4	Lissacapple, Correagh	Deciduous / bog woodland and scrub. (Irish Wetlands WMI_CN488)	D/C
5	Corraneden, Drumagolan	Deciduous woodland. (Irish Wetlands WMI_CN486)	D
6	Drumagolan, Correagh	Deciduous woodland (possibly on peat).	D/C
7	Kilmore / Lissannymore Stramaquerty	Callow floodplains on R. Blackwater. (Irish Wetlands WMI_CN484)	D/C
8	Corratinner, Beagh and Kilmore Lough	Raised bog with fringing deciduous woodland (Irish Wetlands WMI_CN583), extending to south towards Kilmore Lough (Irish Wetlands WMI_CN563). Doon wet woodland in south (Irish Wetlands WMI_CN564)	C
9	Lisgrea Lough	Woodland and scrub around lake. (Irish Wetlands WMI_CN301)	C
10	Cornaslieve Lough, Crannadillon	Woodland plantation around lake. (Irish Wetlands WMI_CN302)	C
11	Crannadillon	Blocks of deciduous woodland either side of N3	D
12	Lisnabantry Bog	Cutover raised bog with fringing woodland and scrub. (Irish Wetlands WMI_CN78)	C
13	Lisnabantry	Relict raised bog with woodland and scrub fringe.	D/C
14	Enagh Ardlow	Deciduous woodland and grassland mosaic. (Irish Wetlands WMI_CN566)	D
15	Cuilcagh Lough	Woodland and scrub mosaic around lake.	C
16	Crossbeagh, Mullagh	Mixed woodland, scrub and grassland mosaic. (Irish Wetlands WMI_CN296)	D
17	Corragloon, Fort William	Relict raised bog with woodland and scrub fringe. (Irish Wetlands WMI_CN295)	D/C
18	Drumrat / Corfad Bog	Intact raised bog with fringing woodland on east side. (Irish Wetlands WMI_CN298)	B

Site No.	Site Name	Description	Evaluation
19	Cloghergoole, Lislea Bog	Raised bog partially cutover in two blocks with surrounding conifer plantation. (Irish Wetlands WMI_CN289)	D/C
20	Corfad Cornaglea Upper Bog	Relict raised bog in central area, partially cutover with surrounding conifer plantation. (Irish Wetlands WMI_CN290)	D/C
21	Cornaglea Upper	Deciduous woodland (possibly on bog).	D/C
22	Cornakill / Palmira South Bog / Corryrourke Bog	Relict raised bog (partially cutover) with fringing woodland / scrub and some plantation. (Irish Wetlands WMI_CN292)	D/C
23	Mullagh Lough	Mullagh Lough and Conifer plantation to south with some blocks of deciduous woodland / scrub.	C
24	Rantavan / Cloghbally Upper North Bog	Relict raised bog with extensive woodland. (Irish Wetlands WMI_CN285)	C
25	Fartagh	Wet grassland (possibly bog) with scrub mosaic.	D
26	Enagh Bog	Relict raised bog with extensive woodland. (Irish Wetlands WMI_CN283)	D/C
27	Edenburt	Pond / flooded area in grassland – possibly wet.	D
28	Cloghbally Lower / Carrigasimon	Relict raised bog with extensive woodland / scrub. (Irish Wetlands WMI_CN287)	D/C
29	Carrigasimon	Block deciduous woodland.	D
30	Bruse Hill (GSI site)	Hill with extensive gorse scrub.	C(B)
31	Kilnagun	Relict raised bog with extensive woodland / scrub. (Irish Wetlands WMI_CN288)	D/C
32	Burrencarragh	Deciduous woodland.	D/C
33	Cornashesk	Mixed woodland / heath mosaic – possibly on peat.	D
34	Curracloghan Bog	Relict raised bog with extensive woodland / scrub. (Irish Wetlands WMI_CN299)	D/C
35	Pottlereagh	Flood area with surrounding scrub and wet grassland mosaic – partially within SPA but may be quarried.	D(A)
36	Ballaghdorragh, Moate	River valley with woodland and scrub.	D
37	Woodpole	Block of deciduous woodland.	D
38	Pottlereagh	Blocks of deciduous woodland and adjoining old railway line.	D
39	Ballaghdorragh	Network of mature treelines and hedgerows.	D
40	Behernagh Bog	Relict raised bog with extensive woodland / scrub. (Wetlands Ireland WMI_CN282)	D/C
41	Lurganboy	Relict raised bog with extensive woodland / scrub.	D/C
42	Newcastle	Relict raised bog with some scrub.	D/C
43	Carrick	Deciduous woodland with grassland / scrub mosaic.	D

Site No.	Site Name	Description	Evaluation
44	Mullaghmore, Kildorough	Two blocks of wetland (possible fen) with extensive woodland and scrub development. (Irish Wetlands WMI_CN306 / WMI_CN307)	D/C
45	Aghalion, Correagh	Heath / bracken / gorse mosaic on undulating land.	D/C
46	Carrickavee, Kildorough	Small hills with rock outcrop and extensive gorse dominated scrub.	D/C
47	Crosserule	Mosaic grassland and scrub on undulating land.	D
48	Correagh Glebe	Relict bog with scrub development. (Irish Wetlands WMI_CN304)	D
49	Correagh Glebe	Linear belt of possibly alluvial woodland along stream corridor.	D/C
50	Cloonagrouna / Feegat Bog	Mixed broadleaved / conifer woodland. (Irish Wetlands WMI_MH137)	D/C
51	Cabragh	Mixed broadleaved / conifer woodland	D/C
52	Murmod	Extensive area of scrub	D
53	Lisnabantry West and East	Two areas mosaic wet grassland, scrub, bog / fen. (Irish Wetlands WMI_CN559 / WMI_CN560)	D/C
54	Correagh Glebe North	Wet grassland / marsh / fen along river. (Irish Wetlands WMI_CN303)	D/C
55	Stramaquerty South	Wet grassland / marsh along Drumagolan Stream. (Irish Wetlands WMI_CN562)	D/C
56	Lough Doon Bog	Relic basin peatland around site of Lough Doon (no longer evident) on the Drumagolan Stream. Partially planted with conifers.	D

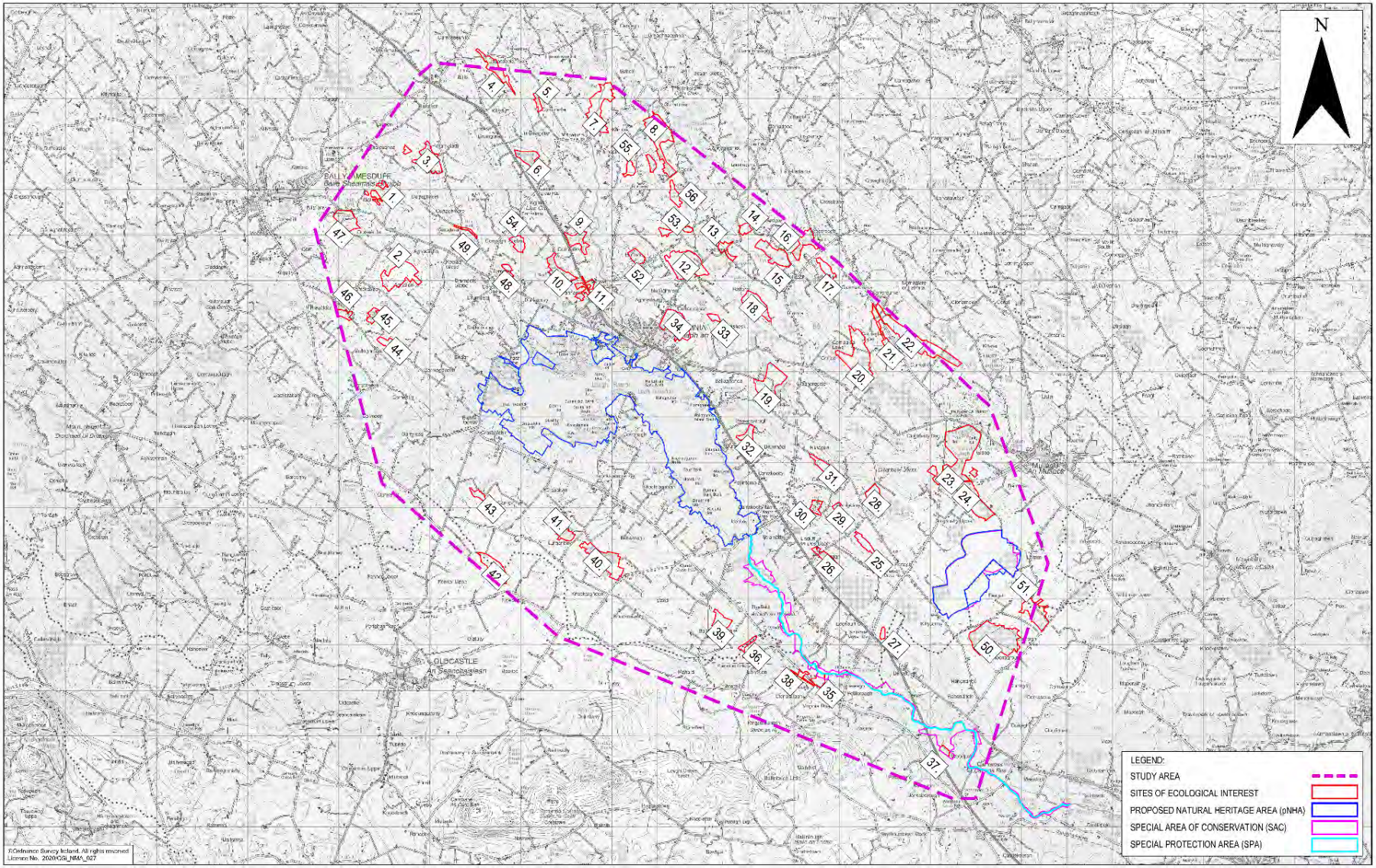

Figure 6-12: Ecological Sites identified within the Study Area

6.7 Watercourses

6.7.1 Lakes

Lough Ramor is the main feature within the Study Area and extends over an area of approximately 740ha. It is a generally shallow lake with a maximum depth of six metres. It has a pH of 7.5 and naturally would be oligotrophic supporting a typical charophyte community of hard water lakes. However, nutrient enrichment from domestic and agricultural sources has increased its trophic status and results in periodic algal blooms. The lake supports a large number of small islands many of which support semi-natural woodland of alder, willows and hazel.

A number of small lakes occur within the Study Area to the west of Lough Ramor. The largest of these is Mullagh Lough in the south east of the Study Area which drains to the Moynalty River, a tributary of the Blackwater which it joins downstream of Kells.

6.7.2 Rivers

Almost the entire Study Area is within the River Blackwater catchment, with a few small streams flowing in a westerly direction towards Lough Sheelin (within the Shannon catchment) in the north-west of the Study Area. The main stem flows in a generally south-westerly direction from its rising north of Bailieborough, picking up numerous tributaries before flowing into Lough Ramor at Virginia. It drains from the southern tip of the lake and flows southeast towards its confluence with the River Boyne at Navan. A number of minor watercourses also drain into Lough Ramor from the north (Nadreegeel Stream) and west (Pollintemple Stream), while the Lislee Stream system drains into it from the east.

6.7.3 Protected Aquatic Fauna

White-clawed Crayfish (*Austropotamobius pallipes*) are recorded from the River Blackwater both upstream and downstream of Lough Ramor (NBDC database). They have also been recorded from the Nadreegeel Stream at Crannadillon and within the Nadreegeel Loughs. Records also exist from the lower reaches of the Lislee Stream at the bridge on the N3, though none from further up. It is probable they occur higher up in that system also.

There are no records of the Annex II listed freshwater pearl mussel (*Margaritifera margaritifera*) from any watercourses within the Study Area and the area is not designated as a Margaritifera Sensitive Area (NPWS database Version 8, 2017).

6.7.4 Fisheries

The Blackwater is a medium sized limestone river which has been subject to arterial drainage. It supports both Atlantic Salmon (*Salmo salar*) and Brown Trout (*Salmo trutta*), with the best fishing occurring in the undrained section below Carnaross. Water quality within the river is generally 'moderate' to 'good' for the period during which the latest data is available (EPA, 2018) both upstream and downstream of Lough Ramor. The Blackwater and other watercourses are likely to support populations of European Eel (*Anguilla anguilla*) along with Brook Lamprey (*Lampetra planerii*), Stone Loach (*Barbatula barbatula*), Three-spined Stickleback (*Gasterosteus aculeatus*), Minnow (*Phoxinus phoxinus*) and a variety of introduced coarse fish species.

Lough Ramor is a popular lake with anglers and is well known for its Pike (*Esox lucius*) and coarse fishing, occasional Salmon, together with Brown Trout. The Trout season runs from the 1st of March to 30th of September though fishing usually takes place at mayfly time, from mid-May to mid-June. Lough Ramor is renowned for its stocks of large Pike and many 20lbs fish are frequently recorded.

6.8 References

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SECTION 7: LAND, GEOLOGY AND SOILS

7.1 Introduction

This section identifies the general underlying geological characteristics of the Study Area and wider extents. The review has been undertaken in accordance with the TII's Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes (2008). An initial desktop study and review of available information formed the basis of the constraints identification and assessment. Information has been sourced from the Geological Survey of Ireland (GSI) website and the 1:100,000 scale Geological Map Series Sheet No. 13 'Geology of Meath' and its accompanying memoir.

7.2 Existing Environment – Land

Current land uses in the Study Area according to Corine 2018 include agricultural, natural vegetation, wetlands and artificial surfaces. Agricultural is the predominant land use and includes pastures and heterogeneous land (predominantly agriculture with small areas of natural vegetation). Areas of natural vegetation include transitional woodland scrub, broad-leaved forests and mixed forests. Areas identified as wetlands include peat bogs to the east and southeast of Virginia, and an inland marsh along the River Blackwater valley. Urban fabrics in the towns of Virginia, Ballyjamesduff and Mullagh make up the artificial surfaces.

There are a total of five National Parks & Wildlife Services (NPWS) protected sites within the Study Area (see **Table 7-1** below). These include two Special Areas of Conservation (SAC), two proposed National Heritage Areas (pNHA), and one Special Protection Area (SPA). The presence of these sites will provide a constraint.

Table 7-1: NPWS Sites identified within Study Area

Site Code	Site Name	Features of Interest
000006	Killyconny Bog (Cloghbally) SAC	Active raised bog Degraded raised bog still capable of natural regeneration
000006	Killyconny Bog (Cloghbally)	Designated pNHA
000008	Lough Ramor	Designated pNHA
002299	River Boyne and River Blackwater SAC	Alkaline fens Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae) *Lampetra fluviatilis* (River Lamprey) *Salmo salar* (Salmon) *Lutra* (Otter)
004232	River Boyne and River Blackwater SPA	Kingfisher (*Alcedo atthis*)

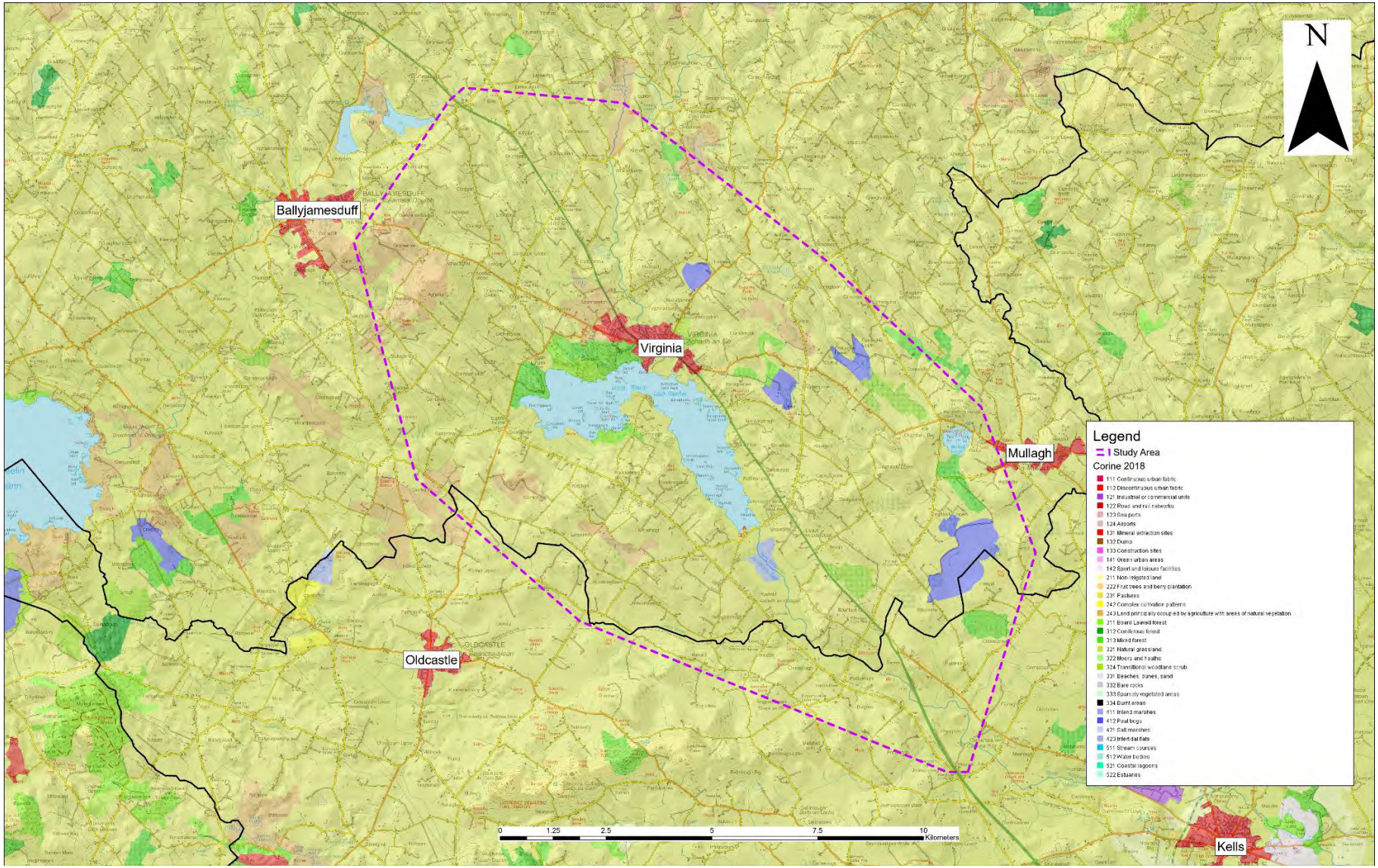

Figure 7-1: CORINE 2018 Land Cover Mapping

7.3 Existing Environment – Geology

The existing carriageway is underlain by Silurian sedimentary rocks which were deposited in Cavan from 450 to 435 million years ago. The major rock units underlying the Study Area are the *Clontail*, *Castlerahan* and *Shercock Formations* which comprise both medium to thickly bedded and massive sandstones and conglomerates laid down as turbidites. Geology mapping within the Study Area is illustrated in **Figure 7-2**.

7.4 Existing Environment - Soils

The soils comprise predominantly of tills derived from sandstones and shales. Also present in the Study Area are gravels derived from sandstones and shales; peat; alluvium; lacustrine clays; and rock near the surface. Eskers comprised of gravel of acidic reaction are also mentioned. The gravels to the south have been identified as a gravel aquifer.

The alluvium and lacustrine clay deposits are associated with the low-lying lands and number of river systems across the Study Area connecting numerous water bodies of varying size. Major water features within the Study Area include Lough Ramor, the River Blackwater and Mullagh Lough. It is likely that most of the alluvium and lacustrine clays will be present as soft ground, providing a constraint.

Peat, identified as cut over raised peat, is present across the Study Area, though predominantly to the east of the existing carriageway. These deposits will provide a constraint.

Rock near or at the surface is typically confined to the more upland areas of the Study Area.

Soils and subsoils mapping within the Study Areas are illustrated in **Figure 7-3** and **Figure 7-4** respectively.

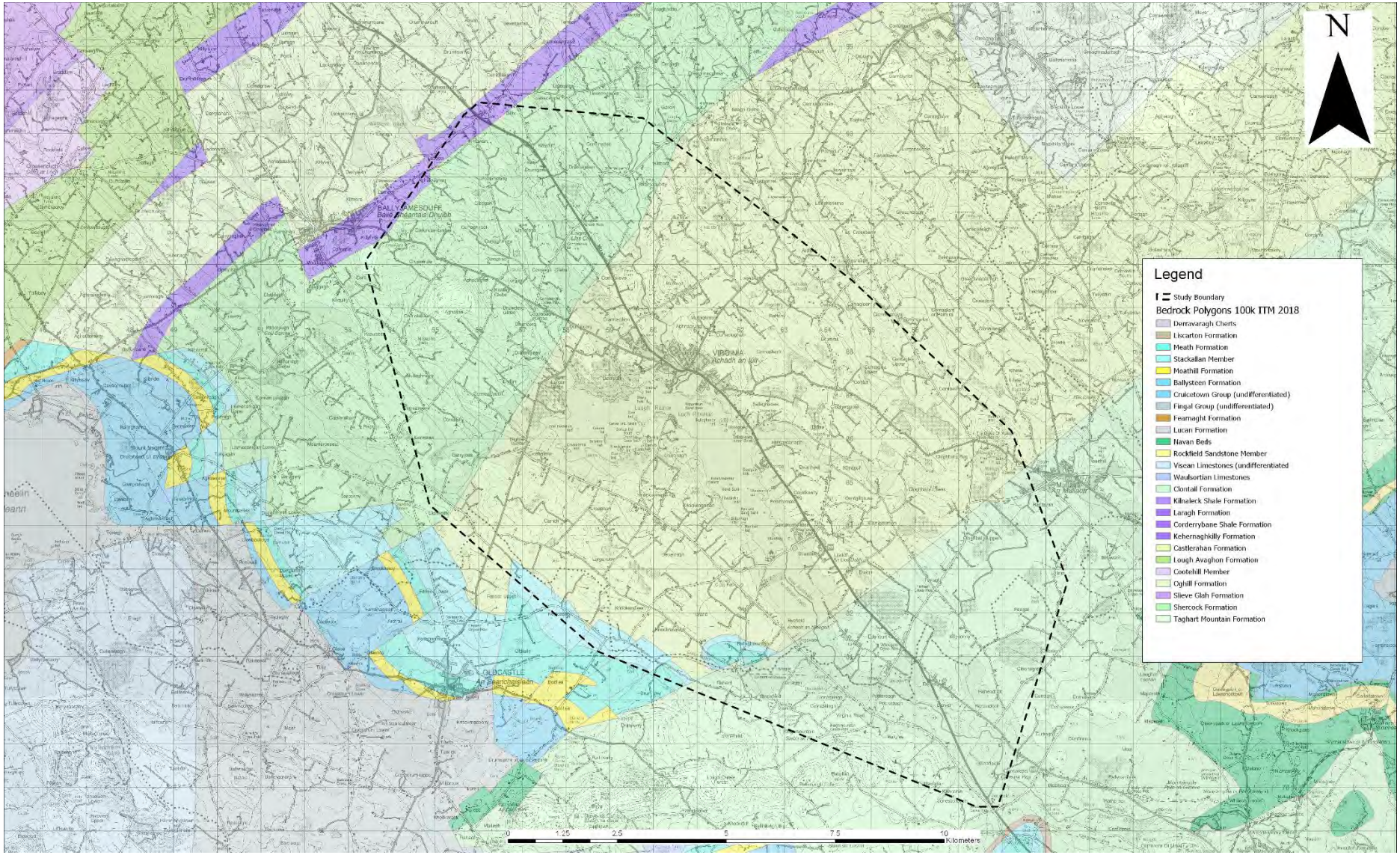

Figure 7-2: Geology Mapping

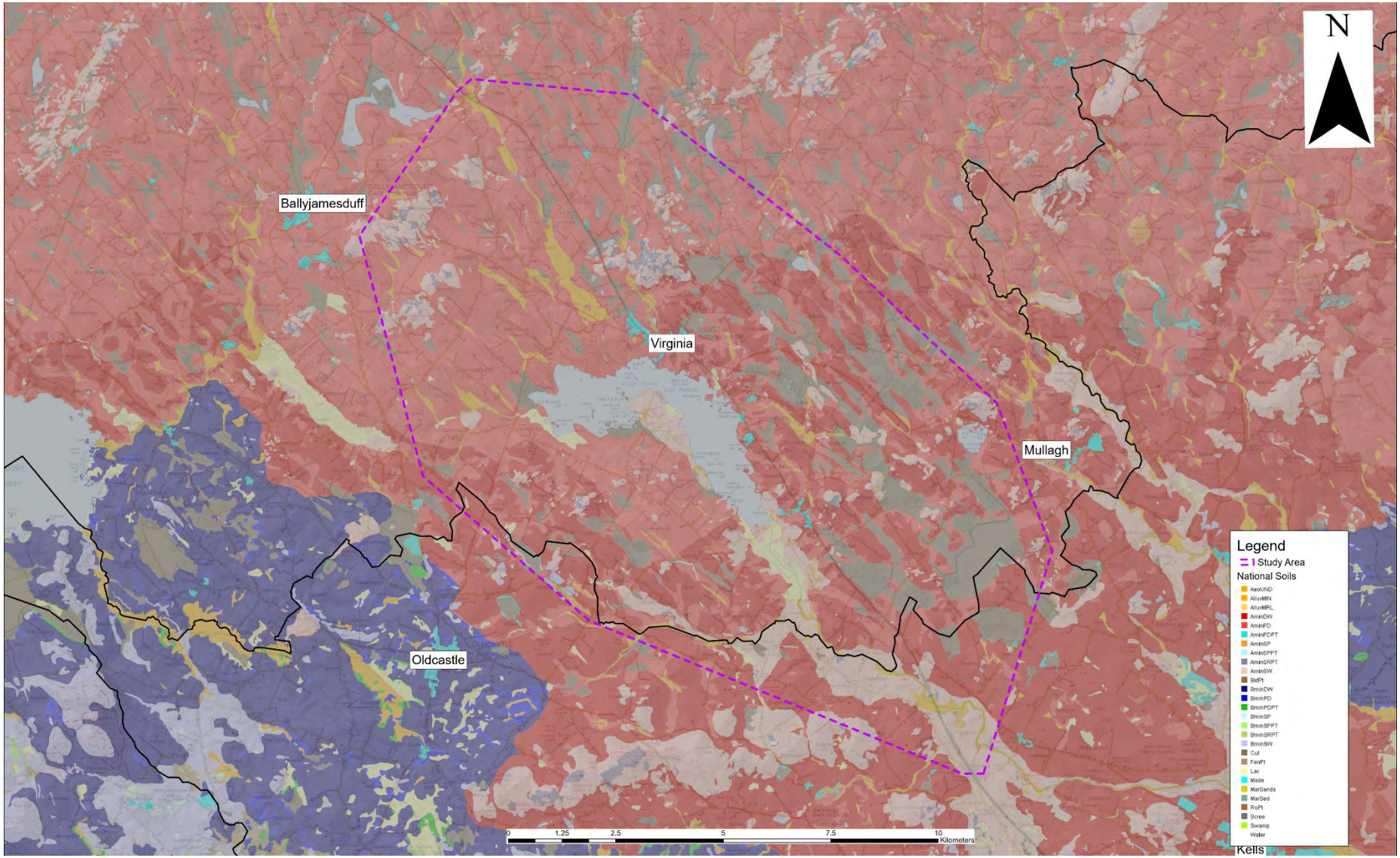

Figure 7-3: Soils Mapping

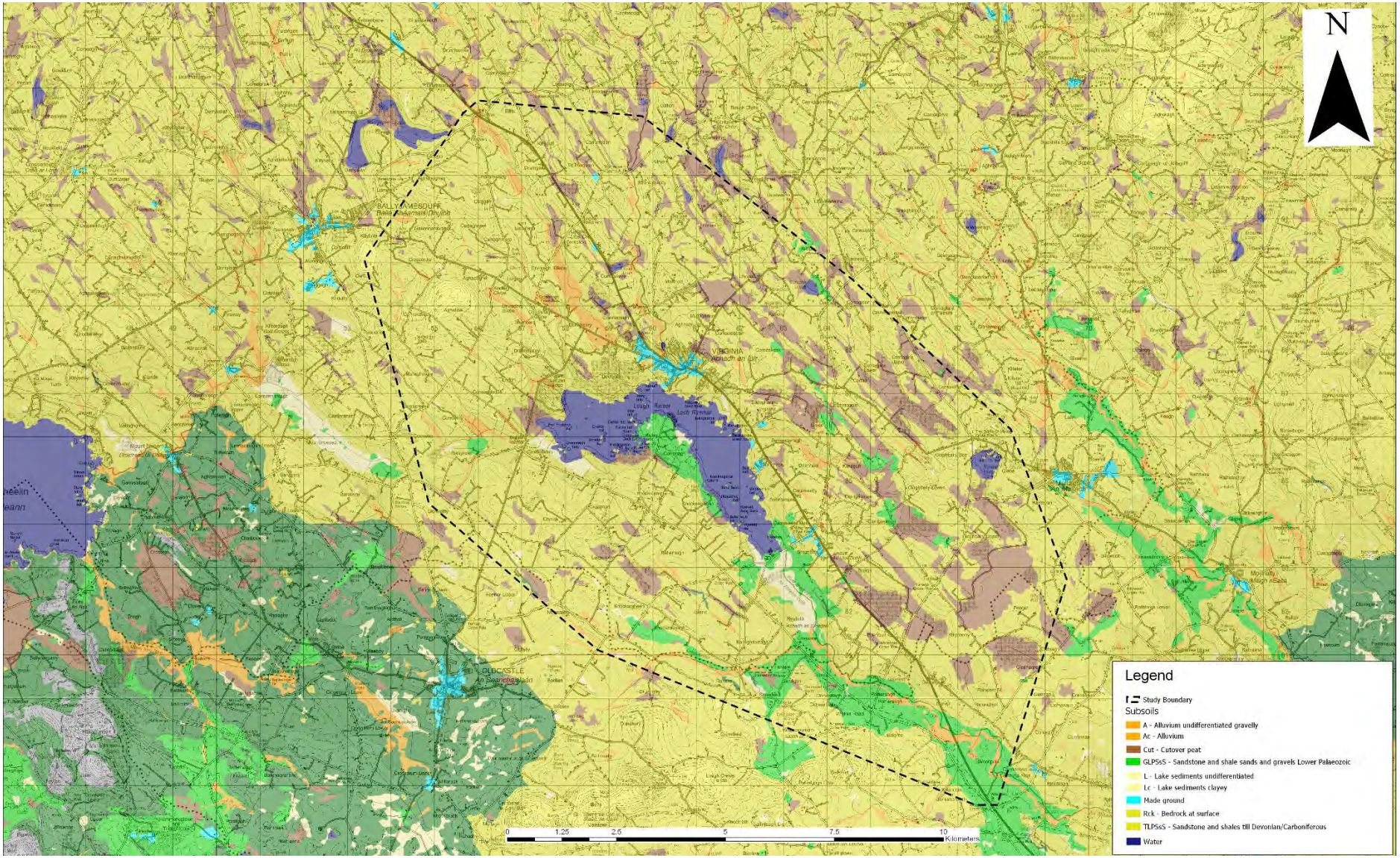

Figure 7-4: Subsoils Mapping

7.5 Existing Environment - Karst

There are no recorded karst features within the Study Area. There are two recorded karst features (a spring and superficial solution features) within 1.5km of the southernmost extent of the Study Area. These features are within the *Stackallan Member* of the *Meath Formation*. As such, there is potential for unrecorded features within the Study Area. If discovered, these features will provide a constraint.

7.6 Existing Environment – Economic Geology

There are no active quarries within the Study Area. Older pits and mineral localities have been identified within the Study Area (see **Table 7-2** below), however none of these appear to be currently actively quarried and do not present a constraint. Prospecting licences are present over a large proportion of the country including through the proposed Study Area however it is considered that these licences do not present a constraint. **Figure 7-5** shows quarries and mineral localities around the Study Area.

Table 7-2: Inactive Quarries, Pits and Mineral Localities identified within Study Area

Reference No.	Key Mineral	Comments / Notes
2772	Iron	Occurrence of bog iron ores as a bed overlying blue marl and overlain by sand and gravel noted on old 6-inch map. No evidence of quarry from orthographic mapping.
2953	Sand and Gravel	Inactive pit producing building sand, graded gravel and sand for golf courses, etc. No evidence of quarry from orthographic mapping.
3927	Calcite	Calcareous nodules noted here on old GSI 6-inch map. No evidence of quarry from orthographic mapping.
3928	Flagstone	Quarry of thin, fine grits, grey slates and flags noted on old GSI 6-inch map. Evidence of disused quarry from orthographic mapping.
3929	Calcite	Grits with calcareous paste and nodules noted here on old GSI 6-inch map. No evidence of quarry from orthographic mapping.
3931	Slate	Good roofing slate noted here on old GSI 6-inch map. No evidence of quarry from orthographic mapping.
3953	Zinc and Lead	Highly anomalous area with Cu 28ppm, Pb 3,200ppm, and Zn 4,600ppm discovered by Riofinex during exploration in 1971-1972. Possibly in drift originating from the NW. No evidence of quarry from orthographic mapping.

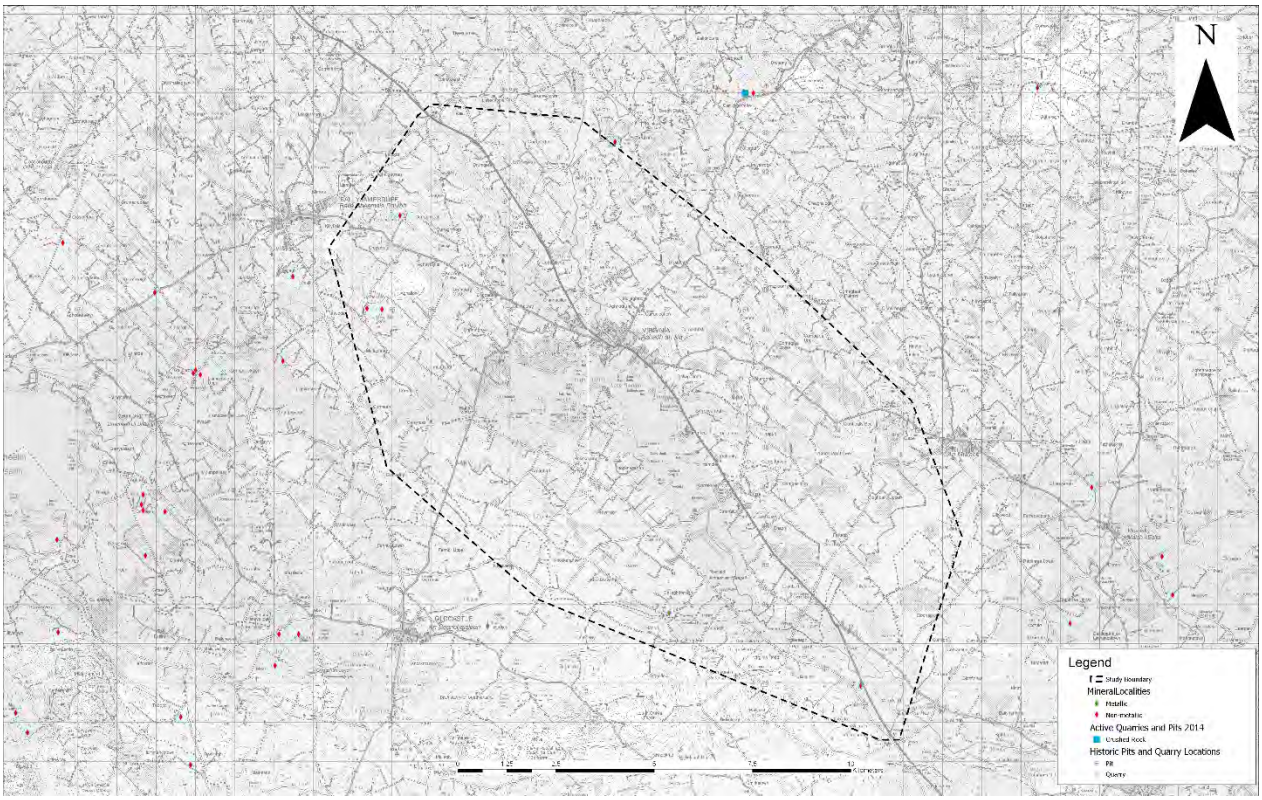

Figure 7-5: Quarries & Mineral Localities

7.7 Existing Environment – Geological Heritage

There are three Geological Heritage sites present within the Study Area (see **Table 7-3** below). The presence of these features will provide a constraint.

Table 7-3: Geological Heritage Sites identified within Study Area

Site No.	Site Name	Geological Feature
CN001	Blackwater Valley	Most significant river valley in the southernmost part of County Cavan. One of the best examples of a pitted sandur in Ireland.
MH010	Blackwater Valley	River Valley and outwash plain- quaternary deposits in the form of pitted sandur.
CN002	Bruse Hill	One of the few discrete examples of a crag and tail ridge throughout the drumlin belt.

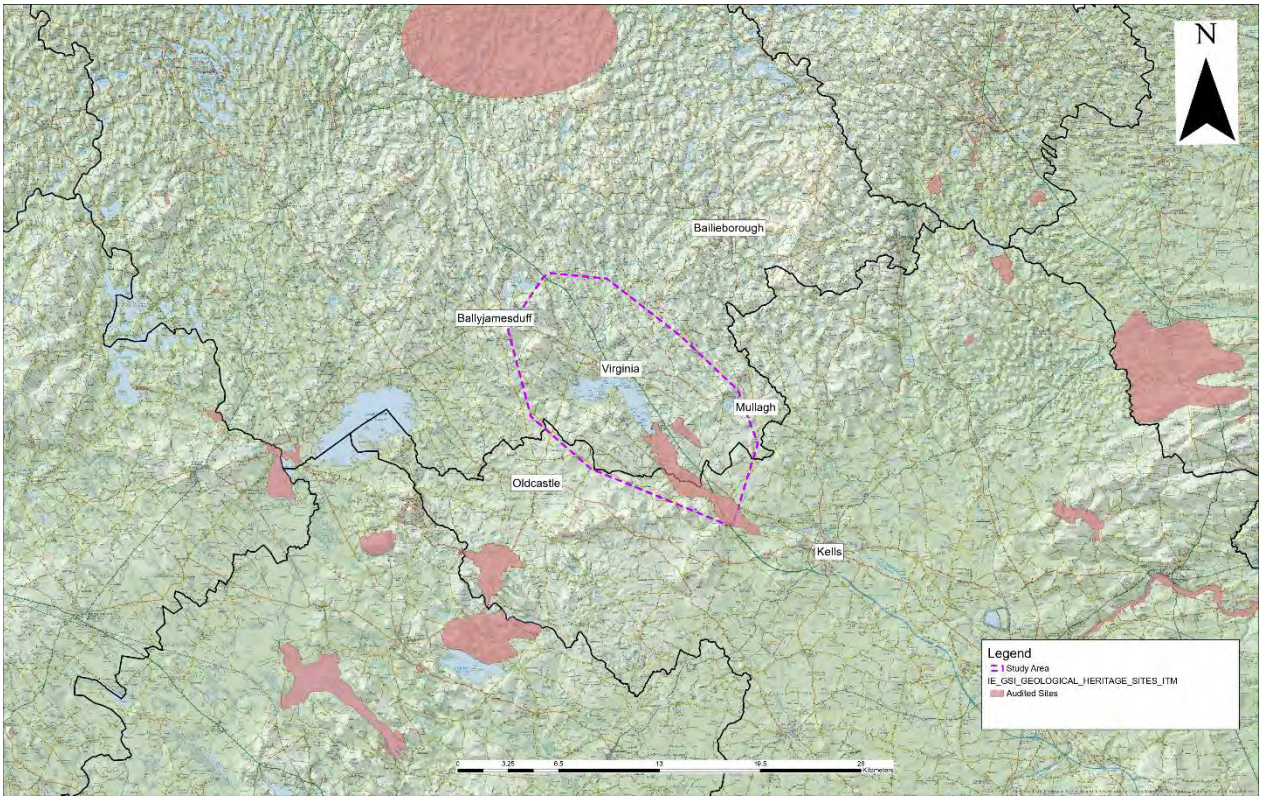

Figure 7-6: Geological Heritage

7.8 Existing Environment – Landfills

There is no landfill within the Study Area, however there is a landfill north of Ballyjamesduff that is within 2 km of the Study Area boundary. The presence of this landfill may provide a constraint.

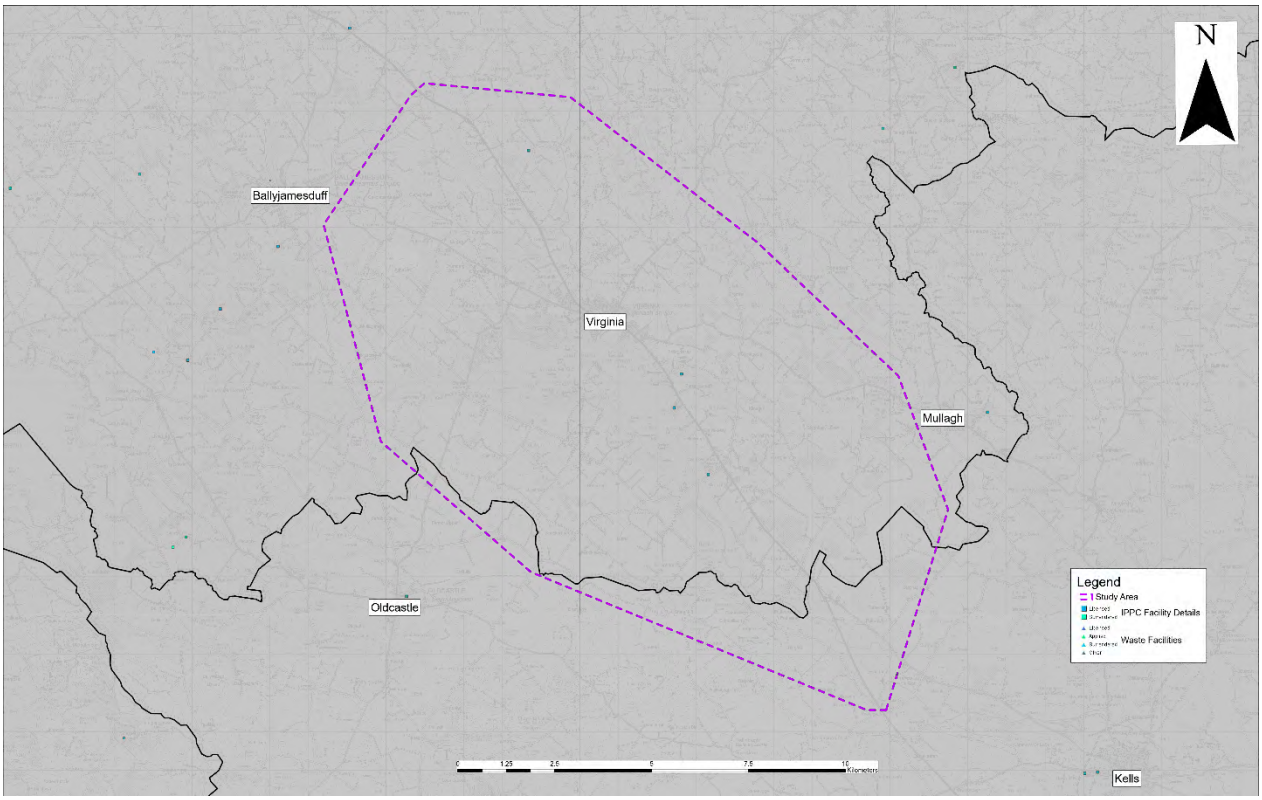

Figure 7-7: Landfills

7.9 Existing Environment – Geomorphology

The Study Area is predominantly at a low risk landslide vulnerability, however there are areas of moderate to high landslide vulnerability southeast and east of Ballyjamesduff; north of Virginia; north of Mullagh Lough; and at Bruse Hill. The areas of high risk southeast of Ballyjamesduff and north of Mullagh Lough will provide a constraint.

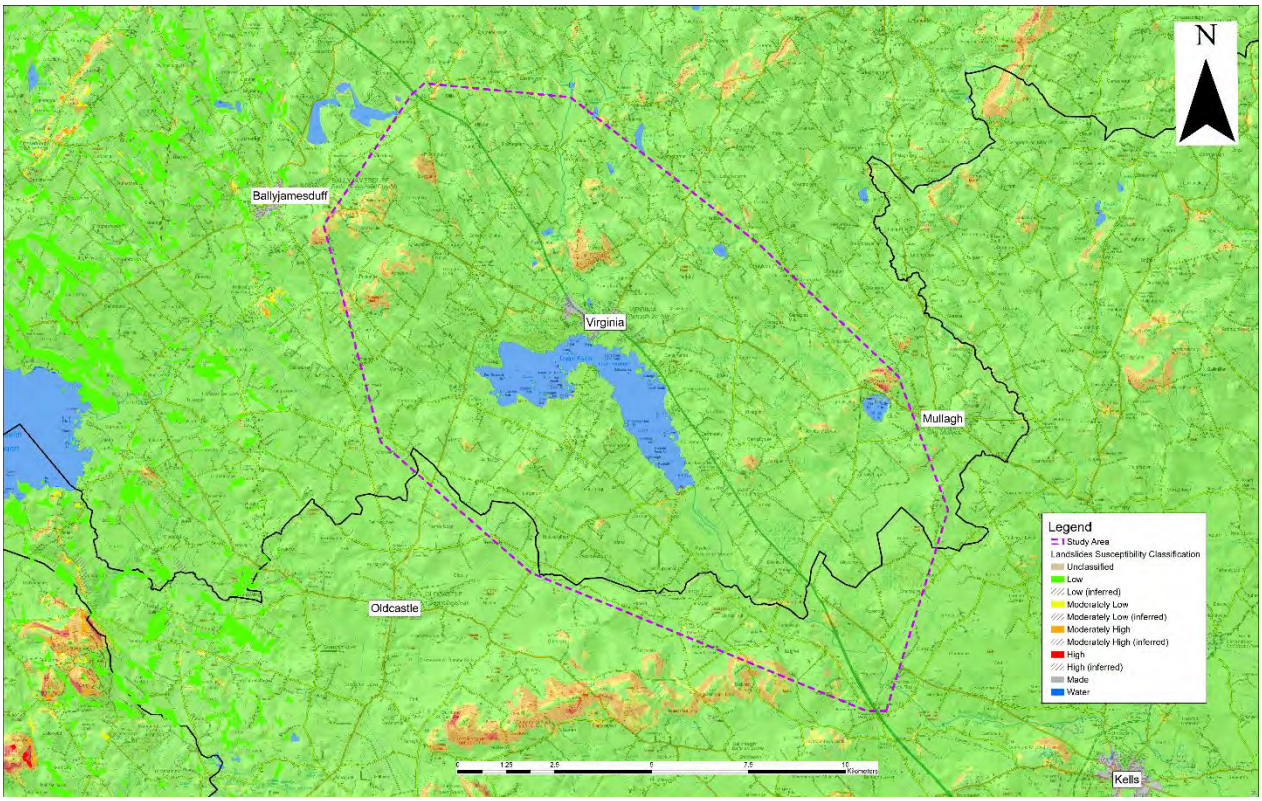

Figure 7-8: Landslide Vulnerability

7.10 Identified Constraints

The presence of NPWS protected sites, soft ground, potential karst features, Geological Heritage sites, a nearby landfill and areas of high risk landslide vulnerability present constraints within the Study Area. See Figure 7-9.

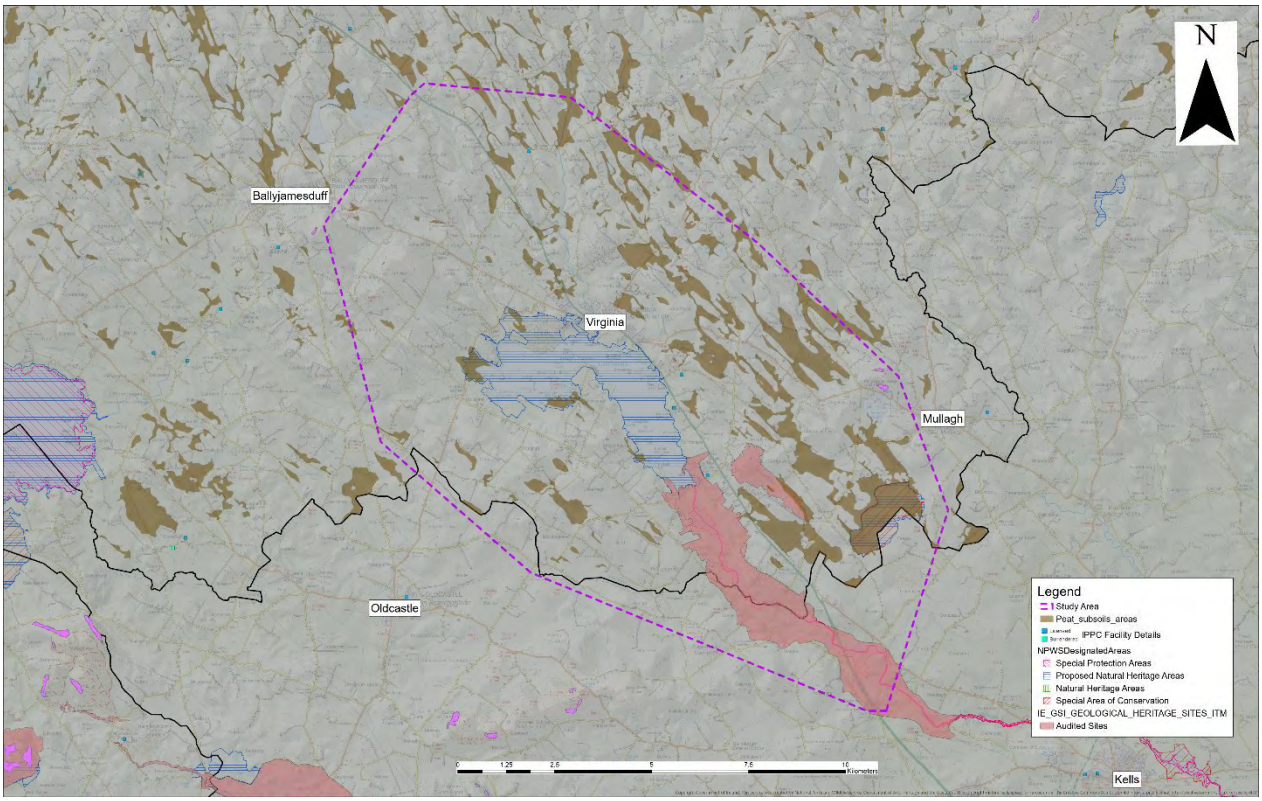

Figure 7-9: Combined Geological Constraints

SECTION 8: HYDROGEOLOGY

The hydrogeological constraints identified in the Study Area for the N3 Virginia Bypass in order to assist in the route selection process are described below.

8.1 Methodology

The NRA (TII) Guidelines for assessment and treatment of geology, hydrology and hydrogeology for National Road schemes (2009) have been complied with in the preparation of this chapter. The information necessary to identify the hydrogeological constraints in the Study Area has been compiled from a desk study assessment of available published information. Data sources are detailed in Table 8-1. Liaison was also undertaken with geologists, ecologists and hydrologists preparing other Sections of this report.

Table 8-1: Data sources

Data *	Source
Bedrock Aquifers, Aquifer Vulnerability	1:50,000 Discovery Series Maps (Ordnance Survey Ireland) , GSI databases (https://www.gsi.ie/en-ie/data-and-maps/Pages/Groundwater.aspx)
Public Water Supplies, Group Schemes	Local Authorities Water Services and GSI database (https://www.gsi.ie/en-ie/data-and-maps/Pages/Groundwater.aspx)
Groundwater Flooding	GSI Groundwater Flooding database https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=848f83c85799436b808652f9c735b1cc)
WFD Status	Environmental Protection Agency (https://gis.epa.ie/EPAMaps/Water) – WFD status 2013-2018

*All data downloaded/accessed October 2020

8.2 Existing Environment

8.2.1 Karst

Karstic areas are those where the rock present is readily dissolved by water (relative to other rock types). Distinctive karstic features are formed along preferential groundwater flow paths such as fractures, fissures or joints. This section deals with the hydrogeology of karst and the potential impacts on the underlying water environment from locating a road scheme near karst features.

Karstic aquifers are the most common source of bedrock groundwater supplies in Ireland. In these, groundwater flow is dominated by flow related to dissolution features, leading to potentially high yields and the aquifers can extend over large areas. Features such as springs are common and provide a ready source of groundwater on at least local scale.

The vulnerability of groundwater is intrinsically linked to dissolution features; rapid groundwater recharge can take place via features such as enclosed depressions, swallow holes and sinking streams which allow the superficial deposits and soil to be bypassed. Such features are taken into account in vulnerability mapping and given an extreme vulnerability classification which is further discussed in Section 8.2.2. Any pollution at the surface (including turbidity and pollution from accidental spillages or farming practices) have the potential to be carried extremely quickly to the groundwater receptor, which is a particular issue for water supplies. There are no karst features present within the Study Area. If the Study Area is revised and the route cannot avoid areas of likely presence of karstic dissolution features detailed hydrogeological studies will be required to inform the development of suitable groundwater protection or mitigation measures.

8.2.2 Aquifers

Aquifer Type and Classification

The Geological Survey of Ireland has devised a system for classifying the aquifers in Ireland based on the hydrogeological characteristics, size and productivity of the groundwater resource. The three main classifications are Regionally Important Aquifers, Locally Important Aquifers and Poor Aquifers. Each of these types of aquifer is further subdivided and has a specific range of criteria such as the transmissivity (m^2/day), productivity, yield and potential for springs associated with it. The sub-divisions are summarised in Table 8-2 below.

Table 8-2: GSI Aquifer Classifications and Sub-Divisions

GSI Aquifer Classification	Sub-Division
Regionally Important (R)	Karstified bedrock with diffuse flow (Rkd)
	Karstified bedrock with conduit flow (Rkc)
	Fissured Bedrock (Rf)
	Extensive sand and gravel (Rg)
Locally Important Aquifers (L)	Generally moderately productive bedrock (Lm)
	Moderately productive bedrock only in local zones (Ll)
	Smaller sand and gravel aquifers (Lg)
	Karstified (limited degree/area) (Lk)
Poor Aquifers (P)	Bedrock unproductive except for local zones (Pl)
	Generally unproductive (Pu)

By the very nature of Regionally Important Aquifers and their importance as groundwater resources, there is a risk of significant impacts (both qualitative and quantitative) by locating a road scheme in such an area. Examples of impacts which may occur are the disruption of groundwater flow paths during construction earthworks and also during operational phase where cuts below the water table alter water levels and hydrogeological flow regimes, deterioration of water supplies if dewatering is necessary, disruption of baseflow to groundwater fed rivers or fens, or contamination of the aquifer through accidental spillage and removal of the overburden which protects the aquifer. If the road scheme is located on an area classified as a Regionally Important Aquifer, then mitigation measures will need to be put in place at the design and construction stages of the development in order to minimise potential impacts on the environment.

There is also potential for environmental impact if the road scheme is located on a Locally Important Aquifer. In these aquifers there is the potential for contamination and the deterioration of local water supplies and springs through changing groundwater flow paths during earthworks and dewatering. These impacts should be mitigated through effective road design.

Poor Aquifers generally provide little groundwater for water supply or for baseflow to surface water bodies, however, they are sometimes used for local supply for individual houses/farms. While the impact on the environment of locating a road scheme on a Poor Aquifer will be significantly less than that on a Regionally Important Aquifer, it may still require consideration and mitigation against impacts during the design and construction stages.

The Bedrock Aquifers within the Constraints Study Area are shown on Figure 8-1. The aquifers in the area are predominantly bedrock aquifers of low permeability classified as Poor (Pl), or bedrock that is generally unproductive except for local zones. The Study Area is largely composed of fine to coarse grained turbidite of Shercock Formation in the north, dark quartz greywacke conglomerate of Castlerahan formation in the middle and calcareous red-mica greywackle of Clontail Formation in the south.

A Study Area to the west consists of a small strip of Locally Important Aquifer (Lm)- bedrock which is generally moderately productive and is composed of micrite and mudstone of Stackallan Formation and Locally Important Aquifer (Ll)- bedrock which is moderately productive only in local zones and is composed of limestone and calcareous sandstone of Meath formation.

The south-west of Study Area in County Meath is underlain with a few pockets of gravel aquifers classified as Locally Important and is composed of calcareous red-mica greywackle of Clontail Formation.

Groundwater vulnerability will be further constrained during option selection when all available information on water table levels and soil type is reviewed in the context of each option.

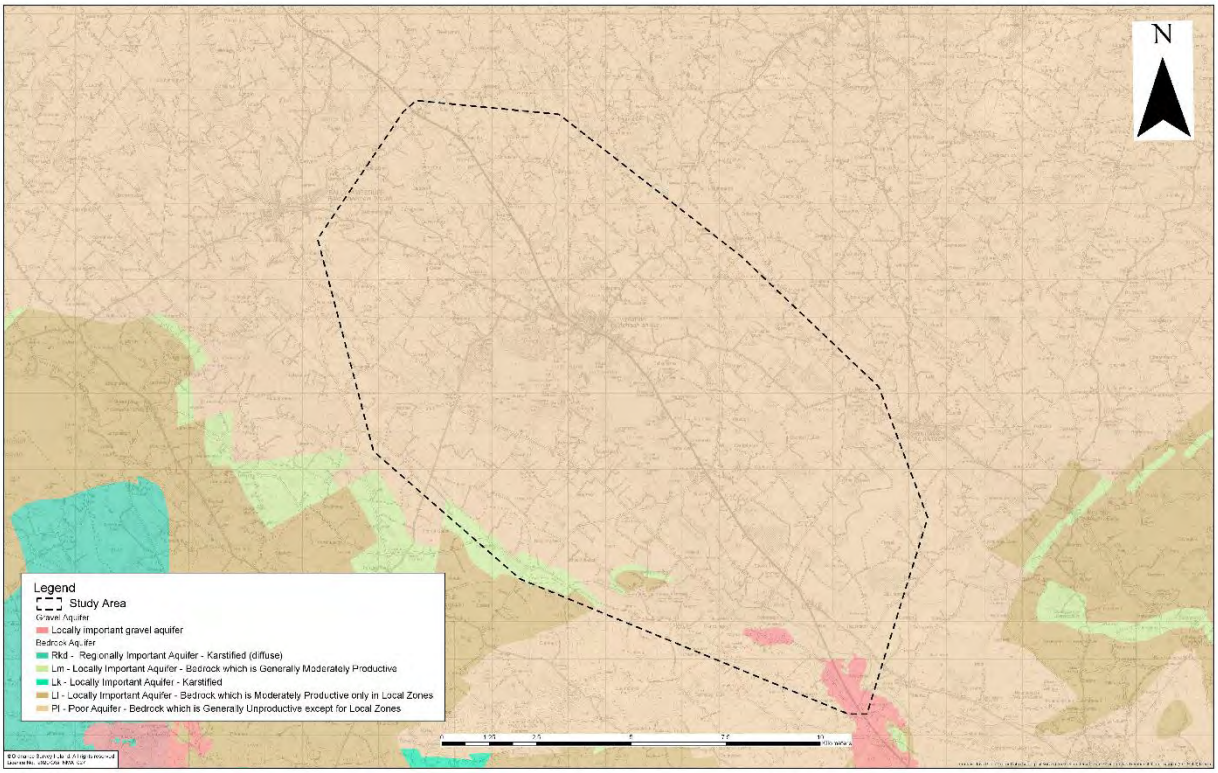

Figure 8-1: Aquifers

Aquifer Vulnerability

Vulnerability of a groundwater body is the term used to describe the intrinsic geological and hydrogeological characteristics which determine the ease with which a groundwater body may be contaminated by human activities. The vulnerability is determined by the travel time and quantity of contaminants and the attenuation capacity of the overlying deposits. These are based on the thickness of the unsaturated zone, permeability of overlying soils and the type of recharge (point or diffuse) in the area. For example, bedrock with a thick, low permeability clayey overburden is less vulnerable than bedrock with a thin high permeability, gravel overburden. Groundwater vulnerability may increase where the future scheme proposes road cuttings, due to removal or reduction of protective layers.

The classification guidelines, as published by the GSI, are given in Table 8-3 which demonstrates that bedrock groundwater is most at risk in areas where subsoils are thin or absent and where karst features such as swallow holes are present. This is due to the ability of potential contaminants to reach the aquifer following a low travel time and with little or no contaminant attenuation due to the thin or absent overburden.

Groundwater vulnerability maps have been produced by the GSI and these have five classifications ‘Extreme X Rock Near Surface or Karst’ and ‘Extreme’ are those areas most at risk from contamination and mitigation measures should be put in place for their protection. Areas classified as having ‘High’ vulnerability

are less vulnerable to contamination; however, they still need a certain measure of protection. Likewise, for those classified as 'Moderate' which have a lower risk of contamination due to natural conditions, a degree of protection is still required. 'Low' vulnerability areas have natural protection in place and mitigation measures do not need to be put in place here.

Table 8-3: GSI Vulnerability Mapping Guidelines (adapted from DoELG, EPA and GSI, 1999)

Vulnerability Rating	Hydrogeological Conditions				
	Subsoil Permeability (Type) and Thickness			Unsaturated Zone	Karst Features
	High Permeability (e.g. sand/gravel)	Medium Permeability (e.g. sandy subsoil)	Low Permeability (e.g. clayey subsoil, clay, peat)	Sand/gravel aquifers only)	(<30m radius)
Extreme (X)*	0-1 m	0-1 m	0-1 m	0-1 m	
Extreme (E)	1-3.0 m	1-3.0 m	1-3.0 m	1-3.0 m	-
High (H)	>3.0 m	3.0-10.0 m	3.0-5.0 m	>3.0 m	N/A
Moderate (M)	N/A	>10.0 m	5.0-10.0 m	N/A	N/A
Low(L)	N/A	N/A	10.0 m	N/A	N/A

Notes: N/A = not applicable
Precise permeability values cannot be given at present
Release of point contaminants assumed to be 1-2 m below ground surface
*X=rock at or near surface, also associated with a point recharge feature and for a 15m radius around a swallow hole, and 10m buffer of a sinking stream

Groundwater Vulnerability maps for the Study Area are presented in Figure 8-2. The GSI online database was consulted for groundwater vulnerability and the underlying aquifer type of the Study Areas.

There are large areas with 'high' groundwater vulnerability interspersed with pockets of 'extreme' and 'extremeX' towards Ballyjamesduff in the west, towards Mullagh village in the east, north of Lough Ramor, and south into County Meath. Around each of the 'extreme X' areas, an 'extreme' vulnerability area can also be seen, and these represent areas where the superficial deposits are present but are thin and/or permeable. The other areas, south and south east of Ballyjamesduff and northern extent of the Study Area boundary, are with predominantly 'moderate' groundwater vulnerability with a few patches of 'low' vulnerability.

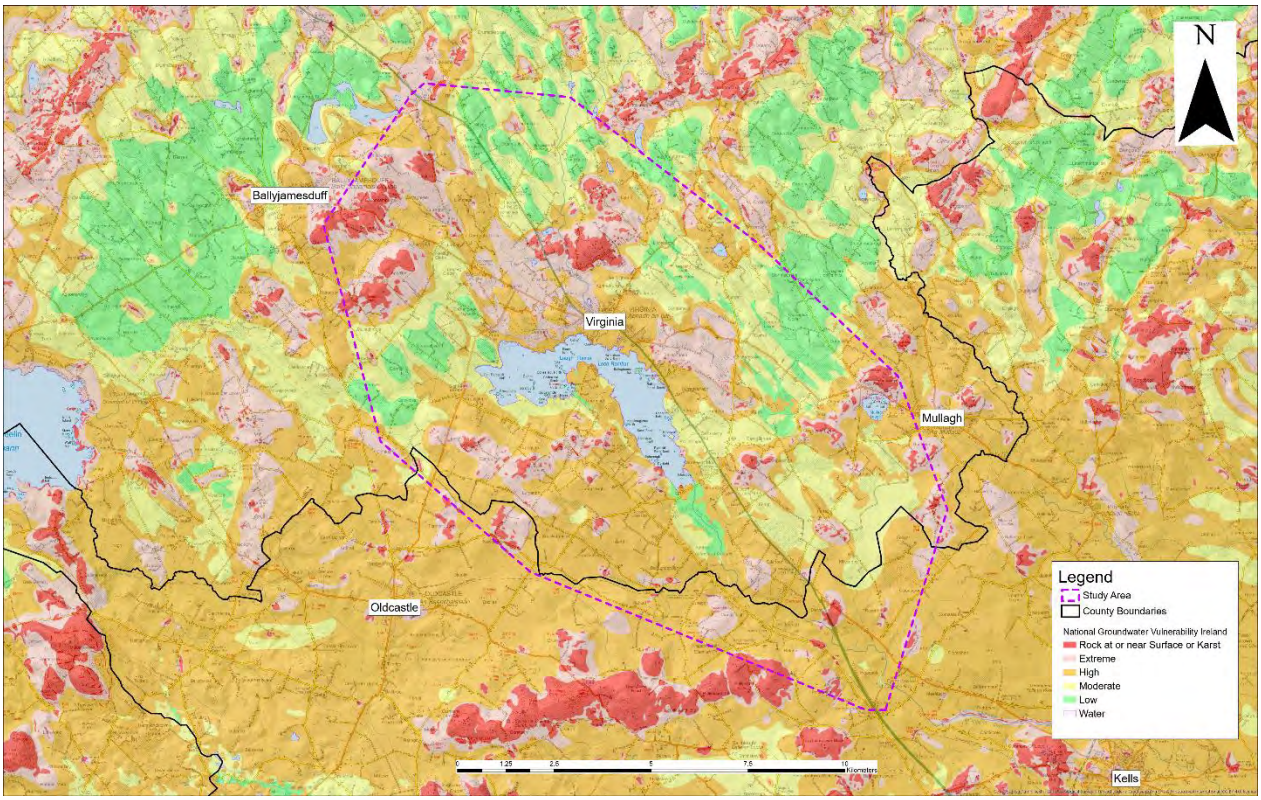

Figure 8-2: Groundwater Vulnerability

8.2.3 Public and Group Schemes Water Supplies (Groundwater Resources)

Groundwater supplies are vulnerable to impacts from a road scheme both through alteration of local supplies through below ground cuttings, dewatering and potentially through road drainage and accidental contamination of the groundwater resource. The road scheme should avoid public water supplies, high yielding industrial and commercial wells and source protection areas. Holy wells are considered in the Cultural Heritage chapter if deemed significant as a heritage asset. Care should be taken to minimise and mitigate any potential impacts (e.g. on yield and quality) which may occur at the abstraction point.

Groundwater resources refer to any large springs or groundwater abstractions supplying public water supply schemes for Local Authorities, or private Group Water Supply Schemes. Groundwater sources, particularly public, group scheme, are of critical importance in many regions. Consequently, in many cases Source Protection Areas (SPAs) have been delineated by the GSI to provide protection by placing tighter controls on activities within all or part of the zone of contribution (ZOC) of the source. The Source Protection Areas have an Inner and Outer Protection zone associated with them which are defined by the travel time of potential contaminants to the abstraction well. However, many public and group groundwater abstractions often do not have SPAs associated with them. Private landowner wells are not considered at this stage as per the NRA 2009 Guidelines; a survey of these wells will be undertaken at EIA stage.

Discussions with the Local Authorities established that there are no public and group scheme groundwater abstractions (and consequently no Source Protection Areas) within the Study Area. While there are some group water supply scheme within the Study Area, there are no associated groundwater sources supplying these schemes located within the Study Area.

Groundwater wells and springs as identified by GSI are presented in Figure 8-3.

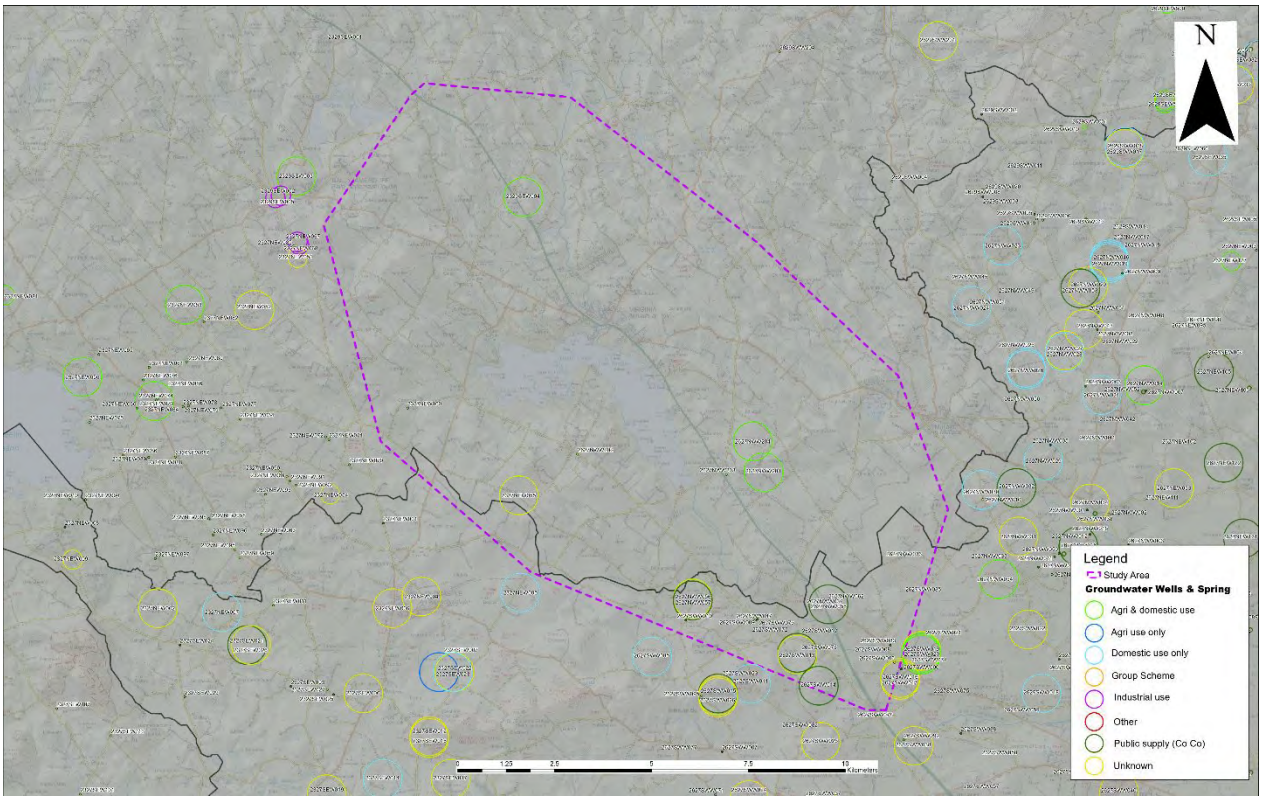

Figure 8-3: Groundwater Wells and Springs within the Study Area (GSI)

Water Framework Directive

The EPA Water Maps indicate that the groundwater body WFD status for all groundwater bodies across the whole Study Area is good (chemical, quantitative and overall).

The scheme must not affect the status of the groundwater bodies in any way and considerations will need to be given how proposed design will not hinder the achievement of these objectives.

Table 8-4: Groundwater Body Descriptions

Groundwater Body	GW Quality Status (WFD Status 2013-2018)
Bailieborough	Good
Inny	Good

Groundwater Dependent Terrestrial Ecosystems (GWDTE)

Groundwater dependent terrestrial ecosystems (e.g. fens, turloughs, bogs) may be impacted by road schemes through alterations of groundwater flow, accidental contamination and localised flooding. If the road scheme runs through or is close to an ecologically sensitive area (in particular protected sites), then groundwater dependency should be assessed and potential impacts on the water balance of the feature considered.

There are a number of designated areas within the Study Area which are discussed in Section 6.3. Their dependency on groundwater will be assessed in later stages.

Groundwater Flooding

The GSI have produced groundwater flooding maps which indicate that there is no probability of groundwater flooding in the Study Area. Surface water flooding is dealt with in Section 9.2.1 and will also be dealt with as part of the general Flood Risk Assessment at a later stage.

SECTION 9: HYDROLOGY

9.1 Introduction

The hydrological and drainage features of the Study Area were determined by consulting the following data sources:

- OS survey vector, six inch and 'discovery' series mapping;
- Aerial photography;
- The Office of Public Works (www.floodmaps.ie, www.floodinfo.ie);
- River Basin Management Plan for Ireland (2018-2021) (https://www.epa.ie/water/watmg/wfd/rbmp/);
- Water Framework Directive (WFD) national website and Water Maps viewer (www.wfdireland.ie); and
- Environmental Protection Agency (https://www.epa.ie/).

This section summarises the surface waterbodies that flow through the Study Area. The surface water bodies found within the study are shown in **Figure 9-1**. Details on infrastructure associated with the surface water bodies, i.e. water treatment and waste water treatment, are considered in **Section 12.2.7** of Material Assets: Non-agricultural.

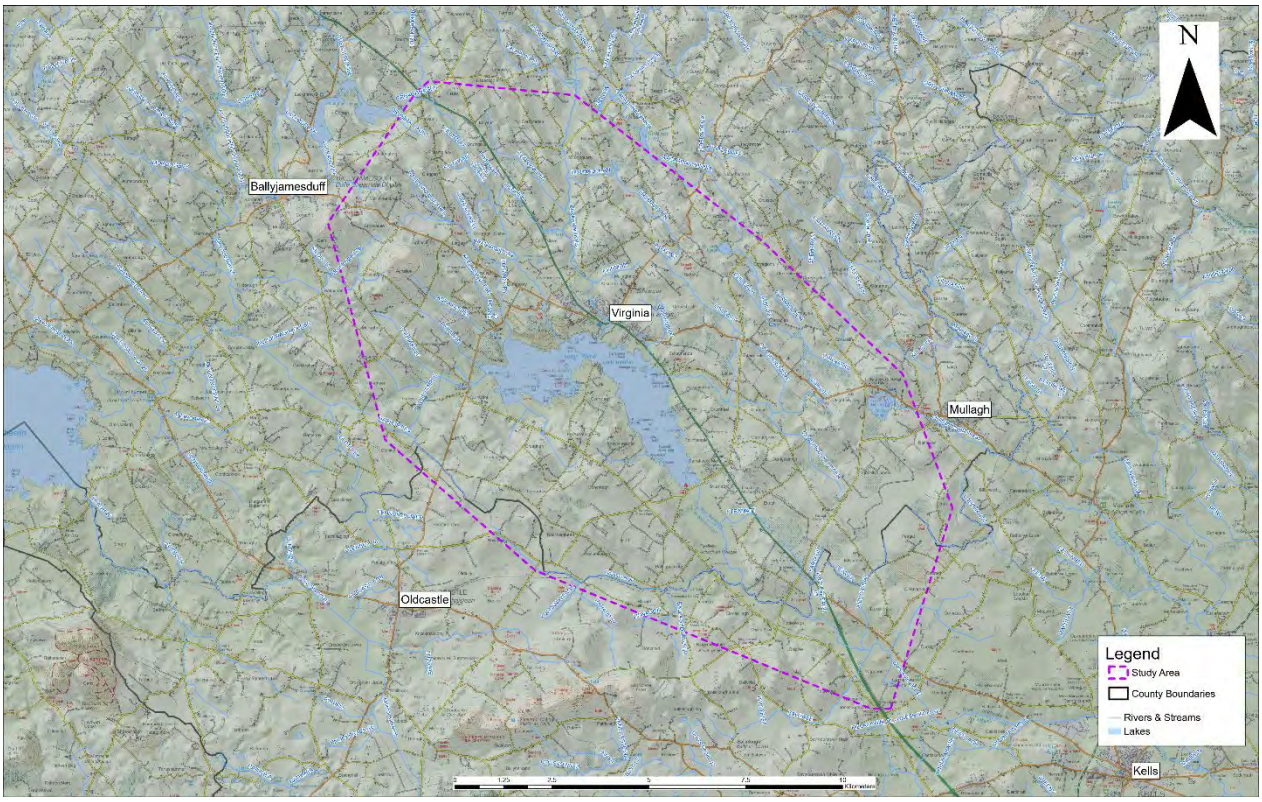

Figure 9-1: Surface Waterbodies

9.2 Existing Environment

The Study Area lies in the River Boyne Catchment Area. A search of the EPA monitoring database was conducted to establish the river water quality and the WFD Status of the identified watercourses (order 3 and above), outlined in **Table 9-1**.

Table 9-1: Surface Water Quality Data[3]

River	River Waterbody WFD Status 2013-2018	WFD Risk Scores	River Water Quality 2013-2018	Monitoring Location
Blackwater (Kells)	Moderate to Good	At risk	Q3-Q4	Stramaquerty Bridge near Drumagolan and Daly's Bridge
Nadreegeel Lough (Stream)	Poor	At risk	Q3	Bridge near Cranadillon
Cross Water	Moderate	At risk	Q3-4	Bridge upstream of Blackwater (Kells) rv confluence
Lislea	Good	Not at risk	Q4	Bridge upstream Lough Ramor

River Blackwater (Kells)

The River Blackwater along with its tributaries drains the Study Area from north west to south east. The river flows from Bailieborough to Virginia, through Lough Ramor, past Kells in County Meath and drains into the River Boyne at Navan, which flows into the Irish Sea.

Nadreegeel Lough (Stream)

The Nadreegeel Lough Stream flows from north-east of Ballyjamesduff via Lough Nadreegeel and discharges into Lough Ramor, which discharges into the River Blackwater.

River Cross Water

The River Cross Water originates from north-east of Oldcastle, flows along the County Cavan – County Meath boundary and discharges into the River Blackwater north of L3022.

River Lislea

The Lislea River and its tributaries flow through the northern section of the Study Area. The river crosses R194 and N3 and drains to Lough Ramor.

9.2.1 Flooding

A search of the Office of Public Works National Flood Hazard Mapping website (www.floodmaps.ie) and National Flood Information portal (www.floodinfo.ie) was carried out to obtain information on the flood history of the Study Area. The OPW indicative flood maps were used to identify areas where hazards of flooding are likely due to historical flooding of those areas. The OSI Historical Mapping dataset was also consulted to investigate whether any areas are liable to flooding. Table 9-2 outlines areas that are prone to flooding as highlighted by the OPW flood maps within the Study Area.

[3] https://www.catchments.ie/ Accessed: June 2020

Table 9-2: Historical Flooding Summary within the Constraints Study Area

Flood Event	Flood ID	Description
Nadreegeel Lough Billis	3450	The Nadreegeel Lough River overflows its banks every year after heavy rain. Road is not liable to flood although flooding is adjacent to the road.
Blackwater Kilmore	3461	River Blackwater overflows its banks every year after heavy rain. Road is liable to flood.
Blackwater Murmod	3452	River Blackwater overflows its banks every year after heavy rain.
Drummoney/Dunancory	3463	River overflows its banks every year after heavy rain. Road off R195 is liable to flood.
Eighter	3466	River overflows its banks every year after heavy rain.
Crossafehin 1	3456	River overflows its banks every year after heavy rain. Road is liable to flood. Council has raised the road level.
Crossafehin 2	3457	Runoff from high ground and inadequate water courses cause flooding every year after heavy rain. Road is liable to flood and properties are affected. Council have undertaken remedial work.
Island	3455	Stream overflows its banks every year after heavy rain. Road culvert may be inadequate.
Blackwater Ryefield	3454	River Blackwater overflows its banks every year after heavy rain.
Ballaghdorragh	3467	River overflows its banks every year after heavy rain. Road is liable to flood.
Kingsmountain CR204	772	Low lying area floods after heavy rain. The flooding occurs every year. Road is liable to flood.

The Catchment Flood Risk Assessment and Management (CFRAM) website (www.cfram.ie) was searched to identify predictive flood risk areas to highlight areas mapped as part of the Preliminary Flood Risk Assessment (PFRA) for the Study Area. There are no CFRAM identified areas within the Study Area.

9.3 Water Identified Constraints

There are numerous waterbodies that flow within the Study Area, as illustrated in **Figure 9-1** which will require applications of design standards and construction best practice being applied at the option selection (TII Phase 2), design and environmental evaluation (TII Phase 3) and construction (TII Phase 6) phases of the project in order to avoid degrading any surface or groundwater quality rating.

There is a potential for proposed options to cross the River Blackwater. All eastern option corridors cross the river north of Lough Ramor while the majority of the western option corridors cross the river south of Lough Ramor, near Whitegate. The latter consequently cross the River Boyne and River Blackwater SAC and SPA. The River Blackwater currently has “Moderate to Good” status as per River Waterbody WFD Status 2013-2018 and is at the risk of not achieving “Good” status. Biological water quality baseline studies will be carried out during Phase 2 at locations where works are likely to be carried out.

SECTION 10: AIR QUALITY AND CLIMATE

10.1 Introduction

This chapter identifies the air quality and climate constraints in the Study Area for the N3 Virginia Bypass scheme. The N3 National Primary Route links Cavan, the Border regions and the Northwest to Dublin. Virginia Town is situated on the N3 approximately 75 Km from Dublin. The proposed scheme will involve crossing the county boundary between Cavan and Meath.

The objective of this air quality constraints report is to examine the Study Areas in order to characterise the existing ambient air quality and to identify sensitive receptor locations.

10.2 Methodology & Sources of Information

This air quality constraints report has been prepared in accordance with the methodology outlined in the TII Guidelines for the Treatment of Air Quality during the Planning and Construction of National Road Schemes (2011). Existing local air quality conditions and significant non-road sources have been described, sensitive receptors have been identified, previous studies and relevant planning permissions have been reviewed, and opportunities for mitigation are discussed.

The following sources were consulted for the purpose of this report:

- Environmental Protection Agency (EPA) Air Quality Data (http://www.epa.ie);
- EPA IPPC Applications and Licences (http://www.epa.ie);
- National Parks and Wildlife Services (NPWS) (www.npws.ie); and
- Cavan County Council Planning (http://www.cavancoco.ie/).

10.2.1 Air Quality Limit Values

In order to reduce the risk to human health and to the environment from poor air quality, national and European statutory bodies have set limit values in ambient air for a range of air pollutants. The Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011) establish the limit values in Ireland for particulate matter (PM_{10} and $PM_{2.5}$), sulphur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3), lead (Pb), carbon monoxide (CO) and benzene. These Regulations implement Directive 2008/50/EC on ambient air quality and cleaner air for Europe. The Environmental Protection Agency (EPA) is the competent authority for the purpose of Directive 2008/50/EC and these Regulations. These Regulations also provide for the dissemination of public information, including information on any exceedances of the target values, the reasons for the exceedances, the area(s) in which they occurred and appropriate information regarding effects on health and impact on the environment.

10.3 Receiving Environment

10.3.1 Existing Air Quality

Particulates (PM_{10} & $PM_{2.5}$) and nitrogen dioxide (NO_2) are the regulated pollutants of most concern in terms of road traffic emissions. Under the Clean Air for Europe Directive, EU member states must designate "Zones" for the purpose of managing air quality. For Ireland, four zones were defined in the Air Quality Standards Regulations (2011). The zones were amended on 1st January 2013 to take account of population counts from the 2011 CSO Census and to align with the coal restricted areas in the 2012 Regulations (S.I. No. 326 of 2012). Zone A is Dublin, Zone B is Cork City and Zone C includes 24 large towns and Zone D is the remainder of the State. The N3 Virginia Bypass constraints Study Area is within Zone D. The air quality in Zone D is well within the limits outlined in the Air Quality Standards Regulations 2011.

The EPA manages the National Ambient Air Quality Network. The closest ambient air quality monitoring stations are located in Navan, Longford and Kilkitt, County Monaghan. Collectively air quality monitoring is

undertaken at these monitoring stations for nitrogen dioxide (NO_2), particulate matter (PM_{10} and $PM_{2.5}$), ozone (O_3) and sulphur dioxide (SO_2). The location of these continuous monitoring stations relative to Virginia are shown in **Figure 10-1.**

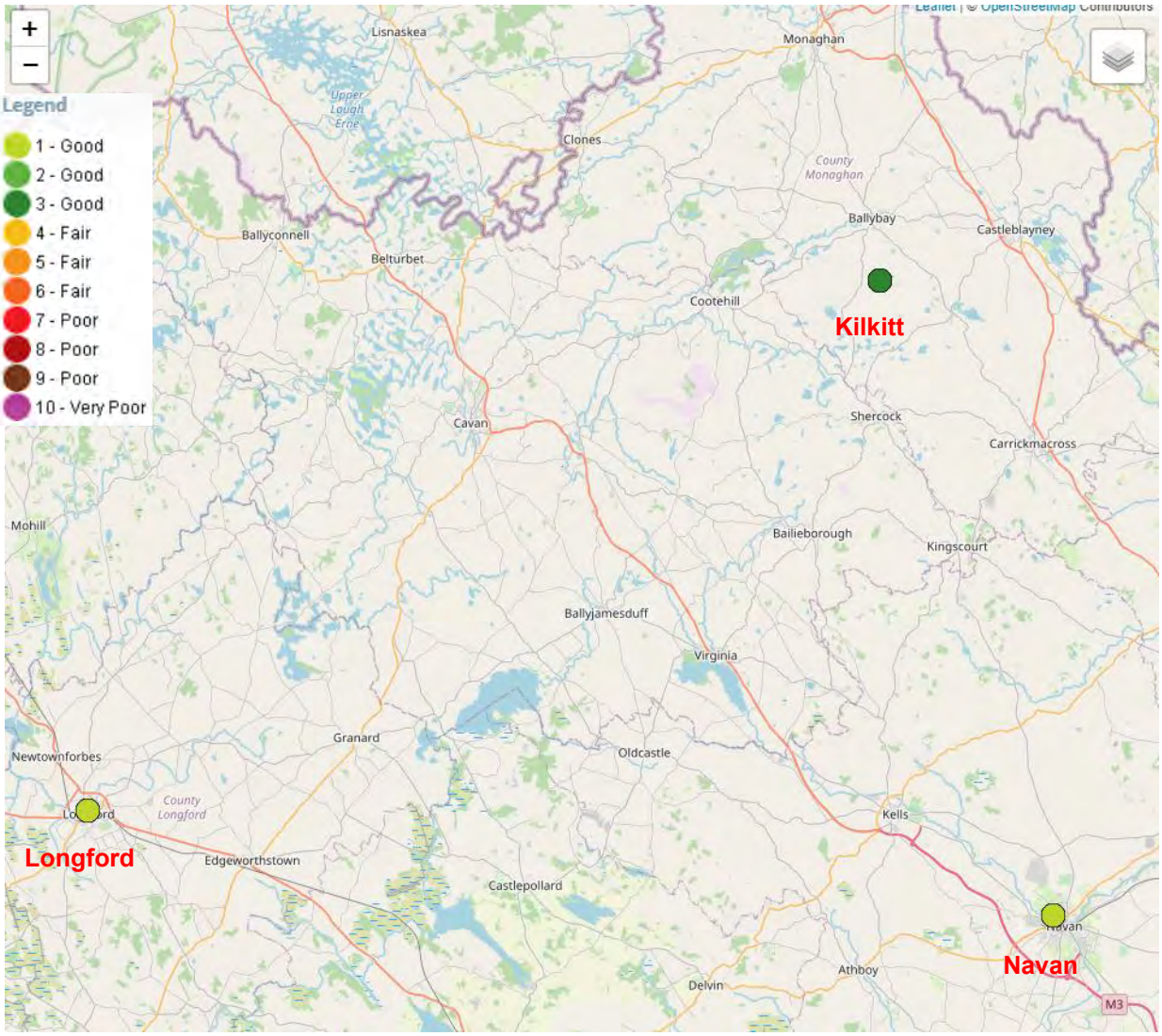

Figure 10-1: **Location of EPA continuous monitoring stations relative to Virginia**

The closest monitoring site is located at Navan, approximately 21 Km south-east of the constraints Study Area. Monitoring began at this site in November 2019. Typically, the EPA monitoring data from all three sites indicates the following with regards to pollutants which are primarily linked to road traffic emissions;

- NO_2 concentrations are below the annual average limit value of 40µg/m^3 and the 1-hour limit value of 200 µg/m^3.
- PM_{10} concentrations are below the annual average limit value of 40µg/m^3 and the daily limit value of 50 µg/m^3. The PM_{10} daily limit of 50 µg/m^3 is deemed to be breached if more than 35 exceedances occur in a calendar year.
- $PM_{2.5}$ concentrations are below the annual average limit value of 25 µg/m^3

10.3.2 Non-Road Users

The TII guidelines outline that non-road sources of air pollution may significantly affect air quality within a Study Area. For example, industry, ports, areas of domestic solid fuel combustion, or power stations, should be described in the constraints study. The guidelines state that consideration should be given to non-road

sources within 1 Km of the Study Area and 3 Km in the case of large industrial sources such as power stations. No significant non-road sources of air pollution exist within the constraints Study Area.

IPPC/IPC/IEL licenced activities

A search of licensed activities in the vicinity of the Study Area was undertaken to identify any significant non-road emission sources in the area. The EPA licensed activities within 3 Km of the Study Area are shown in **Table 10-1**.

Table 10-1: IPPC, IPC and IEL licence activities in Study Area

Name	Location	Licence Reference No.	Licence Type/Class of Activity	Location in relation to Study Area
A.W Ennis Ltd.	Carrakeeltymore, Virginia, Cavan.	P1019-01	Industry (IEL) - Food and Drink	Within Study Area
Glanbia Ireland Designated Activity Company	Burrenrea, Kells Road, Virginia, Cavan.	P0405-02	Industry (IEL) - Food and Drink	Within Study Area
FSW Coatings Ltd (Fleetwood Paints)	Virginia, Cavan,	P0244-01	Industry (IPC) - Surface Coatings	Within Study Area
Drumagoland Farms Ltd	Drumagolan, Virginia, Cavan.	P0657-01	Industry (IEL) - Intensive Agriculture	Within Study Area
Liffey Meats (Cavan)	Kilquilly, Ballyjamesduff, Cavan.	P0169-02	Industry (IEL) - Food and Drink	<1 km from Study Area
Wellman International Ltd.	Mullagh, Kells, Meath	P0236-02	Industry (IPPC) - Wood, Paper, Textiles and Leather	~1.8 km from Study Area
Kiernan farms (Aughafad)	Finaway Farms Drummanduff, Ballyjamesduff, Cavan	P0679-01	Industry (IEL) - Intensive Agriculture	~2.5 km from Study Area

Quarries in the Study Area

Quarries may be deemed to be potentially significant dust sources in the area. There are no excavated areas located within the constraints Study Area.

10.3.3 Sensitive Receptors

Sensitive receptors are defined in the TII guidelines to include residential housing, schools, hospitals, places of worship, sports centres and shopping areas, with the proviso that the likely public exposure should be relevant to the regulatory averaging period. The shortest averaging period is 1-hour (which applies to NO_2 for the protection of human health). This indicates that areas where members of the public are likely to be present for one hour or greater should be considered. Designated habitats must also be considered since these may be sensitive receptors. The legal basis on which habitats are selected and designated is the EU Habitats Directive, transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) (as amended).

Figure 10-2 shows sensitive receptors within and around the Study Area.

There are a significant number of residential receptors identified in the constraints Study Area, mostly within Virginia town itself and within 50m of the existing N3 and other regional and local roads.

Five schools (Knocktemple N.S., Carrigabruise N.S., St Marys N.S., Virginia College and Angela Deighans Montessori School) are located within the constraints Study Area and an additional two national schools (Billis Bridge N.S. and St Killians N.S Mullagh) are just on the Study Area boundary.

Nine churches (Virginia Church of Ireland, Bellasis Presbyterian Church, Drumgora, Knockatemple Church of Ireland, Mullagh Church of Ireland, Church of Mary Immaculate, Virginia, St. Matthews Church, Maghera, St. Bartholomews Church, Knocktemple, St. Patricks Church, Lurgan and the Iron Church, Derver) are located within the constraints Study Area. Seven sports centres including Ramor United GAA Club, Munterconnacht GAA, Virginia Rugby Football Club, Virginia Boxing Club, Yashuda Judo Club, Virginia Golf Club, Maghera Mac Finns GAA Club and Virginia Showgrounds as well as Deerpark Forest are located within the constraints Study Area. These locations are where the public might reasonably be expected to be present for an hour or more.

One shopping centre and numerous individual shops were identified within the constraints Study Area.

Five ecologically designated areas are located withing the Study Area, namely River Boyne and River Blackwater SAC, River Boyne and River Blackwater SPA, Killyconny Bog (Cloghbally) SAC, Killyconny Bog (Cloghbally) pNHA and Lough Ramor pNHA are located with the Study Area as shown in **Figure 6-1**.

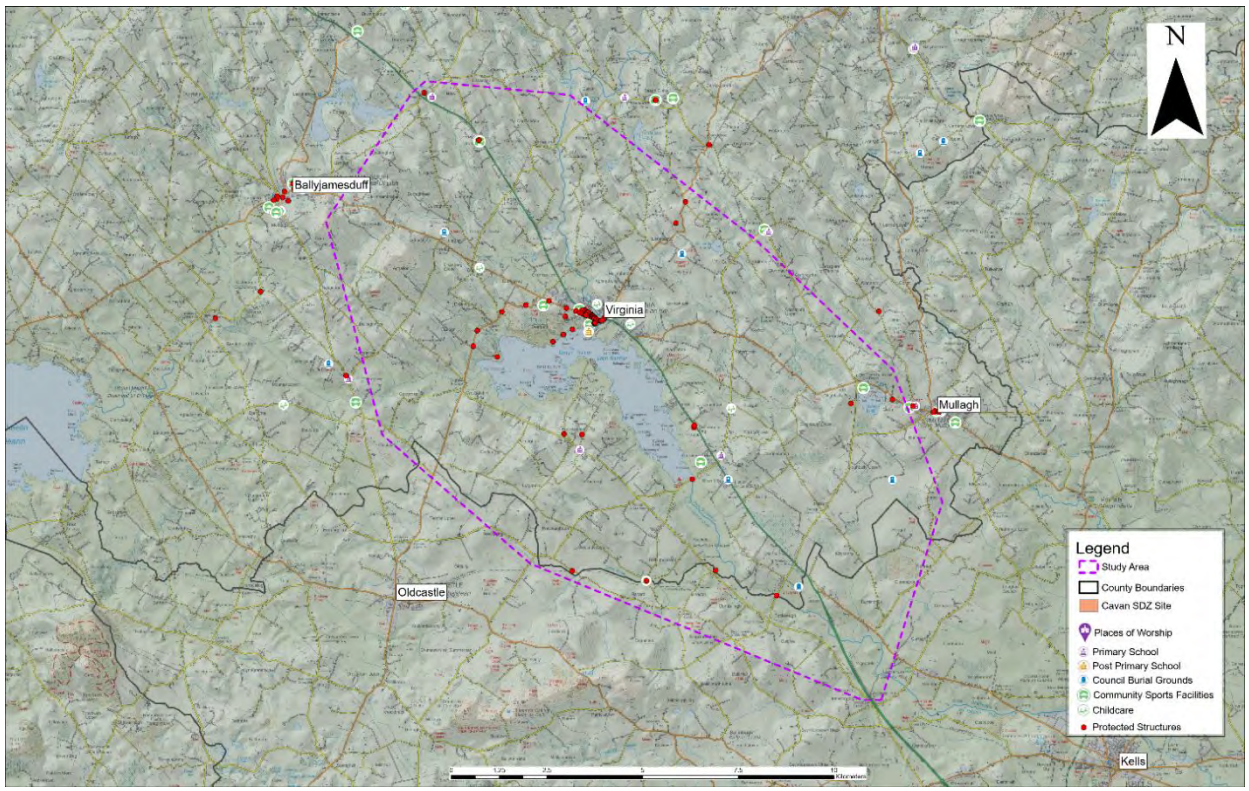

Figure 10-2: Sensitive Receptors

10.3.4 Planning Permissions

At present, Cavan County Council has not received or reported any commercial or industrial planning applications within the Study Area. Several permissions have been granted within the Study Area for single storey dwelling houses. There are no applications for planning permission for quarries within the constraints area.

10.3.5 Climate Assessment

The potential impacts of the scheme on both macro-climate and micro-climate will be assessed in detail at option selection and full EIAR stage. The climate impact assessment will include a DMRB modelling study

of carbon dioxide (CO_2) emissions as a result of traffic travelling on the proposed scheme versus the existing N3.

10.4 Summary & Conclusions

The prevailing air quality in the constraints Study Area is already impacted by the traffic flows on the existing N3 and pollutant concentrations are in compliance with the national air quality standards.

The most sensitive receptors in terms of air quality and climate within the constraints Study Area include residential properties, five schools, nine churches, seven sports centres, one shopping area and ecologically protected areas considered to be important on a European as well as Irish level. Other than existing road traffic emissions, no significant existing air pollution sources need to be considered in the option selection process. Potential air quality and climate impacts will be examined in more detail during the option corridor selection phase in order to assess the potential impacts on the sensitive receptors.

SECTION 11: NOISE & VIBRATION

11.1 Introduction

This chapter identifies the noise and vibration constraints in the Study Area for the N3 Virginia Bypass scheme. The N3 National Primary Route links Cavan, the Border regions and the Northwest to Dublin. Virginia Town is situated on the N3 approximately 75 Km from Dublin. The proposed scheme will involve crossing the county boundary between Cavan and Meath.

The TII Guidelines for the Treatment of Noise & Vibration in National Road Schemes state that the objective of the noise input into the Constraints Study is to identify any receptors that may be deemed to be particularly sensitive to noise and / or vibration.

11.2 Methodology & Sources of Information

This constraints study has been completed in accordance with the TII Guidelines for the Treatment of Noise & Vibration in National Road Schemes (2004) and TII Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes (2014).

The TII Guidelines list examples of noise and vibration sensitive receivers as including '*schools, hospitals, places of worship, heritage buildings, special habitats, amenity areas in common use and designated quiet areas. However, residential properties must not be overlooked, and it may be noted that some commercial or industrial uses can also be noise sensitive, for example, recording studios and research or manufacturing facilities using noise or vibration-sensitive equipment*'.

In the Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4) (2016) issued by the EPA the definition of noise is given (guidance only) as follows:

> *"Any sound, that has the potential to cause disturbance, discomfort or psychological stress to a subject exposed to it, or any sound, that could cause actual physiological harm to a subject exposed to it, or physical damage to any structure exposed to it, is known as noise."*

11.3 Receiving Environment

11.3.1 General Description of Prevailing Noise Climate

The prevailing noise climate in the Constraints Study Area varies from relatively rural areas with low background noise levels to areas with more elevated noise levels due to proximity to the existing traffic flows along the existing N3. The existing N3 is a single carriageway National Primary road which runs for approximately 16.5km through Virginia town. The latest road traffic noise modelling (Round 3) data for daytime noise is presented in **Figure 11-1** and night-time noise is presented in **Figure 11-2**.

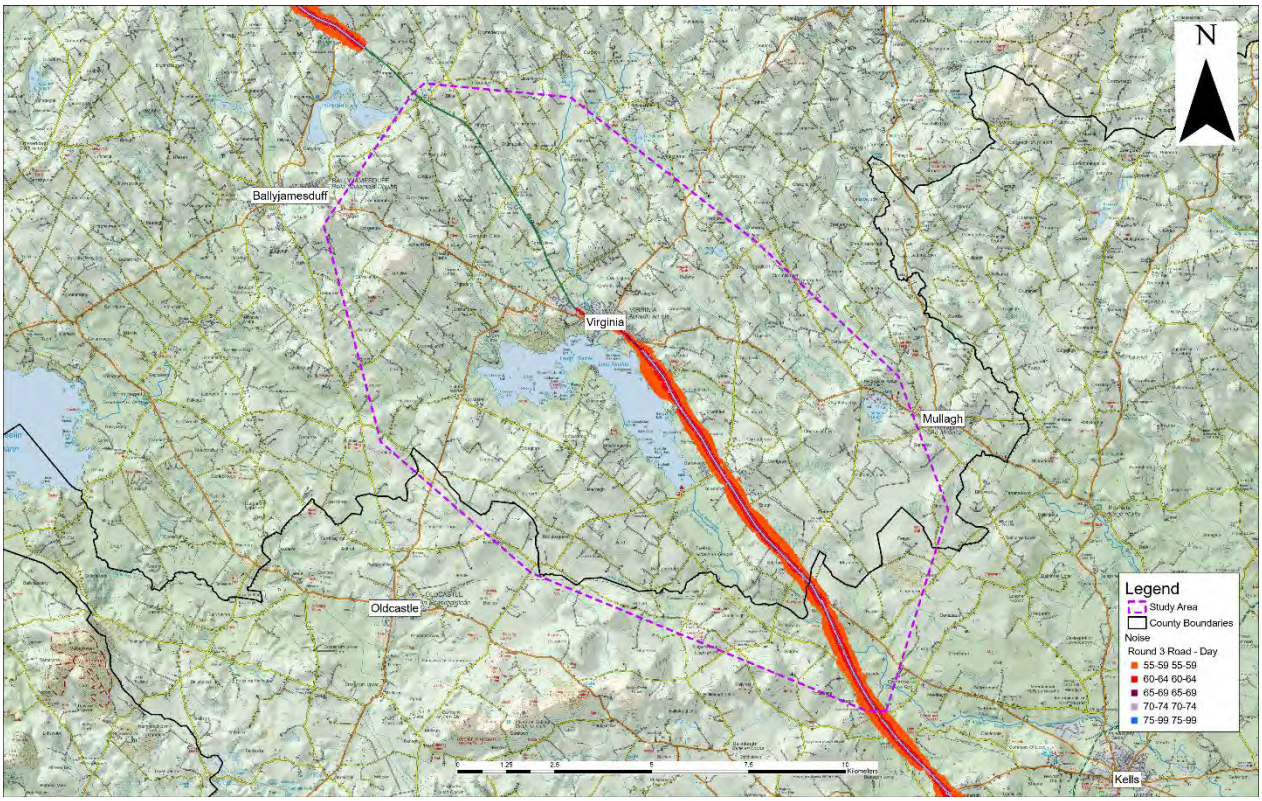

Figure 11-1: Daytime (Lden) Noise Mapping

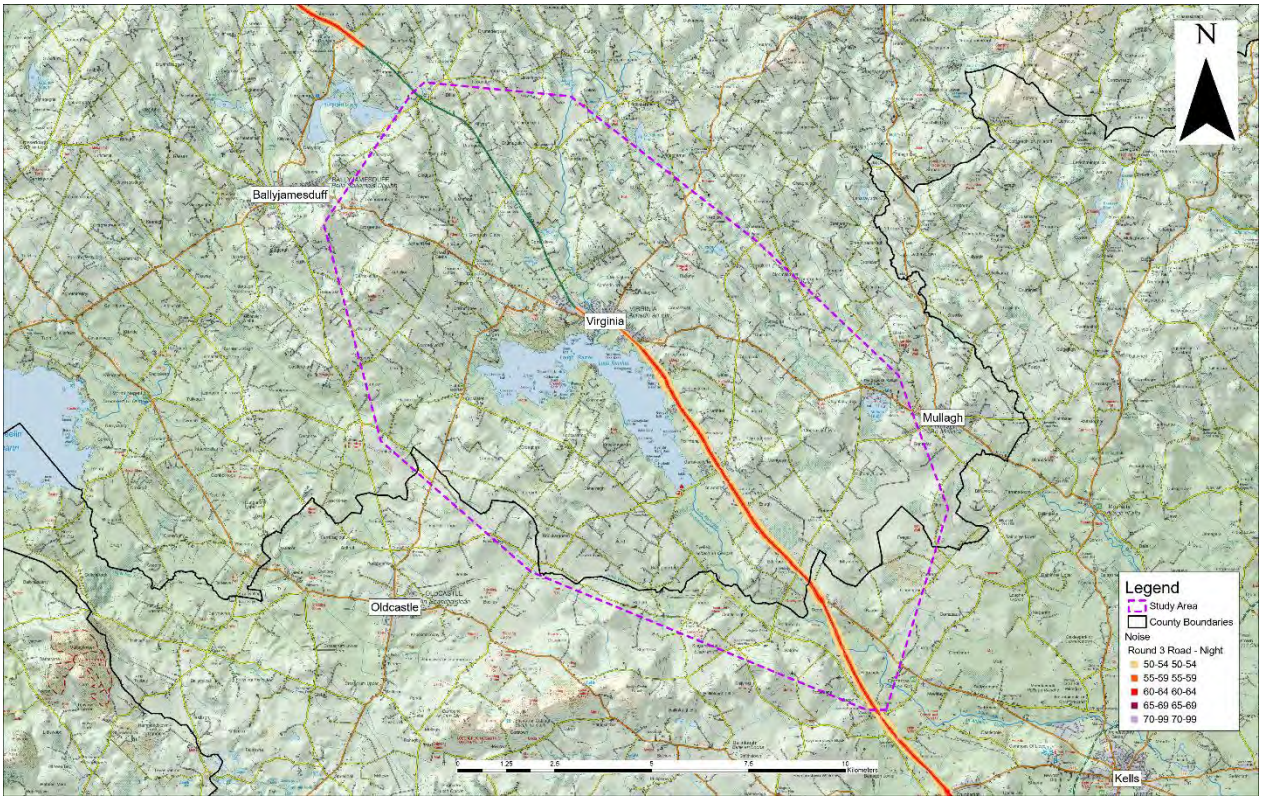

Figure 11-2: Night-time (Lnight) Noise Mapping

Noise Sensitive Locations

There are a significant number of residential receptors identified in the constraints Study Area, mostly within Virginia town itself and within 50m of the existing N3 and other regional and local roads.

Five schools (Knocktemple N.S., Carrickabruise N.S., St Marys N.S., Virginia College and Angela Deighans Montessori School) are located within the constraints Study Area and an additional two national schools (Billis Bridge N.S. and St Killians N.S Mullagh) are just on the Study Area boundary.

Six churches (Virginia Church of Ireland, Bellasis Presbyterian Church, Drumgora, Church of Mary Immaculate, Virginia, St. Matthews Church, Maghera, St. Bartholomews Church, Knocktemple and St. Patricks Church, Lurgan) are located within the constraints Study Area.

Seven sports centres including Ramor United GAA Club, Virginia Rugby Football Club, Virginia Boxing Club, Yashudo Judo Club, Virginia Golf Club, Maghera Mac Finns GAA Club and Virginia Showgrounds as well as Deerpark Forest are located within the constraints Study Area.

One shopping centre and numerous individual shops were identified within the constraints Study Area.

Five ecologically designated areas are located withing the Study Area, namely River Boyne and River Blackwater SAC, River Boyne and River Blackwater SPA, Killyconny Bog (Cloghbally) SAC, Killyconny Bog (Cloghbally) pNHA and Lough Ramor pNHA. The designated sites are shown in **Figure 6-1** and the sensitive receptors within the Study Area are presented in Figure 10-2**.**

11.3.2 Existing Noise Sources

IPPC/IPC/IEL licenced activities

A search of licensed activities in the vicinity of the Study Area was undertaken to identify any significant non-road emission sources in the area. The EPA licensed activities within 3 Km of the Study Area are shown in **Table 11-1**.

Table 11-1: IPPC, IPC and IEL licence activities in Study Area

Name	Location	Licence Reference No.	Licence Type/Class of Activity	Location in relation to Study Area
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FSW Coatings Ltd (Fleetwood Paints)	Virginia, Cavan,	P0244*01	Industry (IPC) - Surface Coatings	Within Study Area
Drumagoland Farms Ltd	Drumagolan, Virginia, Cavan.	P0657-01	Industry (IEL) - Intensive Agriculture	Within Study Area
Liffey Meats (Cavan)	Kilquilly, Ballyjamesduff, Cavan.	P0169-02	Industry (IEL) - Food and Drink	<1 km from Study Area
Wellman International Ltd	Mullagh, Kells, Meath	P0236-02	Industry (IPPC) - Wood, Paper, Textiles and Leather	~1.8 km from Study Area
Kiernan farms (Aughafad)	Finaway Farms Drummanduff, Ballyjamesduff, Cavan	P0679-01	Industry (IEL) - Intensive Agriculture	~2.5 km from Study Area

11.4 Summary & Conclusions

The prevailing noise climate in the Constraints Study Area varies from relatively rural areas with low background noise levels to areas with more elevated noise levels due to proximity to the existing traffic flows along the existing N3 and within the town of Virginia and the village of Maghera.

The most sensitive receptors in terms of noise and vibration within the constraints Study Area includes residential properties, schools, churches and sports grounds.

Other than existing road traffic noise, no significant existing noise sources need to be considered in the option selection process.

Potential noise and vibration impacts will be examined in more detail during the option selection phase in order to assess the potential impacts on the sensitive receptors.

SECTION 12: MATERIAL ASSETS: NON-AGRICULTURAL

12.1 Introduction

Material assets can be defined as economic assets of natural and human origin, or cultural assets of a physical and social type. This section identifies the constraints aspects of the proposed scheme in relation to material assets with particular reference to transport infrastructure, utilities and non-agricultural land use.

12.2 Existing Environment

The M3 motorway and N3 National Primary Route form the strategic radial corridor linking Dublin with Cavan and onward to Enniskillen and beyond to the Gateway of Sligo and Letterkenny. The M3 motorway extends from Clonee (at the Co. Dublin / Co. Meath border) to the north side of Kells. From Kells the N3 continues in a northwest direction along a Type 2 Dual Carriageway for approximately 9.5km which terminates at Edenburt (at the Co. Meath / Co. Cavan border). North of Edenburt, the N3 comprises a single carriageway cross section and for approximately 4km between Edenburt and Maghera the cross section is a single carriageway with hard shoulders. The section of N3 north of Maghera as far as the south side of Virginia, has a reduced cross section with narrow hard strips and boundary hedges and walls close to the carriageway. It also has poor horizontal and vertical alignment with severely restricted overtaking opportunities. The N3 continues through Virginia Town, where significant congestion through the town occurs especially during the AM and PM peak periods. For approximately 1.5km to the north side of Virginia, the N3 remains as a narrow, undulating single carriageway without hard shoulders until Lisgrea where the cross-section changes again to that of a single carriageway with hard shoulders, which continues to Cavan Town and beyond.

12.2.1 Resilience

Maintenance and incidents on the existing road network within the Study Area can result in extensive diversions and delays due to poor network resilience[4]. There are numerous day-to-day operational and safety issues with the N3 national road between Edenburt and Lisgrea.

In addition to the existing N3, there are four regional roads within the Study Area. These include:

- R194(Mullagh to Ballyjamesduff) joins the N3 in Virginia town at Rahardrum and leaves it at Ballaghanea;
- R195 (to Oldcastle) forms a junction with R194 north of Deerpark Forest at Rahardrum;
- R178(to Bailieborough) forms a junction with the N3 at Rahardrum, south of where R194 joins the N3; and
- R147 (to Kells), from the Edenburt roundabout with the N3.

These regional roads are supplemented by local roads connecting communities along and across the N3 Many of these regional roads take direct and straight alignments and accommodate many direct one-off residential and agricultural accesses.

12.2.2 Existing Traffic Conditions

Traffic Flows

TII traffic counter (TMU N03 070.0N) is located on the N3 between Virginia and Whitegate. The traffic has been steadily increasing from 10,260 Annual Average Daily Traffic (AADT) in 2016 to 12,250 AADT in 2019 (8.0% HGVs).

[4] Resilience is the ability of the road network to adapt to, absorb and recover from adverse events, disruptions etc.

Level of Service

The Level of Service (LOS) is a quality measure that describes the operational conditions of Traffic flow. The LOS considers speed, travel time, freedom to manoeuvre, traffic interruptions, comfort and convenience. There are six level of LOS from A to F, with LOS A representing the best operating conditions of a route, i.e. free flow conditions and LOS F the worst, i.e. breakdown of flow / congested traffic. Generally, a Level of Service (LoS) D, approaching unstable flow and equivalent to an average inter-urban journey speed of 80kph, would be regarded as a minimum acceptable standard.

The LOS "D" is a parameter set out in TII Publications (Standards) DN-GEO-03031 - June 2017, "Rural Road Link Design". The capacity in terms of AADT for LOS "D" for each type of road are summarised in **Table 12-1.**

Table 12-1: Type of Road and Capacity at a Level of Service "D"

Type of Road	Capacity (AADT) – Level of Service D
Type 3 Single Carriageway (6.0m)	5,000
Type 2 Single Carriageway (7.0m)	8,600
Type 1 Single Carriageway (7.3m)	11,600
Type 3 Dual (7.0m x 2)	14,000
Type 2 Dual (7.0m x 2)	20,000
Type 1 Dual (7.0m x 2 + 2.5m HS)	42,000

The section of N3 between Edenburt and north of Lisgrea comprises Type 2 single carriageway either side of Virginia town and Type 1 single carriageway on sections at the northern and southern ends. The capacity for Level of Service D (AADT) for a Type 1 and Type 2 Single Carriageway is 11,600 and 8,600 vehicles respectively. The existing level of traffic along the proposed scheme is in excess of 12,000 AADT. The combination of traffic volumes and average journey speeds demonstrates that the existing single carriageway road is currently operating at Level of Service E or below; LOS E is defined as a road having a time delay of >75%, average speeds are 72km/h and passing becomes impossible with intense platooning.

Road Safety

Network Safety Ranking is the process of using collision data to rank the safety of the national road network and to identify high collision locations. Collision data used for this process is collected by the Road Safety Authority. The average collision rates on the various road types (motorway, rural and urban dual carriageway, and rural and urban two-lane) are available on the website https://data.gov.ie/organization/transport-infrastructure-ireland. Based on the collision rates for 2012 to 2014 and 2014 to 2016, the national routes are categorised into 4 groups and represented by colour as shown in **Figure 12-1** and **Figure 12-2**.

The figures demonstrate that there is considerable variability along the N3 within the Study Area in terms of correlation with the national trend with results varying between the extremes of "twice below" and "twice above" national averages evident. There is also variability between the 2012 to 2014 and 2014 to 2016 periods:

- The N3 at Lisgrea shows a swing from "twice below" to "twice above" national average;
- Virginia town centre (N3) shows a swing from "twice above" to "below" national average; and
- N3 southern approach to Virginia has two zones that experience one-step reduction in collision rates;

It is also evident that there are zones that show consistently high collision rates between the 2012 to 2014 and 2014 to 2016 periods:

- At the transition from urban to rural on the N3 north and south of Virginia; and
- On the N3 south of Virginia on a stretch centred at Whitegate Cross.

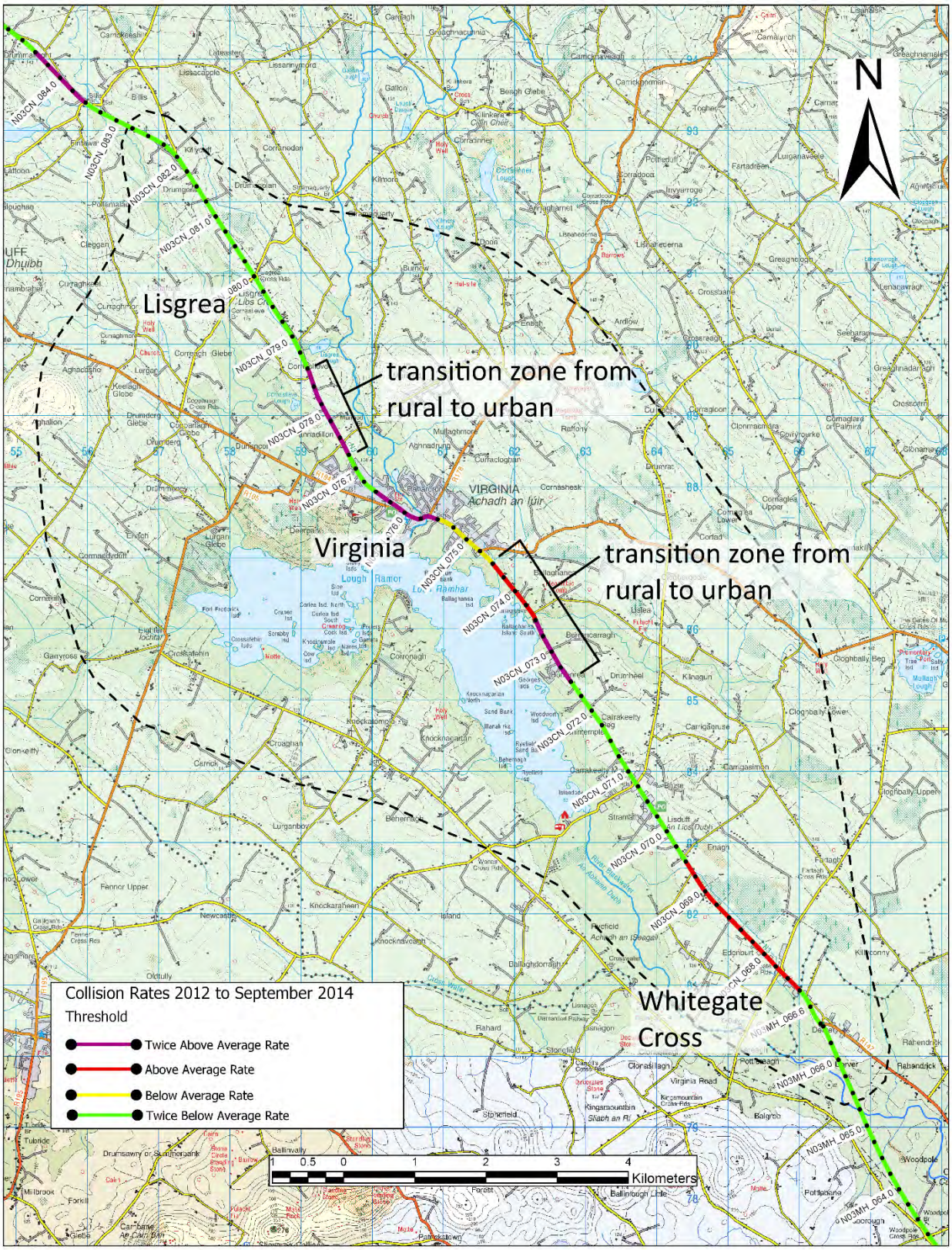

Figure 12-1: Network Safety Ranking 2012 – 2014 data

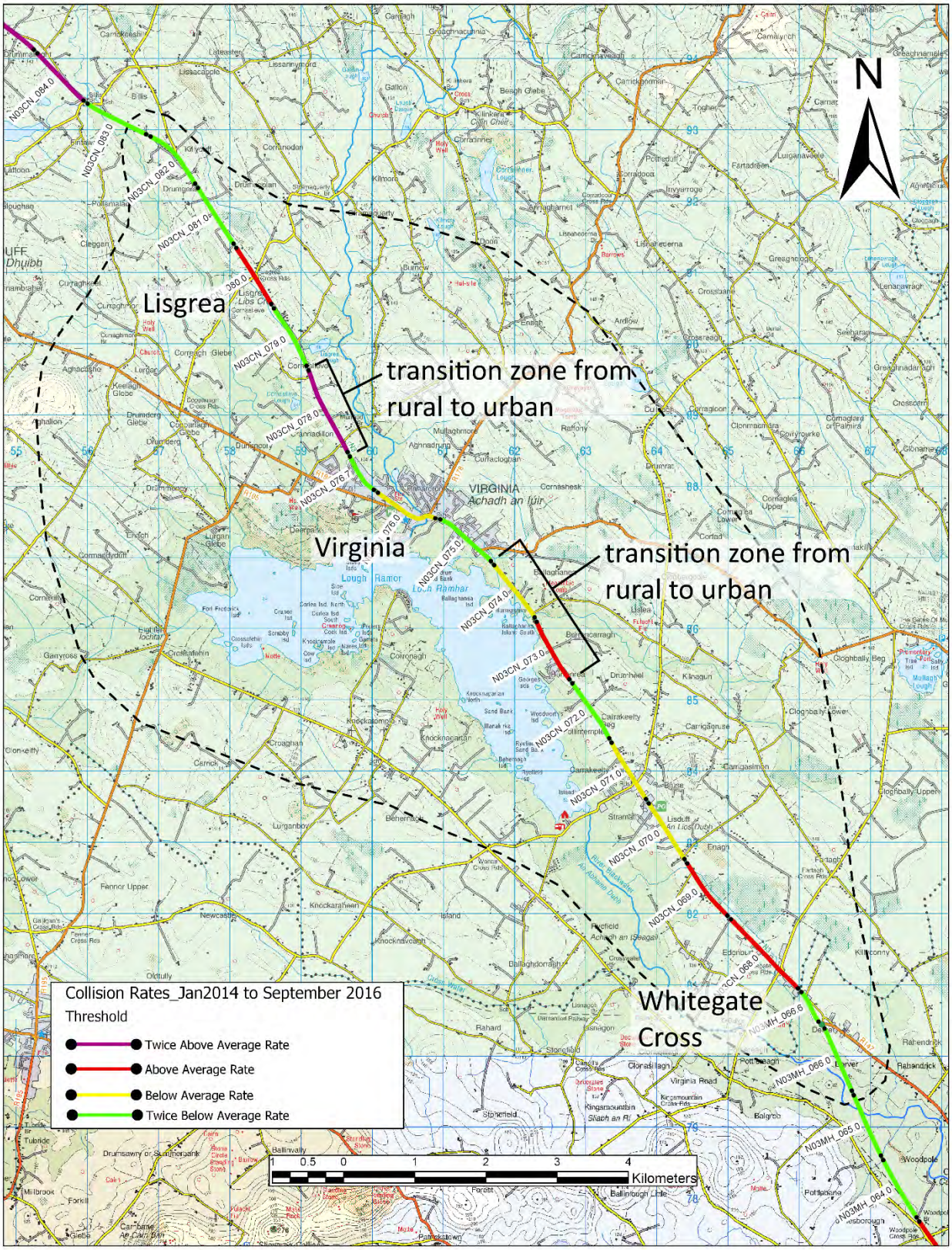

Figure 12-2: Network Safety Ranking 2014 – 2016 data

12.2.3 Buildings and Structures

Identified buildings and structures collated from the Geodirectory data are mapped in **Figure 5-2**. Significant buildings/structures across the Study Area are listed below.

- The Billis Bridge over River Blackwater south of Lough Nadreegeel;
- The Nine Eyes Bridge (L3024) where Lough Ramor flows into River Blackwater;
- Existing bridge on R194 crossing Nadreegeel Lough Stream near Cranadillon;
- The Stramaquerty Bridge on L3007 crossing River Blackwater near Drumagolan;
- The Murmod Bridge over River Blackwater upstream of Virginia;
- Existing bridge on N3 crossing River Lislea;
- The Daly's Bridge on L7112 over River Blackwater in Edenburt;
- Culverts across the Study Area to cross existing watercourses;
- The Virginia town centre includes dense development which includes larger structures and community facilities like a Theatre, health centres, schools, religious places and sports facilities. The Ramor Theatre and adjacent properties are scheduled for major renovation to form a new complex of a theatre, library and civic amenity area; and
- Agricultural buildings are also present across the Study Area.

Housing in the Study Area is largely centred around local villages with ribbon development along the local roads and national roads. **Section 12** addresses buildings and structures of significant architectural or cultural significance.

12.2.4 Utilities

A 38kV electricity distribution overhead line (OHL) transects the Study Area boundary from west to east via Virginia town, associated with 38kV substation in the town. Apart from this, two 38kV lines cross the Study Area along its western boundary from Ballyjamesduff to Oldcastle and Bailieborough respectively. These lines are associated with the two nearby 38kV substations at Ballyjamesduff and Oldcastle.

A gas transmission network pipeline transects the Study Area from Ballyjamesduff to Kells via Virginia town. The Study Area also hosts an Above Ground Installation (AGI) for gas networks near Virginia ESB substation.

Figure 12-3 shows electricity and gas network within the Study Area.

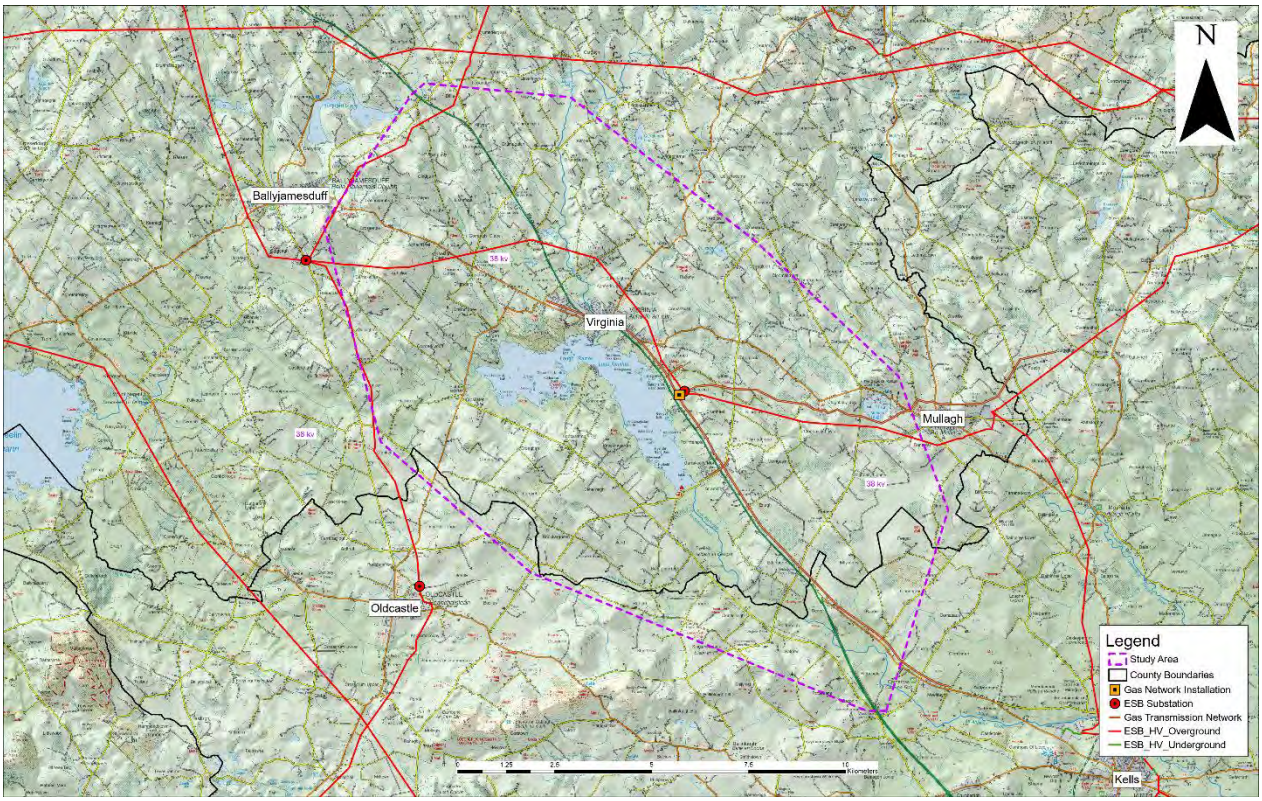

Figure 12-3: Utilities within the Study Area

12.2.5 Telecommunications

Superfast fibre broadband or efibre is available in Virginia town.

12.2.6 Rail Network

Virginia Town was serviced in the past by the Great Northern Railway from 1863 until 1958 when the line was closed after it had become uneconomical to keep running following the closure of other routes in the region. Irish Rail does not currently operate an intercity service that serves Virginia and the Cavan area with the nearest station being 46 Km away from the town.

A review of Irish Rails 2030 Rail Network Strategy (October 2011), does not propose any reinstatement of the disused Mullingar to Cavan line. **Figure 12-4** below shows the approximate location of Virginia in relation to the existing intercity rail network.

Figure 12-4: Irish Rail Intercity Network

12.2.7 Water and Wastewater Treatment

The Study Area is in two Water Management Unit (WMU) Action Plan areas: Blackwater North and Inny. Virginia along with Mullagh is served by the Bailieborough Regional Water Supply Scheme. There are associated reservoirs located at Curracloghan adjacent to the R178, Cornashesk adjacent to the R194 and at Mullagh. The Study Area is also supplied by group water schemes, with Castlerahan Mountnugent Munterconnacht (CMM) Group Water Scheme to the south-west and west of Lough Ramor, and the Billis-Lavey Group Water Scheme to the north of Virginia. Reservoirs within the Study Area associated with these schemes are located at Croaghan and Pollamalady.

The primary waste water treatment plant (WWTP) located with the Study Area is in Virginia, just south of the N3 bridge crossing of the River Blackwater, near Lough Ramor. The Virginia WWTP was assigned as a "priority area" requiring improvements in the EPA *Urban Waste Water Treatment in 2018* report[5]. Mullagh is also served by a waste water treatment plant. Figure 12-5 below shows the water and waste water network in the Study Area.

[5] Urban Waste Water Treatment in 2018 (EPA, 2019): https://www.epa.ie/pubs/reports/water/wastewater/Urban%20Waste%20Water%20Treatment%20in%202018_Web.pdf

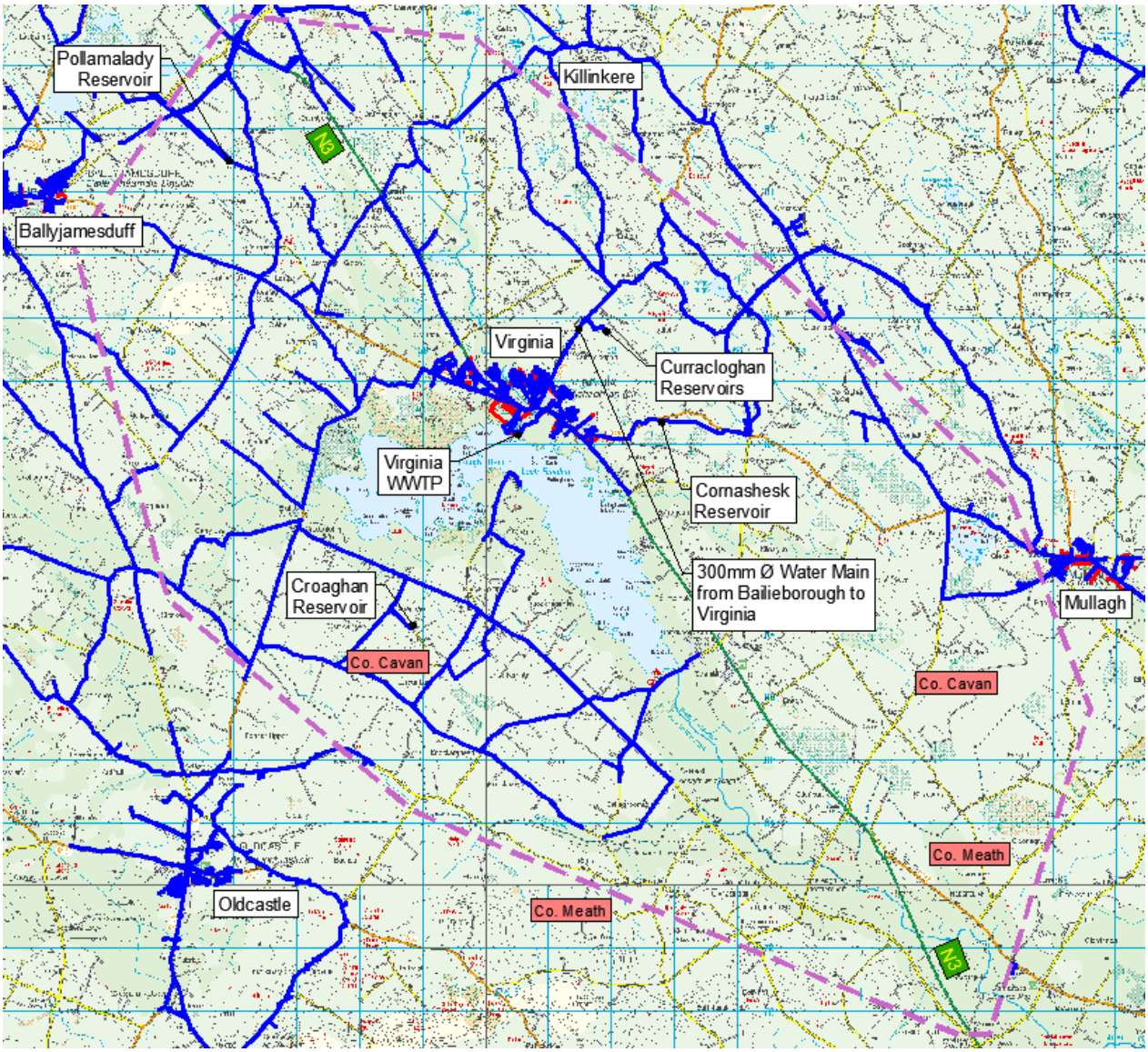

Figure 12-5: Water & Waste Water network in the Study Area

12.2.8 Waste Management

There will be a requirement to handle, store, remove and dispose of waste material in accordance with the relevant waste management legislation. Waste material will be generated from two sources:

- Wastes resulting from general construction on-site; i.e. waste fuels, oils from machinery, cement and concrete from required masonry works and wastewater from sanitary facilities.
- Excess excavated materials generated from general site clearance and earthwork excavations, including, where necessary, bridge abutments, as well as construction and demolition waste from proposed bridge works and other construction activities.

The nature of the wastes generated from site clearance and earthworks will generally be vegetation, topsoil, subsoil and stone. Where this material is to be stored on-site and reused it is important that it is not stored close to any watercourses or lakes. Any excavated material which is deemed unacceptable for reuse in the works can either be processed to make the material acceptable for re-use in the works, deposited in borrow pits on-site, or removed off-site for disposal under a waster permit or certificate of registration from the local authority.

Civic Amenity / Recycling Centres are located:

- Corranure Civic Amenity Site (over 30km north of Virginia);
- Bailieborough Recycling Centre (approximately 14km north east of Virginia); and
- Kells Recycling Centre (approximately 16km north east of Virginia).

12.2.9 EPA licenced Facilities

Figure 7-7 shows all the EPA licenced facilities within the Study Area. There is one Integrated Pollution Control (IPC) licenced facility which is IPC P0244 attached to FSW Coatings Limited in Virginia. There are three Industrial Emission (IE) licenced facilities which are:

- IE P0405 attached to Glanbia Ingredients (Virginia) Limited in Burrenrea, Virginia;
- IE P0657 attached to Drumagoland Farms Limited in Drumagolan, Virginia; and
- IE P1019 attached to A. W. Ennis Limited in Carrakeeltymore, Virginia.

12.3 Material Assets: Non-agricultural Identified Constraints

The primary constraints within the Study Area are the utilities and existing transport infrastructure. Early consideration of how options can integrate with the existing material assets in the area is essential and will require engagement with service providers to ensure that utilities can be avoided and/ or modified to mitigate impacts.

SECTION 13: MATERIAL ASSETS: AGRICULTURE

13.1 Introduction

John Bligh and Associates were appointed as Agricultural Property specialists for the N3 Virginia Bypass road development. This report is presented as the constraints input for Material Assets – Agriculture as required under Phase 2 Options selection. The key agricultural constraints identified in this report will inform the development of options.

Under the Project Management Guidelines (PE-PMG-02041 - January 2019) there is a requirement to identify key agricultural farm types as part of the constraints to be considered. This is required to avoid unnecessarily impacting farms considered as sensitive or of importance in terms of type or scale. Key enterprises of a sensitive nature would include equine enterprises where the holding is involved in the breeding or training of high value bloodstock. The enterprises of an important nature would include dairy farms where landtake and or severance due to a road alignment may have a significant or profound effect. Further enterprises of an important nature include intensive enterprises such as horticultural units, pig or poultry enterprises or research / educational institutions.

13.2 Methodology

The methodology for the preparation of this report is based on a desktop review of the Study Area, consultation with local agricultural advisors and a roadside survey.

13.2.1 Guidance

The preparation of this report has considered the following guidance:

- Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment; and
- Directive 2014/52/EU amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment.

Under the EU guidance, there is a requirement to identify likely significant effects on the environment and the measures taken to avoid adverse impacts on the environment. The avoidance of significant adverse effects on agricultural property is achieved through the identification of Key Agricultural Constraints. This is required to avoid unnecessarily impacting farms considered as sensitive or of importance in terms of type or scale. Key enterprises of a sensitive nature would include equine enterprises where the holding is involved in the breeding or training of high value bloodstock. Key enterprises of an important nature would include dairy farms where landtake and or land severance due to a road alignment may have a significant or profound effect. Other key enterprises of an important nature include intensive enterprises such as pig farms, poultry farms, tillage lands, horticultural units, agribusinesses, or agricultural research / educational institutions.

The desktop review involved a survey of available mapping for the Study Area (Drawing No. 19408-BT-GN-XX-DR-C-00068) and online aerial photography. Data sources used during the desktop review are outlined in Table 12-1.

Table 12-1: Information and sources

Information	Source
Digital mapping – Discovery, Ordinance Survey and Satellite imagery	Barry Transportation
Agricultural constraints	Online Aerial imagery (Google Earth). IPC Licensing database, EPA http://www.epa.ie Consultation with local agricultural advisors
Landownership	Property Registration Authority of Ireland (PRAI)
Planning Applications	Cavan County Council - http://www.eplanning.ie/CavanCC/searchtypes
Soils Information	Irish National Soils Map, 1:250,000k, V1b (2014). Teagasc, Cranfield University. http://gis.teagasc.ie/soils/ Soil Associations of Ireland and their Land Use Potential (1980), M.J. Gardiner and T. Radford, the National Soil Survey, An Fóras Taluntais. General Soil Map of Ireland (1980), The National Soil Survey, An Fóras Taluntais
Agricultural statistics	National census of agriculture statistics derived from the June 2010 Census of Agriculture, Central Statistics Office, 2012. Farm Structure Survey 2016, Central Statistics Office, 2018. National Farm Survey 2018 – Dairy Enterprise Factsheet, Teagasc, 2019. The economic impact of breeding and training in your region (Border), Horse Racing Ireland, Horse Racing Ireland, 2019. The contribution of the Sport Horse Industry to the Irish Economy, Corbally, A. F. & Fahey, Prof. A. G., 2017 Crop and Livestock statistics 2019, Central Statistics Office, 2020. National Pig Census 2019, Department of Agriculture, 2020.

Consultation also took place with agricultural advisors as representatives of the agricultural sector in the Study Area. A roadside survey of the Study Area was conducted on the 25th February 2020 to confirm locations of key agricultural constraints.

13.3 Study Area Description

The Study Area for the N3 Virginia Bypass road development is located mainly in south County Cavan and, to a lesser extent, in north County Meath. The Study Area surrounds Virginia town and Lough Ramor, extending west towards Ballyjamesduff and east towards Mullagh village. The Study Area crosses into County Meath to the west of Carnaross village and to the north of Oldcastle town. Virginia is the only urban area within the Study Area.

Agricultural lands within the Study Area are generally undulating lowlands in a region of drumlin typography and comprise mainly of improved grassland with small areas of forestry and peat. Some lands are limited by the drumlin slopes and others by peaty soils on low-lying areas. The northern half of the Study Area consists of heavier soils with poorer drainage that are only suited to grassland use. The agricultural lands in the southern half consist of better drained soils and are best suited to grassland-based activity.

The average farm size for agricultural holdings is 26.4ha in County Cavan, 42.0ha in County Meath and at a national level is 32.4ha (CSO, 2012).

Land cover is mainly improved grassland and, in some areas, grassland combined with moderate levels of natural vegetation. There are low to moderate levels of forestry/ woodland with such cover around Lough Ramor and dispersed across the northeastern side of the Study Area (EPA, 2018). There are areas of peat bog at Cloghbally Upper / Feegat, Cornaglea, Murmod Hill Lower, Drumrat and Lislea / Cloghergoole. Agricultural land use in the Study Area is predominantly grassland for livestock grazing. There are very low levels of tillage present.

The types of farming in the Study Area comprise primarily of specialist beef farming at 69.8% of all farms. Dairy farming, mixed grazing livestock, mixed field crops and sheep are at low levels with 11.2% 7.2% 5.5% and 4% respectively. All other categories are at very low levels being less than 2.5% (CSO, 2012).

There is a low number of equine holdings present in the Study Area. The equine sector comprises mainly of Sport Horse activities with farms involved in breeding, competition and for leisure purposes. In County Cavan, the Sport Horse sector has 326 breeders and 85 competitors. In County Meath, the sector has 389 breeders and 301 competitors (Corbally & Fahey, 2017).The Thoroughbred sector is small in the Border region (Cavan, Monaghan & Louth) with 100 breeders and 3 trainers though it is more significant in the Meath / Dublin region with 600 breeders and 75 trainers (Horse Racing Ireland, 2017).

There is a significant pig sector in County Cavan which with the highest pig population in Ireland. There are 101 pig farms in the county and a total pig population of 320,514 or 19.5% of the national herd. In County Meath, there are 82 pig farms with a total population of 39,118 or 2.4% nationally (DAFM, 2020).

The Border region (Cavan, Donegal, Leitrim, Monaghan & Sligo) is the primary poultry region in Ireland with 69.5% of all poultry produced there. The Border region has approximately 1,600 poultry farms with 7.68m birds while the Mid-East / Dublin region has 900 farms and 0.38m birds (CSO, 2018).

13.4 Key Agricultural Constraints

The Study Area is predominantly agricultural lands being comprised of residential and non-residential farm holdings. The agricultural constraints within the Study Area include farmhouses and farmyards where the essential farm buildings and facilities are located for the operation of on-farm activities. The on-farm facilities include buildings for animal housing, fodder storage, machinery storage, general purpose, etc. and farmyard facilities for slurry storage, fodder storage, milking parlour/ dairy, animal handling (pens, yards, sand areas, equine walkers, gallops), horticultural glasshouses / polytunnels, etc. Where these facilities exist on farms, they are considered agricultural constraints within the Study Area.

The methodology for the identification of key agricultural constraints input has focused on those agricultural farming enterprises considered to be of a sensitive nature or of importance in terms of type or scale. This resulted primarily in identifying farms within the dairy sector, equine farms involved in breeding and training activities, pig farms, poultry farms and horticulture enterprises.

The purpose of the agricultural constraints input is to inform the development of option alignments and subsequently the selection of an emerging preferred route from those options. This approach will provide considerable scope for avoiding key agricultural constraints including individual farms and limiting the impact on agricultural activities.

13.5 Dairy

The key agricultural constraints in the dairy sector consist of 30 No. individual dairy farms that are predominantly to the west of the Study Area although are dispersed throughout the Study Area. The size of dairy farms within the Study Area ranges from farms with 50 cows or less to several farms with a dairy herd in excess of 200 cows. The average herd size for dairy farms within the Study Areas is within the 60-100 cow category and is in line with the national average of 81 cows (Teagasc, 2020).

The primary constraint on dairy farms is the farmyard and the milking platform as a unit given the daily movement of dairy cows to and from grazing paddocks. The impact of landtake on the milking platform, and in particular land severance, can have a significant effect on the operation of a dairy farm depending on existing farm production and the availability of land. There is a difficulty at constraints stage in accurately identifying owned lands associated with a dairy farm without landownership details and where the potential exists for short term or long-term grazing of neighbouring lands.

The focus of this assessment has been to map the location of the farmyard and the associated land area or milking platform area relative to the farmyard. This assisted the identification of locations of intensive dairy production involving significant dairy farms or clusters of adjoining dairy farms where the number of dairy cows in an area may be significant.

There are areas of intensive dairy production at the following locations:

- Ryefield / Behernagh;
- Eighter;
- Drumderg / Drummoney;
- Gallonambraher;
- Drumgora / Killyduff; and
- Fartagh.

13.6 Pigs / Poultry

The Study Area is located within a region where pig and poultry units are quite prevalent in Ireland. These farms were identified from a review of the Planning section in Cavan County Council and the IPC database for intensive farm enterprises in the EPA. These key constraints were further validated by the roadside survey.

The primary constraint on pig or poultry farms is the farmyard where animal housing, handling and feed storage facilities are located, and operational activities are at an intensive level.

There were eight pig units identified as key constraints. They include specialist pig units or farms with a pig unit as part of the farming enterprise(s).

There were four poultry farms identified as key constraints. They include one specialist poultry unit and three farms with a poultry unit as part of the farming enterprise(s).

13.7 Beef

The farms in the Study Area are primarily involved in the beef sector comprising of suckler cows with calves reared on farm for beef or bought in cattle reared for a period or for beef. The primary constraints on such farms are the farmyard and farm buildings associated with the housing and handling of livestock. There were no key agricultural constraints identified for the beef sector in the Study Area.

13.8 Equine

There are a small number of equine holdings in the Study Area involved in the sport horse and show jumping industry. The primary constraint on such farms are the farmyard, stables and any associated riding facilities. On farms deemed sensitive to road development, the proximity of the development or proposed construction works, can also lead to significant indirect impacts on operational activities.

13.9 Horticulture

The assessment found that the horticultural sector was limited within the Study Area to a small number of enterprises. The primary constraint on such enterprises are the yards, buildings and structures, including greenhouses / tunnels, and the associated lands around the yards used for intensive crop production.

- Pergola Nurseries, Rahardrum, Virginia, County Cavan; and
- Mushroom farm, Killyduff, Virginia, County Cavan.

13.10 Agricultural Industry

The assessment identified commercial businesses associated with the agricultural sector within the Study Area and located outside the environs of Virginia town.

- Glanbia Ingredients Virginia Ltd. – Burrenrea, Virginia, County Cavan;
- AW Ennis Ltd. / Erin Farm Feeds – Maghera, Virginia, County Cavan;
- Sheridans Cheesemongers – Pottlereagh, Kells, County Meath; and
- Lurgan Agri Supplies Ltd. – Correagh, Virginia, County Cavan.

13.11 Education / Training institutions

The assessment determined that there were no research or training institutions within the Study Area.

The key agricultural constraints are identified in **Figure 13-1**.

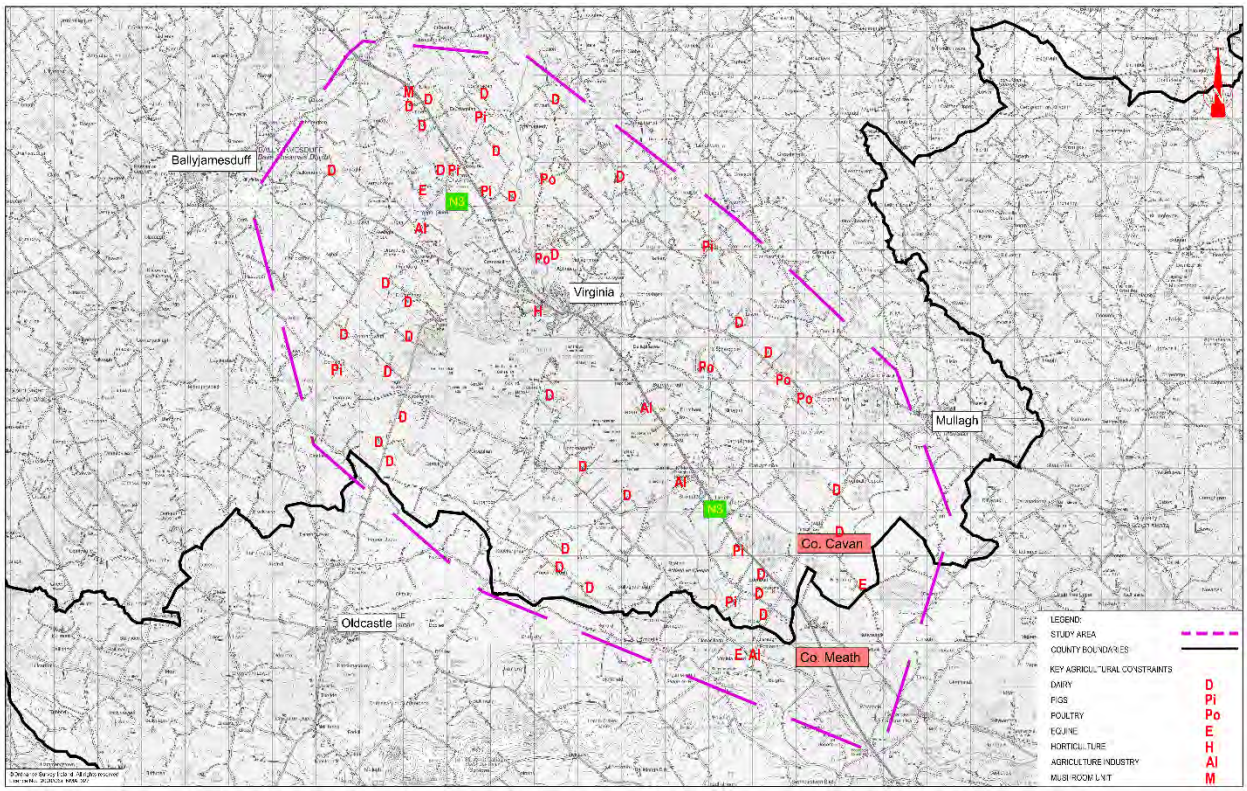

Figure 13-1: Agricultural Constraints

SECTION 14: CULTURAL HERITAGE

14.1 Introduction

UNESCO define the term 'Cultural Heritage' as encompassing several aspects of tangible assets (*immovable*: archaeological sites and monuments, architectural heritage buildings; *movable*: artefacts; and *underwater*: shipwrecks and ruins) and intangible assets (e.g. folklore, oral tradition and language).

A desk-based identification of all recorded archaeological monuments, architectural heritage structures, surveyed gardens/demesnes and significant cultural heritage features within the Study Area, and the legal status of same is presented below. An archaeological and historical overview of the Study Area based on the desk-based assessment, is provided along with discussion of key significant constraints and identifiable areas of heritage note.

14.2 Legal Framework

There are a number of mechanisms under the *National Monuments Act 1930* (as amended), the *Heritage Act 1995* and relevant provisions of the *National Cultural Institutions Act 1997*, that are applied to secure the protection of archaeological remains, which are held to include all man-made structures of whatever form or date except buildings habitually used for ecclesiastical purposes.

The National Monuments Act 1930 (as amended) secures designation of sites of national significance as National Monuments, or entering them on the Register of Historic Monuments, the Record of Monuments and Places (RMP), the Sites and Monuments Record or placing Preservation Orders and Temporary Preservation Orders on endangered sites. Full details pertaining to the archaeological resource and the legal framework is provided in **Appendix 2**.

Section 3 of the *National Monuments (Amendment) Act 1987* as amended by the Section 18 of the *National Monuments (Amendment) Act 1994* makes specific provision for underwater archaeological objects, including that a person shall not dive on, damage, or generally interfere with, any wreck or archaeological object, except in accordance with a licence issued by the Minister of DCHG under Section 3 (5) of the Act.

Protection of the architectural heritage in Ireland is provided for through a range of legal instruments that include the *Heritage Act, 1995*, the *Architectural Heritage (National Inventory) and National Monuments (Misc. Provisions) Act, 1999*, and the *Local Government (Planning and Development) Act 2000*. Under the *Local Government (Planning and Development) Act, 2000*, all Planning Authorities are obliged to keep a 'Record of Protected Structures' (RPS) of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest. The relevant development plans pertaining to the Study Area at the time of writing is the *Cavan County Development Plan 2014 – 2020* and *Meath County Development Plan 2013 - 2019*. The *Draft Meath County Development Plan 2020 – 2026* has also been consulted. Full detail pertaining to the architectural heritage resource and the legal framework is provided in **Appendix 2**. The National Inventory of Architectural Heritage (NIAH) was established to record architectural heritage structures within the State and to advise local authorities in relation to structures of architectural heritage significance within their administrative areas.

14.3 Methodology

This study has been compiled based on the Guidelines for the Assessment of Archaeological Heritage Impacts of National Road Schemes and Guidelines for the Assessment of Architectural Heritage Impacts of National Road Schemes as published (2005) by Transport Infrastructure Ireland (TII). The objective of the constraints study is to identify all known archaeological monuments, protected (architectural) structures and other features of cultural heritage significance within the defined Study Area including the legal status, if any, of these features. Ultimately this shall serve to inform the Design Team of all relevant heritage constraints, including sites vulnerable to impact.

A desktop study of recorded heritage datasets and documentary survey records was undertaken in order to identify all recorded archaeological, architectural and cultural heritage sites within the Study Area. The collated information shall provide a cursory insight into the historical development of the Study Area over time and shall assist in an overall evaluation of potential presence of hitherto unrecorded cultural heritage sites.

The *Sites and Monuments Record* (SMR) and the *Record of Monuments and Places* (RMP) for County Cavan and County Meath, both published by the Archaeological Survey of Ireland, were the principal sources consulted for identifying known archaeological sites. The *Record of Protected Structures* (RPS) and the *National Inventory of Architectural Heritage* (NIAH) for Counties Cavan and Meath were also consulted to assess the designated architectural heritage resource.

In addition, the following sources were consulted as part of the desktop study:

- *National Museum of Ireland (NMI) Topographical Files:* these files record the discovery locations and other recorded information on Irish archaeological objects, including those within the museum's collections. The files are archived in the National Museum of Ireland (NMI), Kildare Street, Dublin and were inspected on 26/02/2020.
- *Historical publications and cartographic sources:* cursory review of various published and unpublished sources and historical maps were undertaken.
- *Placenames Database of Ireland:* this online database (www.logainm.ie) provides a comprehensive management system for data, archival records and place names research conducted by the State. A review of townlands pertaining to the Study Area was undertaken.
- *Documentary sources:* select published reference material specific to the heritage of the Study Area was reviewed.

14.4 Existing Environment

The Study Area is located within the south-easternmost portion of County Cavan and extends across the county border, in part, into County Meath. The topography of the area is predominantly of drumlin terrain interspersed with low-lying ground, boggy areas and streams, as well as being occupied by a primary central riverine focus of the Blackwater River, which flows through Lough Ramor, and is also a tributary of the River Boyne located beyond in County Meath. Lough Mullagh also has significant topographical focus at the eastern portion of the Study Area. An archaeological and historical overview is presented in **Section 14.4.1** with associated mapping of identified key areas of preliminary Cultural Heritage significance illustrated in **Figure 14-1**.

14.4.1 Archaeological and historical overview

The Study Area has a long history of human settlement, as demonstrated by the high volume and density of archaeological and historical site records. The (Kells) Blackwater is the largest tributary of the River Boyne and is fed by Lough Ramor. Today the river holds good stock of wild brown trout, and similarly, Lough Ramor, although shallow at its southern end, has large quantities of bream, roach and pike. The ready availability of food resources, along a fertile river valley, with gently undulating drumlin hillslopes, as well as the fact that the Blackwater is navigable towards the River Boyne (which ultimately flows into the Irish Sea at Drogheda) infers an attractive location for human settlement in social, economic and political terms since early prehistoric times. See Area A on **Figure 14-1** for geographical reference.

There are several records of prehistoric flint, chert and stone tool finds, predominantly in the southern portion of the Study Area, within County Meath, north and north-east of Loughcrew passage tomb cemetery and along the Blackwater valley. This area is also the location of county geological heritage sites of note. Indeed previous archaeological excavations carried out as part of works for the M3 also provide indicators of continued human presence in the Kells Blackwater valley since earliest times. See Area B on **Figure 14-1** for geographical reference.

The boggy or low-lying areas, particularly to the northwest of Virginia have also produced several artefacts, mostly of prehistoric metal (Bronze Age) type. Such boglands throughout the Study Area would be considered as retaining high archaeological potential. A modest prehistoric gold hoard is noted from the northernmost portion of the Study Area at Lattoon townland, southeast of Nadreegeel Loughs. See Area C Area F on **Figure 14-1** for geographical reference.

The settlement at Virginia is the principle town within the Study Area. Its foundation was a consequence of the Ulster Plantation and prospered as a market and post-town throughout the post-medieval period, on the eastern shores of Lough Ramor. During the reign of James I, 250 acres of land were allotted for the site of a town to be erected between Cavan and Kells (Lewis, 1837). Originally granted to Captain Ridgway, the patent was eventually assigned to Captain Culme, who, in 1719 was the occupier of a house and large, strongly situated bawn in the area (*ibid*.). Culme also held the lands of Lough Ramor, comprising 1000 acres. See Area A on **Figure 14-1** for geographical reference.

Lough Ramor and its immediate environs have significant archaeological and historical associations. The original name of Lough Ramor, as given by the Annals of the Four Masters and by the Annals of Ulster, is *Loch Muinreamhair.* The earliest reference to *Loch Muinreamhair* is contained in the Annals of the Four Masters (edited by O'Donovan) under the year 2859 Anno Mundi; *"These were the lakes that sprang forth – Loch Dairbhreach, Loch Muinreamhair in Luighne in Sliabh Guaire."* (O'Connell, 1920).

The Annals also make reference to an event on an island in Lough Ramor in 845 AD which refers to an attack on a stronghold which had alliances with Norsemen who were plundering the surrounding districts, and who probably travelled via the Blackwater (*ibid.*). Notably a silver penannular brooch of the Viking period (the 'Virginia Brooch') was found in the early nineteenth century near Lough Ramor, in the vicinity of Woodward's Island (NMI Ref. 7345:W33) as well as a silver arm ring (NMI Ref. 7242:W34). There are 6 no. recorded crannog sites on Lough Ramor as well as a range of archaeological and architectural heritage sites along its shoreline. See Area A on **Figure 14-1** for geographical reference.

The shores of Lough Mullagh are location to the site of an O'Reilly (of East Bréifne) castle built 1485, at Cloghbally Beg, as well as the possible site of a promontory fort, and a bronze palstave axehead. The O'Reilly castle was subsequently granted to King James I in 1605 and formed a manor house that was part of Sir William Taaffe's plantation estate. This area is also location to the early church site of Rantavan and 'Mullagh Ogham Stone' bearing the inscription OSSBAR, which later is known as the ecclesiastical site of Templekelly, associated with St. Killian. The site is also now operating as 'St. Killian's Heritage Centre, Mullagh'. See Area D on **Figure 14-1** for geographical reference.

There is a significant quantity (106 No.) of recorded ringforts/enclosures located within the Study Area, many of which are situated either on, or close to, the summits of drumlin hills and ridges that are characteristic of the topography of the region. This clearly demonstrates a sizeable settlement pattern in the area during the early/late medieval period. It is also noted that despite this area of East Bréifne having been involved in continuous warfare during the medieval period, that there is a relative paucity of recorded castle sites (28 No. in total) (O'Donovan, 2001). There are 6 no. castle sites located within the Study Area, two of which comprise a motte and bailey (one located at Knockatemple, on the south-western shores of Lough Ramor, County Cavan and the other at Derver, along the River Blackwater valley, County Meath), with the remaining four being unclassified (all located in County Cavan, including the O'Reilly castle site at Mullagh Lough (Cloghbally Beg) noted above). Only 1 no. ringwork castle site is identified in County Cavan, just outside the Study Area at Castlerahan townland (O'Donovan, 2001, 120). An indication of the importance of this site refers also to the barony of the same name (Castlerahan) which is location to the most fertile land in the county (*ibid.*). See Area E on **Figure 14-1** for geographical reference.

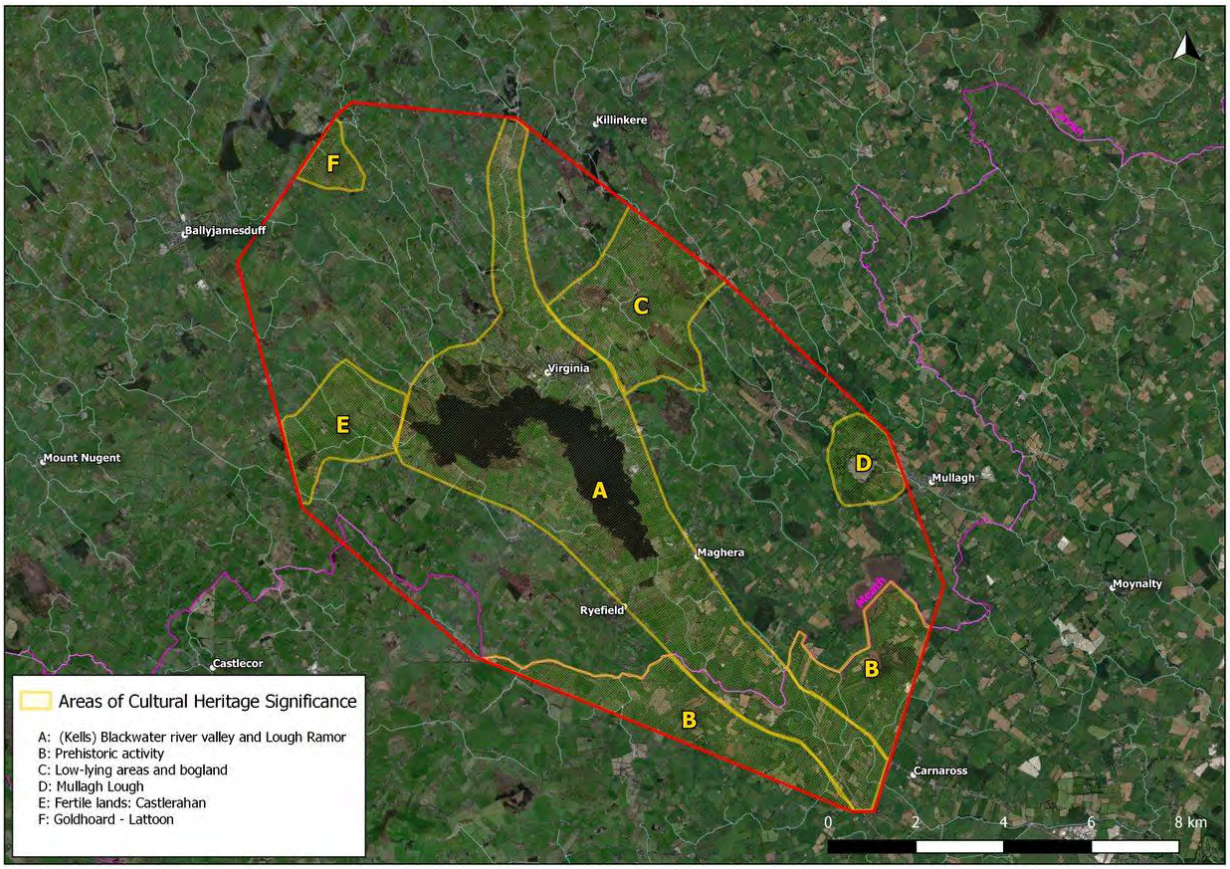

Figure 14-1: Preliminary areas of Cultural Heritage significance within the Study Area

14.5 Identified Constraints

Distribution mapping of all cultural heritage constraints are illustrated in **Figure 14-2**. It is noted that there are 43 No. heritage constraints that retain multiple survey and/or designation reference identification (see **Table 14-1**). The sections below detail these multiple designation and/or survey sites in their singular survey entry form.

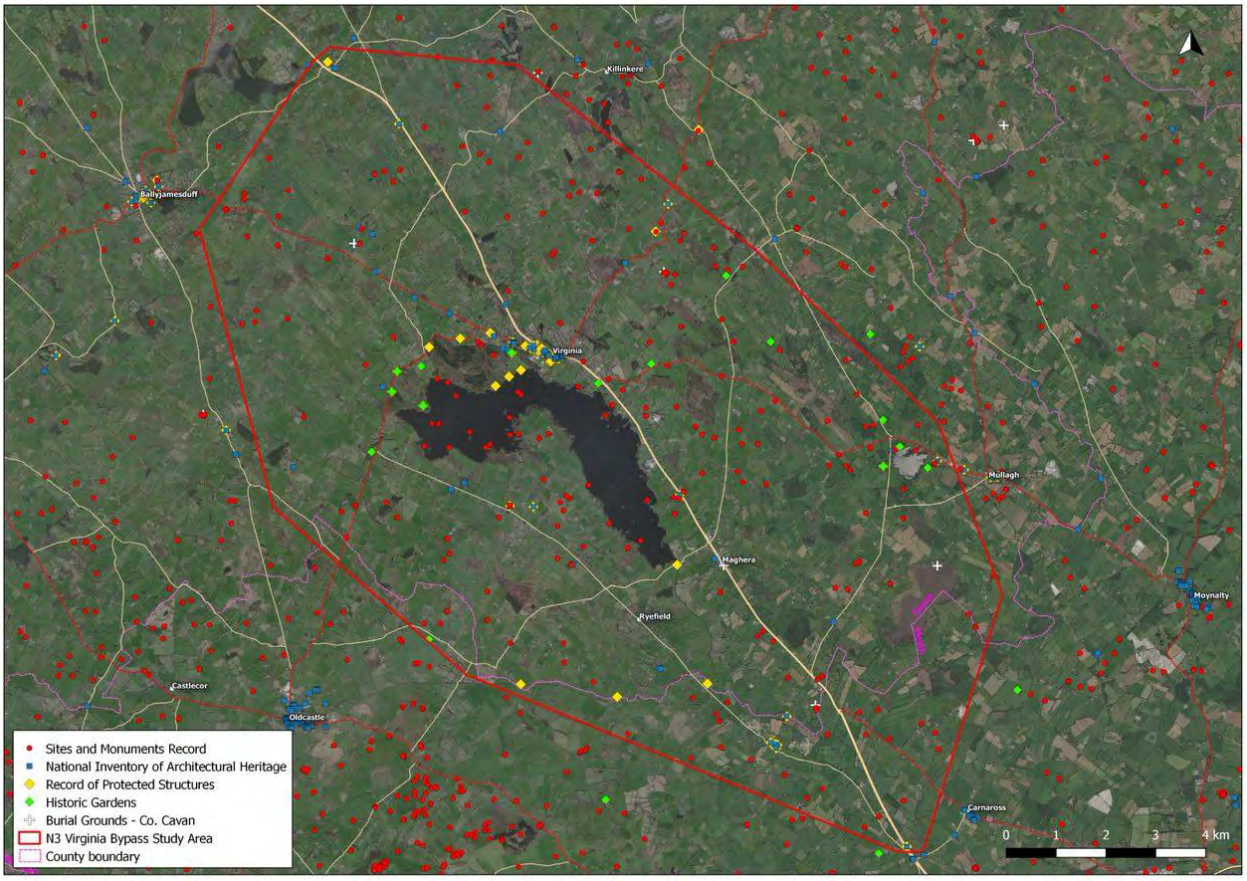

Figure 14-2: Distribution of recorded Cultural Heritage constraints within the Study Area

Table 14-1: Heritage Constraints with multiple designation and/or survey references

RMP/SMR	Type	Townland	RPS Ref.	NIAH Ref.	NIAH Garden Survey ID	Cavan County Council Burial Ground Survey
CV040-044001- & CV040-044002-	Church & Graveyard	Mullagh	423 (Cavan)	40404009	-	-
CV039-049---	Windmill	Enagh (Crossbane ED)	318 (Cavan)	-	-	-
CV039-067---	Church	Lurgan	-	-	-	BG39002
CV039-071001- to CV039-071005-	Church	Raffony	-	-	-	BG39001
CV043-018001- & CV043-018002-	Church & Graveyard	Knockatemple	426 (Cavan)	40404303	-	-

RMP/SMR	Type	Townland	RPS Ref.	NIAH Ref.	NIAH Garden Survey ID	Cavan County Council Burial Ground Survey
CV043-033---	Lime Kiln	Pollintemple	383 (Cavan)	40404306	-	-
CV044-010001-	Church	Edenburt	-	-	-	BG44001
-	Bellais Presbyterian Church	Drumgora	236 (Cavan)	40403308	-	-
-	Fort Fredrick – Country House (The Park Hotel)	Deerpark	319 (Cavan)	40403914, 40403913, & 40403915	3834	-
-	Fort Fredrick – Country House (The Park Hotel)	Deerpark	322 (Cavan)	40311002	3835	-
-	Church of Ireland	Virginia	331 (Cavan)	40311007	-	-
-	Entrance Gates and Lodge to Park Hotel	Virginia	332 (Cavan)	40311006	-	-
-	House, Formerly Known as The Cottage	Virginia	333 (Cavan)	40311005	-	-
-	House with shopfront	Virginia	338 (Cavan)	40311008	-	-
-	Courthouse	Virginia	339 (Cavan)	40311019	-	-
-	Seamus O'Reilly	Virginia	342 (Cavan)	40311009	-	-
-	Capri Takeaway & Fortuna Restaurant	Virginia	346 (Cavan)	40311020	-	-
-	O'Donoghues Pharmacy	Virginia	350 (Cavan)	40311011	-	-
-	Former Estate Cottage	Virginia	361 (Cavan)	40311022	-	-
-	Ramor Theatre	Virginia	363 (Cavan)	40311013	-	-
-	National Irish Bank	Virginia	364 (Cavan)	40311012	-	-
-	3 Bay House (1 in a terrace)	Virginia	368 (Cavan)	40311018	-	-
-	Cos Abhann	Virginia	369 (Cavan)	40311015	-	-

RMP/SMR	Type	Townland	RPS Ref.	NIAH Ref.	NIAH Garden Survey ID	Cavan County Council Burial Ground Survey
-	Bridge	Virginia	370 (Cavan)	40311016	-	-
-	Kellet's Mill	Rahardrum	371 (Cavan)	40311017	-	-
-	O'Daly's Bridge	Edenburt	382 (Cavan)	40404402	-	-
-	Ardlow National School, Virginia	Ardlow	422 (Cavan)	40403908	-	-
-	Lakeview House, Mullagh	Cloghbally	424 (Cavan)	40404012	3844	-
-	St Bartholomew's RC Church	Knockatemple	427 (Cavan)	40404304	-	-
-	Woodpole Bridge	Carnaross	MH016-114 (Meath)	14307012	-	-
-	Virginia Road Station	Carnaross	MH010-100 (Meath)	14401003	-	-
-	Virginia Road Station	Carnaross	MH010-101 (Meath)	14401002	-	-
-	Post box	Carnaross	MH010-102 (Meath)	14401004	-	-
-	Bridge	Carnaross	MH010-103 (Meath)	14401001	-	-
-	Farmhouse	Rahardrum	-	40403917	3836	-
CV040-022---	18th/19th C House	Cuilcagh	-	-	3838	-
CV040-013---	18th/19th C House	Cornaglea Lower	-	-	3839	-

14.5.1 Archaeological Heritage

There is a total of 217 No. recorded archaeological site RMP/SMR records located within the Study Area (excluding 5 No. redundant records) (these sites are tabulated in **Appendix 3**). Of these sites, 76% (166 No.) possibly date to the early/late medieval period (ringforts, enclosures, cashels, souterrains, crannog sites, holy wells, ecclesiastical enclosures, church and graveyards).

The prehistoric period is represented by 11% (23 No.) of other sites (megalithic tombs/structures/art, barrows, cairns, mound, cist and hut sites and *fulachta fiadh*). Of the remaining dataset totalling 13% (28 No.), these sites are broadly dated to the late/post-medieval period and consist of castles, children's burial grounds, tree-rings (designed landscapes) 18th/19th houses, lime kilns, a mass rock, a meeting house, decorated/memorial stones, a mill, wells, a sweathouse and a windmill.

There are no National Monuments or sites with Preservation Orders, located within the Study Area. However, it is noted that Loughcrew Passage Tomb Cemetery (National Monument Ref. 155 & 290) is located c. 1 km outside the Study Area, at the southwest, within County Meath.

14.5.2 National Museum of Ireland Topographical Files

A review of the topographical files at the National Museum of Ireland (NMI) revealed that a large quantity of recorded artefacts has been retrieved from the Study Area. The finds include assemblages of flint, chert and stone tools from Balgree, Ballyhist, Boolies, Edenburt, Kingsmountain, Newcastle and Drumlerry townlands, all of which are located in the southern extent of the Study Area (note that all except Edenburt townland are located in County Meath). The finds at Stonefield also revealed fiaence, amber and glass beads.

Interestingly, the data also shows finds having water/wetland contexts, as shown by several metal finds retrieved from bogs, as well as from Mullagh Lough and Lough Ramor. A bronze sword and spearhead were retrieved from Kilmore bog; a bronze sword from a bog in Ardlow; a socketed bronze spearhead from a bog in Curracloghan; bog butter from Enagh; a leather shoe from Annagharnet bog, and, in bogs near Virginia, a wooden vessel and iron candlesticks. A bronze palstave axehead was found near the shores of Mullagh Lough, whilst two copper alloy cauldrons were found in the lake-bed of Lough Ramor.

Precious metals are also recorded from the area, notably a gold hoard from Lattoon (a gold disc, 2 No. gold bracelets, and 2 no. gold fasteners); whilst a silver arm ring and a silver brooch were found at Lough Ramor, Virginia.

14.5.3 Architectural Heritage

There is a total of 84 No. sites listed on the Record of Protected Structures (RPS) and a total of 67 No. sites listed on the National Inventory of Architectural Heritage (NIAH) that are located within the Study Area (these are tabulated in **Appendix 3**). Note that 32 No. of these are cross-referenced sites i.e. listed both on RPS and NIAH.

Of the RPS sites, 61% (51 No. sites) are located within the town environs of Virginia itself, along with another 14% (12 No. sites) located at Deerpark ('Fort Fredrick' country house and demesne, now occupied by the Park Hotel; and the former hunting 'Lodge' as well as 'Fort George Glebe House'), also at the edge of both Virginia town and the northern shores of Lough Ramor. The architectural heritage site types located within the overall Study Area range from commercial premises and dwelling houses at Virginia town (including former estate cottages), as well as examples of bridges and churches. The 'Fort Fredrick' estate itself retains the country house and associated demesne features including walling, gates, lodges and boat houses. Similarly, the NIAH structures consider a number of houses, bridges, churches, 'Fort Fredrick'/Deerpark and its demesne features and a water mill. There are 17 no. record examples of demesne houses and lands throughout the Study Area as per the NIAH Garden Survey for counties Cavan and Meath.

14.5.4 Cultural Heritage

Placename evidence and folklore

Townlands are the smallest unit of land division in the Irish landscape and many may preserve early Gaelic territorial boundaries that pre-date the Anglo-Norman conquest. The layout and nomenclature of the Irish townlands was recorded and standardised by the work of the Ordnance Survey in the 19th century. The Irish translations of the townland names often refer to natural topographical features, but name elements may also give an indication of the presence of past human activity within the townland. The translations of the townland names within the Study Area were sourced from www.logainm.ie and mainly record topographical features and potential associations with past named ownerships. However, there are also several indications of the location of 'fort' or 'rath' sites throughout the Study Area, which is substantiated by the very high recorded number of ringforts identified on the SMR/RMP records. There are also indications of settlement locales (*baile*) and ownership of ecclesiastical lands (*glebe*) throughout, whilst a prehistoric element is noted by potential indicators of 'cairn' sites. All of these placenames add to the overall evidence-base of continued

human settlement of the Study Area from earliest times, and in particular during the early/late medieval period. A full set of tabulated townland translations is presented in **Appendix 3**.

Geological heritage

It is noted that there are 3 no. County Geological Sites (CGSs) located within the Study Area. Although the earth science associations of same are considered in the Soils & Geology chapter, these sites also retain a cultural heritage value that is worthy of note. The identified CGSs are:

- **CN002 Bruse Hill, County Cavan** (ITM 664471, 784020) Irish Geological Heritage Theme 7: This is an excellent example of a crag and tail ridge. This is one of the few discrete examples of a crag and tail ridge throughout the drumlin belt.
- **CN001 Blackwater Valley, County Cavan** (ITM 663660, 782360) Irish Geological Heritage Theme 7: The Blackwater valley is the most significant river valley in the southernmost part of County Cavan. This is one of the best examples of a pitted sandur in Ireland.
- **MH010 Blackwater Valley, County Meath** (ITM 667436, 778716) Irish Geological Heritage Theme 7: River Valley and outwash plain.

There is potential to enhance the awareness, significance and understanding of these areas by sensitively incorporating measures such as vantage viewing points and interpretative signage, as part of the proposed N3 Virginia Bypass project.

14.6 Conclusions

The Study Area has a high density of recorded archaeological sites (most notably 76% of which are of likely early/late medieval date) as well as built heritage structures and features. The extensive drumlin terrain, and riverine/lough environs provide a topographical landscape that has been favourable to human habitation for continuous settlement at least during the past 5,000 years. It is noted that the potential for the presence of sub-surface archaeological features and artefacts exist throughout the Study Area, along with areas that display high potential, based on evidence from the recorded datasets (see **Section 14.4.1** and **14.5**).

Any option corridor evaluation process and subsequent environmental impact assessment, which will involve a desk study and field walkover inspection, will ensure that known and extant cultural heritage sites and features are identified, and any potential likely impacts are measured, with mitigation measures detailed for same, as appropriate.

Many sites, due to low visibility factors or lack of definition, may now have ‘gone under’ completely as a result of factors including time progression and agricultural development. Specific mitigation requirements to address potential ‘unknowns’ can only be identified as items for review once the location of a selected preferred option is defined. Geophysical survey is relatively labour and time intensive and use of same is appropriate only where a specific set of investigative questions require more detailed analyses (at preferred option/EIAR stage). At some locations, at preferred option stage (if required), exploratory archaeological test excavation may be considered, either to further augment geophysical indicators or, to be adopted in areas where geological bedrock or soil conditions are not conducive to geophysical survey equipment. The judicious use of LiDAR survey and other remote topographical survey techniques – including hill shade mapping using drone technology – are much quicker and more deployable over larger areas, and it is possible that these might be valuably carried out during the option selection process and/or preferred option assessment, should any set of specific research questions require detailed analyses.

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SECTION 15: LANDSCAPE AND VISUAL IMPACT ASSESSMENT

15.1 Introduction

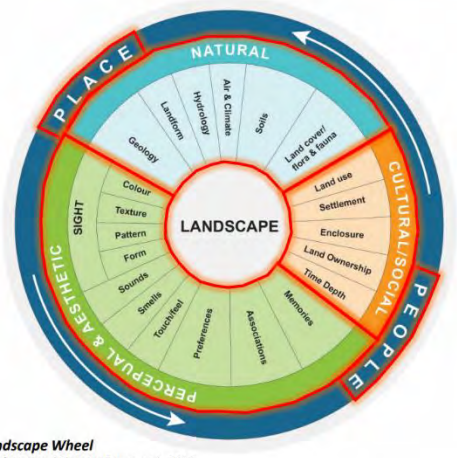
The Study Area for the N3 Virginia Bypass is generally 5km east and west of the existing N3 and stretches approximately 20km in length from Drummallaght in the north to Jonesborough in the south. It incorporates the town of Virginia and Lough Ramor which is located to the south west of the town. The Study Area includes a small portion of land in the south and west which is within County Meath, however the majority of the Study Area is within County Cavan. This constraints study has been completed in accordance with the Draft TII publication Landscape Character Assessment (LCA) and Landscape and Visual Impact Assessment (LVIA) of Specified Infrastructure Projects – Overarching Technical Document (PE-ENV-01101) (2020).

15.2 Constraints relative to Landscape and Visual aspects

Constraints relative to Landscape and Visual aspects are best explained and as two separate aspects:

15.2.1 Landscape aspects

Landscape aspects relate to the physical elements that make up the landscape character. These include natural elements such as topography/landform, vegetation, soils, water bodies. It includes the effect that people have had on the landscape such as settlement patterns, the presence of infrastructure and the length of time that the built elements have been present. Landscape also includes cultural associations including past events and memories of places or the historical heritage landscapes or parks relating to specific period or events in the past.



Landscape Wheel
(Draft National Planning Framework, 2017;
Originally developed by Carys Swanwick, 2002 for Natural England.)

15.2.2 Visual aspects

Visual aspects relates specific views and general visual amenity as experienced by people. Views which are regarded as significant are called scenic views or prospects, the roads are often called scenic routes and locations where views are best experienced are referred to as scenic viewing points. Visual aspects are also considered in how they affect human beings, known as visually sensitive receivers. They are susceptible to changes in views and visual amenity depending on whether they are:

- residents at home, travellers on a scenic route where awareness of views is likely to be heightened;
- whether residents or visitors, who are engaged in outdoor recreation including use of public rights of way, whose attention or interest is likely to be focussed on the landscape and on particular views, and those on a scenic route where the view is not specifically in the direction of a proposed development;
- visitors to heritage assets, or to other attractions, where views of the surroundings are an important contributor to the experience, and communities where views contribute to the landscape setting enjoyed by residents in the area; and
- people engaged in outdoor sport or active recreation on a local scale, which does not involve or depend upon appreciation of views of the landscape; and people at their place of work whose attention may be focused on their work or activity, not their surroundings and where the setting is not important to the quality of working life.

15.3 County Development Plans

15.3.1 Cavan County Development Plan 2014 – 2020

Landscape Character Assessment

Cavan County Council has not prepared a specific Landscape Character Assessment (LCA) for the County. However, Chapter 8 of the County Development Plan gives a description of the landscape categories which may form part of a future LCA. Five main landscape character areas are described and were chosen mainly due to their physical geological and geomorphological features which make them distinctive. Within County Cavan the Study Area for the N3 Virginia Bypass falls across landscape character areas 3 and 5 as shown in **Figure 15-1** below.

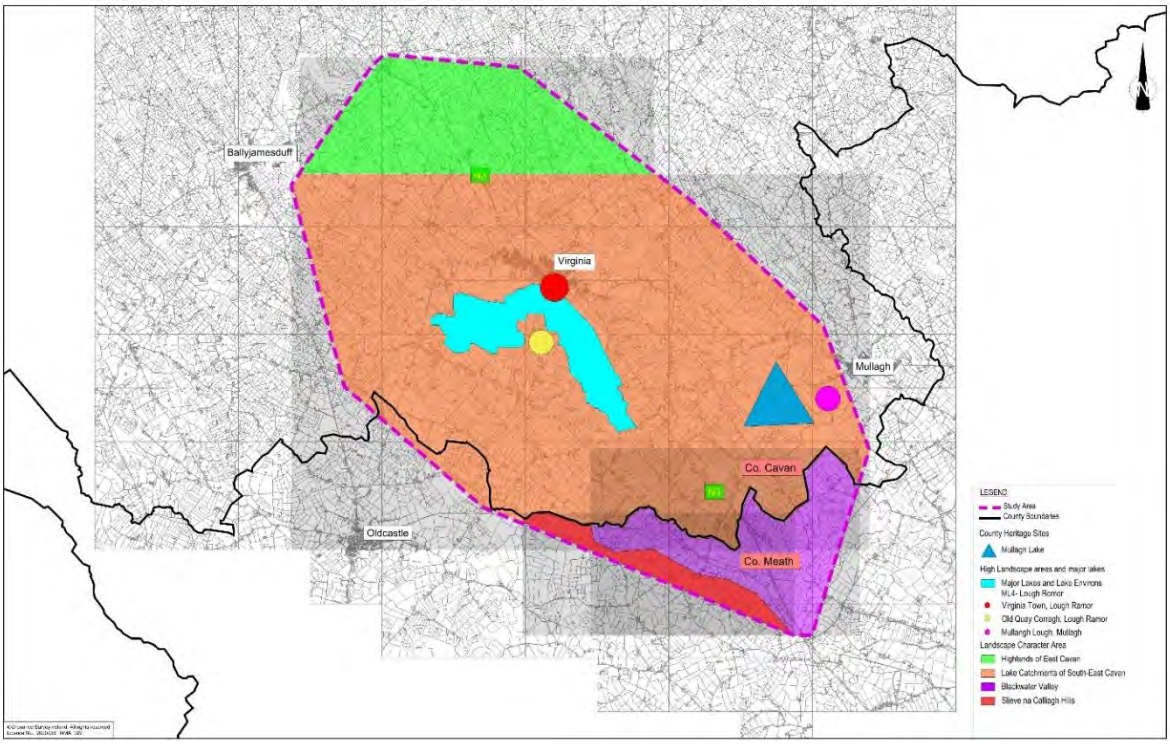


Figure 15-1: Landscape Character Areas and designated landscape features

Area 3 is Lake Catchments of South-East Cavan

The Design Guide for Single One-off Houses within Cavan Rural Countryside (Appendix 7 of the County Development Plan), describes the character areas as:

'Lough Sheelin and Lough Ramor are the largest lakes in this region. These major lakes have notable amenity value due in part to their size and location within a scenic landscape and their intrinsic recreational value. They also provide valuable habitats which are of great ecological importance and are protected naturally as proposed Natural Heritage Areas; Lough Sheelin is also identified as Special Protection Area under European Legislation.

The lakes of County Cavan are very important for their scenic and ecological value and development in or around the lakes should be carefully and sensitively designed. Development on lakes skyline and in the vicinity of lanes should be restricted and where permitted should be deigned and located to minimise intrusion.'

Plate 15-1 and **Plate 15-2** show the typical landscape character of Area 3. This comprises undulating rural landscape enclosing lakes and small settlements. The field hedgerow include mature trees which also create

an intimate and scenic landscape character. Long distance views are only possible from elevated locations, otherwise visibility is restricted by the undulating landform and vegetation.

Plate 15-1: Landscape Character Area 3- Lake Catchments of South East Cavan

Plate 15-2: Landscape Character Area 3- Lake Catchments of South East Cavan

(as categorised in the Cavan County Development Plan 2014-2020)

Area 5 is Highlands of East Cavan.

The Design Guide describes Area 5 as:

'This is the area around Ballieborough and Kings court which consists of drumlins and highlands. Dwellings in upland areas should be sited so as not to break the skyline.'

Plate 15-3 and **Plate 15-4** show the typical landscape character Area 5. This comprises generally elevated and undulating rural landscape with distinctive drumlin formations and scattered woodlands forming elements. Similar to landscape character Area 3, long distance views are only possible from elevated locations, otherwise visibility is restricted by the landform and mature field boundary hedgerow.

Plate 15-3: Area 5- Highlands of East Cavan

Plate 15-4: Area 5- Highlands of East Cavan

(as categorised in Cavan County Development Plan 2014-2020)

Landscape Types, Amenity Features and Heritage Sites

Cavan County Development Plan 2014 – 2020 gives special consideration and protection to certain landscape types and amenity features. These include:

- Upland Areas;
- Areas of Special Landscape Interest;

- Major Lakes and Lake Environments;
- Forest Parks and Other parks;
- Lakeside Amenity areas; and
- Riverside Amenity Areas.

The landscape and amenity features within the Study Area are shown on **Figure 15-1** and described below:

- Major Lakes and Lake Environments
  - ML4 – Lough Ramor located on the western side of Virginia Town.
- Lakeside Amenity areas
  - L15 - Virginia Town, Lough Ramor;
  - L16 – Old Quay, Corronagh, Lough Ramor; and
  - L17- -Mullagh Lough, Mullagh.

County Heritage Sites

The Development Plan notes certain heritage sites which help define the historical landscape character. Those within the Study Area are:

- 19. Mullagh Lake.

Scenic Value

The Development Plan also recognises scenic value of certain locations and routes, the designations relative to these are:

- Scenic Viewing Points; and
- Scenic routes.

There are no scenic designations within the Study Area.

Preliminary List of Public Rights of Way

The Development Plan list those public rights of way afforded special protection. Those within the Study Area are:

- Mullagh Lake walk;
- Mullagh Hill Walk; and
- Deer park Forest walk Virginia.

Development Plan Policies and Objectives

The following policies and objectives relate to landscape and amenity features described above and within the Study Area:

- NHEP19 - relating to landscape character protection.
- NHEP20 - relating to the need for a visual impact assessment for certain development.
- NHEO22 – which encourages development in a manner that has regard to the character of the landscape and the sensitivity and visual impact on the landscape.
- NHEO23 - supports identification and designation of vulnerable landscapes.
- NHEO25 - protects and enhances the character and scenic value of areas of outstanding landscapes, scenic areas and High Amenity areas from unsympathetic development and promote co-operation across local authorities in this regard.
- NHEO26 - maintains scenic and recreational value of areas by resisting development which could cause negative visual impacts.

- NHEO27 - restricts incompatible development to protect amenity, scientific and historical values.
- NHE033 - maintains the amenity value of major lakes and their environs by regulating development which could cause adverse visual impacts or threaten habitats.
- NHEO34 - maintain shoreline and skylines of major lakes.
- NHEO35 - regulate land use adjacent to major lakes to ensure it is compatible.
- NHEO43 - identifies further rights of way giving access to places of natural beauty or recreation.
- NHEO44 - identification and maintenance of existing rights of way prior to any new planting or infrastructural development.
- NHEO45 - identifies public rights of way which give access to mountain, lakes riverbanks or other places of beauty or recreation and states a methodology for same.

15.3.2 Meath County Development Plan 2013-2019

Meath County Council has prepared a detailed Landscape Character Assessment (LCA) for the County comprising 20 landscape character areas. Landscape Character Area 20. Blackwater Valley forms the southernmost portion of the Study Area. The character area is described as :

'an attractive landscape character area, rich in visible historic features including demesne landscapes, castles, churches, earthworks and vernacular features such as stone bridges. The open farmland is characterised by a loss of internal field boundaries. Hedgerows that remain comprise of clipped thorn, ash and gorse on earth banks but most are gappy and have few trees. The predominant species of the few remaining trees is sycamore. The condition of traditional stonewalls around dwellings, along roads and between fields are also in decline. Many have been lost and replaced by fences, left in disrepair or repaired inappropriately with different materials, such as concrete blocks.'

The N3 runs through this area, it crosses the River Blackwater (which is a Special Area of Conservation (SAC)) within the southernmost part of the Study Area and within the flat open agricultural countryside either side of the river corridor.

This character area is described as a River Corridor and Estuary Type of landscape, it is categorised as Very High in Landscape Value, of Regional Importance and High in terms of Sensitivity. It is considered to have Medium potential capacity to accommodate new Roads and Railway. The Development Plan describes landscape features including Trees, Public Rights of Way, Tree Preservation Orders, Other Landmarks, Views and Prospects. However there are none of these features present within this character area relative to the Study Area. Similarly there are no registered Monuments, Protected Churches, Designed Landscapes, Historic Parks, Gardens and Demesnes or other Historical assets. **Plate 15-5** and **Plate 15-6** show the typical landscape character of Area 20. Blackwater Valley in the southern part of the Study Area. It is a low lying river corridor comprising agricultural land with scattered residential and agricultural dwellings.

Plate 15-5: Area 20- Blackwater Valley

Plate 15-6: Area 20- Blackwater Valley

(as categorised in the LCA for Meath County Development Plan 2013-2019)

Development Plan Policies and Objectives

The following policies and objectives relate to landscape and amenity features described above and within the Study Area:

- LCPOL1 - supports and implements the provisions of the National Landscape Strategy.
- LCSP1 – relates to protecting the landscape character, quality, and local distinctiveness of County Meath in accordance with government policy and guidelines and the Meath Landscape Character Assessment (2007).
- LCPOL2 – relates to the require the need for necessary assessments, including landscape and visual impact assessments, for proposed development.
- LCOBJ1 – relates to the preservation of the uniqueness of all landscape character types, and maintenance of the visual integrity of areas of exceptional value and high sensitivity.
- LCOBJ2 – relates to proposed development proposals having regard to the recommendations contained in the Meath Landscape Character Assessment 2007.
- LCOBJ5 – relates to the preservation of views and prospects and the amenity of places and features of natural beauty.
- NHPOL13 – relates to the retention of hedgerows and other distinctive boundary treatments in rural areas and prevent loss and fragmentation.
- NHPOL14 - promotes and encourages planting of native hedgerow species of local provenance.
- NHPOL15 - recognises the archaeological importance of townland boundaries including hedgerows and promote their protection and retention.
- NHPOL16 - promotes maintenance of the natural heritage and amenity of the county through preservation and enhancement of native and semi-natural woodlands, groups of trees and individual trees.
- NHPOL17 - encourages the use of native species wherever possible in Meath County Council's own landscaping work, and on Council property.
- NHPOL18 - encourages retention of mature trees and the use of tree surgery rather than felling where possible when undertaking, approving or authorising development
- NHPOL20 – relates to the preservation of existing public rights of way.
- NHOBJ5 - promote awareness, understanding and best practice in the management of Meath's woodland, tree and hedgerow resource.
- NHOBJ7 – relates to co-operate with stakeholders in promoting greater public access and recreational use of state and private owned forests.
- NHOBJ8 – relates to identification and protection existing rights of way which give access to seashore, mountain, lakeshore, riverbank or other place of natural beauty or recreational utility.

SECTION 16: EXTERNAL PARAMETERS

16.1 Funding and Scope

The N3 Virginia Bypass is currently being brought through Phases 0 to 4 (Scope and Pre-Appraisal, Concept and Feasibility Studies, Options Selection, Design and Environmental Evaluation and Statutory Processes) of the TII Project Management Guidelines mechanism of delivery. The project is not currently committed or funded beyond Phase 4.

The scope of this Constraints Study is based on the extremities of each Study Area which are fixed at the time of preparation. At the beginning of the Constraints study, no proposed changes to the existing N3 routes are proposed, and therefore would not have any influence on the potential options.

16.2 Required Levels of Service

The Level of Service (LOS) of a road is a measure used to rate the quality of traffic service on a given road width and cross-section, for a given traffic volume. The LOS is rated as follows:

- LOS A describes free-flow conditions, describing traffic travelling at speed limits and providing complete mobility between lanes;
- LOS D is approaching unstable flow, where a slight increase in traffic volumes decreases speed; and
- LOS E describes unstable flow, where a road is operating at capacity, and flow becomes irregular and speed varies.

TII standard for Rural Road Link Design (DN-GEO-03031) outlines the approximate vehicle flows that accommodate a Level of Service D, which is the minimum acceptable LOS expected on the National Road network.

16.3 Technical Standards

The design standards used in the design development of the project will be the TII Publications (Standards).

The option selection and design will follow the process as set down by TII in its Project Management Guidelines (PE-PMG-02041 - January 2019).

The TII Project Appraisal Guidelines will be used to guide road designers and the decision makers through the process of ensuring that the best choices are made and the best value for money is obtained on this national road project.

16.4 Access Control

On new National Primary roads direct access from properties will be avoided. Access from local roads onto dual carriageway options will generally be avoided. As the scheme develops junction treatments and strategies will be developed in accordance with TII design standards.

16.5 Policy Document

The project is proposed in the context of a planning structure that underpins the proposal in terms of planning objectives and policies. The project will be considered with respect to all relevant planning policies including National Planning Framework, Capital Investment Plans, national policy, Cavan County Development Plan 2014 - 2020 and relevant local area plans. Details of how the proposed project meets the objectives of these plans and policies is outlined in the Project Brief.

16.6 Procedural and Legal Requirements

As part of any constraints study, consideration of procedural and legal issues, which may arise during the design and construction process, must be considered at as early a stage as possible so as not to delay the timely completion of the project. On this basis the following should be noted at the appropriate stages:

- European and Irish environmental legislation;
- Amendments of and replacements to local authority development plans;
- Guidelines on process and codes of practice relating to environmental and legal aspects of road design and construction;
- EIA and CPO format and procedures;
- Requirements under Section 50 of the 1945 Arterial Drainage Act for the construction or alteration of any bridge or culvert over any watercourse;
- Rights of statutory undertakers;
- Wayleaves, public and private rights of way; and
- Site investigation notices.

SECTION 17: NEXT STEPS

The N3 Virginia Bypass will investigate options that would improve road safety and congestion through the town of Virginia and settlements of Maghera and Whitegate, as well as at the collision cluster areas of Murmod Cross and Lisgrea Cross on the N3 National Primary Road.

The next stage of the project will be to identify suitable options within the Study Area. The subsequent study and the corridor options for new roads and improvements will be determined and assessed against the framework of constraints outlined in this report.

Appendix 1: Consultation Letter

XXXX
XXXX
XXXX
XXXX

BARRY TRANSPORTATION
Unit 14C, N5 Business Park, Moneen Road,
Castlebar, Co. Mayo, F23 YY39, Ireland
Phone: +353 94 906 8950
Email: transportation@jbbarry.ie
web: barrytransportation.ie

Date: 14 January, 2020

Ref.: 19408

Re: N3 Virginia Bypass – Stakeholder Constraints Feedback Request

Dear Sir / Madam,

Barry Transportation has been appointed by Cavan County Council as Consulting Engineers to investigate scheme options for a bypass of Virginia that will address the numerous day-to-day operational and safety issues associated with this section of the N3 national road.

Scheme History

The need for a bypass of Virginia was initially identified by Cavan County Council in the 1980's and formally acknowledged nationally by its inclusion in the National Road Needs Study (1998) by the then National Road Authority (NRA). The formal development of a scheme was initiated by the NRA and Cavan County Council in 2000.

Over the past twenty years, a number of Virginia bypass schemes were progressed through various stages of development before being suspended. A route corridor, which was established in 2002 for one of these schemes, achieved Part 8 planning in October 2003 and is currently being protected from development by Cavan County Council.

Current Scheme

The Government's current National Development Plan (2018 – 2027) specifically highlights the N3 Virginia Bypass as one of the key sections of National Road Network to be developed as part of the plan.

In 2018, Cavan County Council under the aegis of the TII, commenced development of a new scheme for the N3 Virginia Bypass in accordance with TII's Project Management Guidelines. In view of the time that has elapsed, the significant changes to design standards and environmental considerations and the substantial increase in traffic volumes, it has been necessary to re-appraise the scheme from the beginning.

In September 2019, Barry Transportation was appointed by Cavan County Council for the provision of Engineering Consultancy Services to progress the scheme through the Planning and Design phases.

This scheme has progressed through Phase 1 "Concept and Feasibility" and is commencing Phase 2 – "Option Selection", which will involve the following events:

- Establish constraints within the study area **(CURRENT stage);**

- Identify options;
- Investigate options and assess the feasibility of each option before recommending a preferred option; and
- Prepare an Options Selection Report.

Drawing 19408-BT-GN-XX-DR-C-00068 enclosed with this letter presents the study area for the scheme. The study area will commence on the existing N3 dual carriageway in the townland of Woodpole in Co. Meath and continue into Co. Cavan, to the east and west of Virginia Town and conclude on the existing N3 single carriageway to the north of the townland of Billis.

Consultation

To facilitate your early involvement in this project and to ensure the identification of any Key Issues / Constraints in relation to the location and/or the extent of the proposed scheme, we invite you to submit any relevant information or highlight any Key Issues / Constraints within the study area that you consider should be addressed. Any issues raised will be considered in the preparation of Scheme Option documentation.

A written submission or observation can be made on or before the **31st January 2020,** either to tcannon@jbbarry.ie, or posted to the following postal address:

Tom Cannon,
Barry Transportation
Unit 14C,
N5 Business Park,
Moneen Rd,
Castlebar, Co. Mayo.
F23 YY39.

We would be obliged if you could acknowledge receipt of this letter.

If you require any further information or wish to discuss the project, I can be contacted at 094 906 8950.

It is our intention to consult with you again as the project progresses.

Yours faithfully,

Tom Cannon
Associate
Barry Transportation

Cc Mr. O Mulligan – Cavan County Council

Encs Drawing 19408-BT-GN-XX-DR-C-00068

Appendix 2: Cultural Heritage – Legislative Framework Protection

Overview

The management and protection of cultural heritage in Ireland is achieved through a framework of national laws and policies which are in accordance with the provisions of the Valetta Treaty (1995) (formally the *European Convention on the Protection of the Archaeological Heritage, 1992*) ratified by Ireland in 1997*;* the *European Convention on the Protection of Architectural Heritage* (Granada Convention, 1985), ratified by Ireland in 1997; the *ICOMOS Burra Charter (1979-2013)* and the *UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage, 2003*, ratified by Ireland in 2015.

The locations of World Heritage Sites (Ireland) and the Tentative List of World Heritage Sites (2010) submitted by the Irish State to UNESCO were reviewed and whilst none are located within the Study Area the medieval ecclesiastical settlement of Kells is located 5.5 km to the south-east, which is included in the Tentative List 2010 (Early Medieval Monastic Sites of Clonmacnoise, Durrow, Glendalough, Inis Cealtra, Kells and Monasterboice).

The national legal statutes and guidelines relevant to this assessment include:

- National Monuments Act (1930) (and amendments in 1954, 1987, 1994 and 2004)
- Heritage Act (1995)
- National Cultural Institutions Act (1997)
- Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act (1999)
- Planning and Development Act (2000)
- *Architectural Heritage Protection: Guidelines for Planning Authorities* (Department of Arts, Heritage, and the Gaeltacht, 2011)
- *Framework and Principles for the Protection of the Archaeological Heritage* (Department of Arts, Heritage, Gaeltacht and the Islands, 1999)

Archaeological Heritage

The administration of national policy in relation to archaeological heritage management is the responsibility of the National Monuments Service (NMS) which is currently based in the Department of Culture, Heritage and the Gaeltacht. The National Monuments Act of 1930, and its Amendments, are the primary means of ensuring the satisfactory protection of the archaeological resource. They include a number of provisions that are applied to secure the protection of archaeological monuments. These include the designations of nationally significant sites as National Monuments, the Register of Historic Monuments, the Record of Monuments and Places, the Sites and Monuments Record, and the placing of Preservation Orders and Temporary Preservation Orders on endangered sites.

Section 2 of the National Monuments Act, 1930 defines a National Monument as *'a monument or the remains of a monument, the preservation of which is a matter of national importance'*. The State may acquire or assume guardianship of examples through agreement with landowners or under compulsory orders. Monuments subject to Preservation Orders are also afforded National Monument status. There are no National Monuments or sites retaining Preservation Orders located within the Study Area.

The National Monuments (Amendment) Act, 1994 made provision for the establishment of the Record of Monuments and Places (RMP) which comprises the known archaeological sites within the State. The RMP, which is based on the earlier Register of Historic Monuments (RHM) and Sites and Monuments Record (SMR), provides county-based lists of all recorded archaeological sites with accompanying maps. All RMP sites receive statutory protection under the National Monuments Act 1994 and the NMS must be given two months' notice in advance of any work proposed at their locations. There are 217 No. recorded archaeological sites within the Study Area. These recorded archaeological sites are tabulated in **Appendix 3**.

The *Cavan County Council Development Plan 2014-2020* includes the following relevant policies and objectives in relation to the protection of the archaeological resource:

Archaeological Policies - Cavan County Council Development Plan 2014-2020

BHP5 To protect and enhance archaeological monuments, their settings and zones of archaeological potential.

BHP6 To facilitate appropriate guidance in relation to the protection of the archaeological implications of a proposed development.

BHP7 To promote public awareness of the rich archaeological heritage in the area.

BHP8 To secure the preservation of sites and features of historical and archaeological interest.

Archaeological Objectives - Cavan County Council Development Plan 2014-2020

BHO17 Ensure the preservation in-situ of any part of our archaeological heritage is to be undertaken by Archaeological assessment which is to be carried out by a suitably qualified professional archaeologist.

BHO18 The avoidance, as far as possible, of developmental impacts on the archaeological heritage of the County. The preservation in-situ of archaeological monuments and sites as a preferred option.

The *Meath County Development Plan 2013-2019* includes the following relevant policies and objectives in relation to the protection of the archaeological resource:

Archaeological Policies - Meath County Council Development Plan 2013-2019

CH POL 5 To recognise and respect potential World Heritage Sites in Meath on the UNESCO Tentative List – Ireland (2010) and support their nomination to World Heritage status.

CH POL 6 To promote awareness of, and access to, the archaeological inheritance of County Meath.

CH POL 7 To ensure that development in the immediate vicinity of a recorded monument is sensitively sited and designed so that it does not significantly detract from the monument. Where upstanding remains exist, a visual impact assessment may be required.

CH POL 8 To inform and seek guidance from the National Museum of Ireland if an unrecorded archaeological object is discovered, or the National Monuments Service of the DCHG in the case of the discovery of an unrecorded archaeological site, in accordance with National Monuments legislation.

LC POL 3 To protect the archaeological heritage, rural character, setting and amenity of the Tara landscape and Loughcrew and Slieve na Calliagh Hills.

Archaeological Objectives - Meath County Council Development Plan 2013-2019

CH OBJ 7 To protect archaeological sites and monuments, underwater archaeology, and archaeological objects, which are listed in the Record of Monuments and Places, and to seek their preservation in situ (or at a minimum, preservation by record) through the planning process.

CH OBJ 8 To seek to protect important archaeological landscapes from inappropriate development.

CH OBJ 11 To encourage and promote the appropriate management and maintenance of the County's archaeological heritage, including historical burial grounds, in accordance with conservation principals and best practice guidelines.

LC OBJ 7 To explore, over the life of the plan, the designation of a Landscape Conservation Area, pursuant to Section 204 of the Planning and Development Acts, 2000 – 2012, in respect of Loughcrew and Slieve na Calliagh Hills.

Archaeological Policies – Draft Meath County Council Development Plan 2020-2026

HER POL 1 To protect archaeological sites, monuments, underwater archaeology and archaeological objects in their setting, which are listed on the Record of Monuments and Places for Meath.

HER POL 2 To protect all sites and features of archaeological interest discovered subsequent to the publication of the Record of Monument and Places, in situ (or at a minimum preservation by record) having regard to the advice and recommendations of the National Monuments Service of the Department of Culture, Heritage and the Gaeltacht.

HER POL 4 To require, as part of the development management process, archaeological impact assessments, geophysical survey, test excavations or monitoring as appropriate, where development proposals involve ground clearance of more than half a hectare or for linear developments over one kilometre in length; or developments in proximity to areas with a density of known archaeological monuments and history of discovery as identified by a licensed archaeologist.

HER POL 5 To seek guidance from the National Museum of Ireland where an unrecorded archaeological object is discovered, or the National Monuments Service in the case of an unrecorded archaeological site.

HER POL 12 To recognise and respect potential World Heritage Sites in Meath on the UNESCO Tentative List – Ireland.

HER POL 53 To discourage proposals necessitating the removal of extensive amount of trees, hedgerows and historic walls or other distinctive boundary treatments.

HER POL 54 To protect the archaeological heritage, rural character, setting and amenity of the Tara landscape and Loughcrew and Slieve na Calliagh Hills.

HER OBJ 2 To ensure that development in the vicinity of a Recorded Monument or Zone of Archaeological Potential is sited and designed in a sensitive manner with a view to minimal detraction from the monument or its setting.

Archaeological Objectives – Draft Meath County Council Development Plan 2020-2026

HER OBJ 3 To seek to protect important archaeological landscapes from inappropriate development.

HER OBJ 13 To support the State in the nomination process of Tara and Kells to World Heritage status as part of an assemblage of Royal and Monastic Sites in co-operation with the relevant Local Authorities.

HER OBJ 48 To ensure that the management of development will have regard to the value of the landscape, its character, importance, sensitivity and capacity to absorb change as outlined in Appendix 5 Meath Landscape Character Assessment and its recommendations.

HER OBJ 52 To explore, over the life of the Plan, the designation of a Landscape Conservation Area, pursuant to Section 204 of the Planning and Development Act 2000, as amended, in respect of Loughcrew and Slieve na Calliagh Hills.

Architectural Heritage

Protection of architectural heritage is provided for through a range of legal instruments that include the *Heritage Act (1995)*, the *Architectural Heritage (National Inventory) & National Monuments (Misc. Provisions) Act (1999),* and the *Planning and Development Act (2000)*. The Heritage Act (1995) (as amended) defines architectural heritage as including:

all structures, buildings, traditional and designed, and groups of buildings including streetscapes and urban vistas, which are of historical, archaeological, artistic, engineering, scientific, social or technical interest, together with their setting, attendant grounds, fixtures, fittings and contents.

The National Inventory of Architectural Heritage (NIAH) was established under the *Architectural Heritage Act (1999)*, to record architectural heritage structures within the State and to advise local authorities in relation to structures of architectural heritage significance within their administrative areas. The conservation principles of care and protection of architectural heritage and the facilitation of the listing of significant buildings of architectural merit are set out in *Part IV of the Planning and Development Act (2000)*. This requires Local Authorities to maintain a Record of Protected Structures (RPS) of structures with special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest, to be included in City/County Development Plans. In addition, Local Authorities must provide for the preservation of townscapes etc. through designation of Architectural Conservation Areas (ACAs). Any changes that materially affect the character of a protected structure require planning permission.

There are 84 No. protected structures located in the Study Area (79 No. in Co Cavan and 5 No. in Co. Meath). In addition there are 67 No. NIAH surveyed structures located within the Study Area, of which 32 No. are also listed on the RPS.

The *Cavan County Council Development Plan 2014-2020* presents a number of relevant policies and objectives to ensure the protection of the architectural heritage resource within the County and these include:

Architectural Heritage Policies - Cavan County Council Development Plan 2014-2020

BHP1 To protect, preserve and enhance the architectural heritage of County Cavan by taking into consideration the advice contained in the 'Architectural Protection, Guidelines for Planning Authorities', 2004.To adhere to the standards advocated in the 'Principles of Conservation' published by the Department of the Environment, Heritage and Local Government in undertaking works on elements of the built heritage and to protect all structures or parts of structures, where appropriate, that are of special architectural, historical, archaeological, artistic, cultural, scientific social or technical interest, which are included in the RPS.

BHP2 To encourage the sympathetic retention, reuse and rehabilitation of Protected Structures and their settings. The Planning Authority will require that all works to Protected Structures be carried out in accordance with conservation guidelines and best practice and that the special interest, character and setting of the building be protected.

BHP3 To encourage the continued use of protected structures and their curtilage and to promote their sensitive adoption to accommodate modern requirements.

BHP4 To actively encourage and promote the conservation of Cavan's built heritage. To promote best practice conservation in works to protected structures and to encourage the use of tradesmen and professionals trained in the use of traditional skills, materials and building techniques.

Architectural Heritage Objectives - Cavan County Council Development Plan 2014-2020

BH02 Review and maintain the RPS on an on-going basis and to have regard to the NIAH, as appropriate.

BH03 To protect the architectural heritage of Cavan and to include all structures, or parts of structures, considered to be of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest in the RPS, including modern structures.

BH04 Prohibit development in gardens or landscapes which are deemed to be an important part of the setting of Protected Structures or where they contribute to the character of an ACA.

BH010 Protect vernacular architecture, such as thatched cottages, farmhouses and old school-houses in County Cavan for the benefit of future generations.

BH013 To protect our industrial architecture and to encourage appropriate new uses for vacant structures.

BH014 Produce and publish, subject to resources, character appraisals and area specific policies for each ACA, in order to preserve, protect and enhance the character of these areas.

BH015 Designate the ACA's outlined below and to carry out ongoing assessment of existing or proposed ACA's during the lifetime of [this] plan: Main Street, Virginia.

The *Meath County Council Development Plan 2013-2019* presents a number of relevant policies and objectives to ensure the protection of the architectural heritage resource within the County and these include:

Architectural Heritage Policies - Meath County Council Development Plan 2013-2019

CH POL 10 To conserve and protect the architectural heritage of Meath.

CH POL 11 To require that all planning applications relating to Protected Structures contain the appropriate accompanying documentation in accordance with the Architectural Heritage Protection Guidelines for Planning Authorities (2011) or any variation thereof, to enable the proper assessment of the proposed works.

Architectural Heritage Objectives - Meath County Council Development Plan 2013-2019

CH OBJ 13 To protect all structures (or, where appropriate, parts of structures) within the county which are of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest and which are included in the Record of Protected Structures.

CH OBJ 14 To review and update the Record of Protected Structures when new information becomes available and to make additions and deletions as appropriate.

Architectural Heritage Policies – Draft Meath County Council Development Plan 2020-2026

HER POL 14 To protect and conserve the architectural heritage of the County and seek to prevent the demolition or inappropriate alteration of Protected Structures.

HER POL 16 To protect the setting of Protected Structures and to refuse permission for development within the curtilage or adjacent to a protected structure which would adversely impact on the character and special interest of the structure, where appropriate.

HER POL 19 To protect the character of Architectural Conservation Areas in Meath.

HER POL 22 Seek the retention of surviving historic plot sizes and street patterns in the villages and towns of Meath and incorporate ancient boundaries or layouts, such as burgage plots and townland boundaries, into re-developments.

HER POL 23 To actively promote the retention and restoration of thatched dwellings as a key component of the built heritage of the County.

HER POL 26 To encourage the protection and enhancement of heritage gardens and demesne landscapes, and to support, in consultation with the owners, the provision of public access to these sites as appropriate.

Architectural Heritage Objectives – Draft Meath County Council Development Plan 2020-2026

HER OBJ 15 To review and update the Record of Protected Structures on an on-going basis and to make additions and deletions as appropriate.

HER OBJ 19 To identify places of special character, with a view to their designation as Architectural Conservation Areas and to modify existing ACAs, where necessary.

HER OBJ 20 To prepare and review, where necessary, detailed character statements and planning guidance for each ACA.

HER OBJ 21 To avoid the demolition of structures and the removal of features and street furniture which contribute to the character of an ACA. The Council will require that any planning application for demolition or alteration within an ACA be accompanied by a measured and photographic survey, condition report and architectural heritage assessment.

HER OBJ 24 To carry out a survey of Land Commission dwellings over the life of the Development Plan, to acknowledge their contribution to the building stock of the County, as appropriate.

HER OBJ 27 To discourage development that would adversely affect the character, the principal components of, or the setting of historic parks, gardens and demesnes of heritage significance.

HER OBJ 28 To require that proposals for development in designated landscapes and demesnes include an appraisal of the landscape, designed views and vistas, including a tree survey, where relevant, in order to inform site appropriate design proposals.

Cultural Heritage

In December 2015 Ireland ratified the 2003 UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage. Intangible cultural heritage '*refers to the practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognize as part of their cultural heritage. This intangible cultural heritage, transmitted from generation to generation, is constantly recreated by communities and groups in response to their environment, their interaction with nature and their history, and provides them with a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity*'.

Ireland's obligations under the 2003 Convention include establishing a National Inventory for Intangible Cultural Heritage to protect, promote and celebrate Irish living cultural heritage practices, customs, crafts and traditions. Successful applicants to the National Inventory may also consider seeking nomination by the State for inscription on the UNESCO Representative List of the Intangible Cultural Heritage of Humanity, to which the State is entitled to make one nomination every year. *Irish National Folklore Collection*: transcribed material from the National Folklore Collection archive has been digitised and published on www.duchas.ie, which also publishes relevant images the Photographic Collection. The foundational collection - the *Irish Folklore Commission Collection 1935-1970* - was inscribed into the UNESCO *Memory of the World Register* (2017) in recognition of its 'world significance' and 'outstanding universal value to culture'. Similarly, Irish Hurling (2018) and Irish Harping (2019) has been inscribed on the UNESCO Representative List of the Intangible Cultural Heritage of Humanity (2018).

Following an open call for Expressions of Interest and the appointment of an Expert Advisory Committee on Intangible Cultural Heritage, in July 2019 the Minister for Culture, Heritage and the Gaeltacht approved the inscription of thirty cultural heritage elements on Ireland's permanent National Inventory (see https://nationalinventoryich.chg.gov.ie/national-inventory/).

The Department accepts Expressions of Interest for the National Inventory of Intangible Cultural Heritage on an ongoing basis, with the goals of acknowledging, safeguarding and promoting Ireland's living culture through official State recognition. There are no intangible cultural heritage elements on the NIICH specific to counties Cavan and Meath however, in general terms, Uilleann Piping, Hurling, Irish Harping, Irish Traditional Music and Floating Heritage have relevance.

Recently (Jan 2020) the Minister of Culture, Heritage and the Gaeltacht published Ireland's first national cultural framework, *Culture 2025 – A National Cultural Policy Framework to 2025*. Culture 2025 sets the direction for Government policy across the cultural sector, including the arts, the Irish language and the creative, heritage and audio-visual sectors (see https://www.chg.gov.ie/app/uploads/2020/01/culture-2025.pdf).

Appendix 3: Cultural Heritage Datasets

Recorded Archaeological Sites (RMP/SMR) from the Study Area

RMP/SMR	Site Type	Townland	ITM (Easting)	ITM (Northing)
CV033-001----	Designed landscape - tree-ring	AGHALOUGHAN	654799	791574
CV033-015----	Ringfort - rath	CORRANEDEN	658558	793034
CV033-023----	Ringfort - rath	DOON (Castlerahan By.)	661248	791744
CV033-025----	Ringfort - rath	DRUMAGOLAN	657909	792194
CV033-026----	Ringfort - rath	DRUMAGOLAN	658688	791804
CV033-027----	Ringfort - rath	DRUMAGOLAN	659028	791654
CV033-028----	Ringfort - rath	DRUMAGOLAN	659208	791494
CV033-042----	Ringfort - rath	LISSANNYMORE	659168	792594
CV033-043----	Ringfort - rath	LISSANNYMORE	659238	793224
CV033-047----	Ringfort - rath	STRAMAQUERTY	659808	791584
CV033-048----	Ringfort - rath	STRAMAQUERTY	659988	791884
CV038-016001-	Burial ground	CROSSERULE	653955	790539
CV038-016002-	Meeting-house	CROSSERULE	653938	790529
CV039-001001-	Ringfort - rath	AGHACASHEL	655962	789558
CV039-001002-	Redundant record	AGHACASHEL	655989	789555
CV039-002----	Ringfort - rath	AGHALION	655171	788346
CV039-003----	Ringfort - rath	ANNAGHARNET	662277	791153
CV039-004----	Barrow - unclassified	ARDLOW	663056	789912
CV039-005----	Ringfort - unclassified	ARDLOW	663127	790054
CV039-007----	Ringfort - rath	ARDLOW	663719	789771
CV039-008----	Castle - unclassified	Ballaghanea Island	661558	786405
CV039-009----	Ringfort - unclassified	BALLAGHANEA	661618	787135
CV039-010----	Ringfort - rath	BALLAGHANEA	661906	786917
CV039-011----	Memorial stone	BALLAGHANEA	662368	786395
CV039-012----	Megalithic tomb - portal tomb	BALLAGHANEA	662365	786559
CV039-013----	Ringfort - rath	BALLAGHANEA	662979	786571
CV039-014----	Megalithic structure	BURNEW	660829	790814
CV039-015----	Burial	BURNEW	660888	791084
CV039-016----	Hut site	BURNEW	661033	790882
CV039-017----	Redundant record	CARRICKAVEE	654263	788240
CV039-018----	Megalithic tomb - unclassified	CARRICKAVEE	654520	788280
CV039-019----	Ringfort - rath	CARRICKAVEE	654549	788508
CV039-020----	Ringfort - unclassified	CLOGHERGOOLE	663884	787190

RMP/SMR	Site Type	Townland	ITM (Easting)	ITM (Northing)
CV039-021----	Ringfort - unclassified	CORFAD (Castlerahan By.)	663077	788185
CV039-022----	Ringfort - rath	CORNAKILLY	655502	786372
CV039-023----	Ringfort - rath	CORNASHESK	662438	787875
CV039-024----	Ringfort - cashel	CORNASHESK	662802	787407
CV039-025----	Ringfort - rath	CORNASLIEVE	659572	790388
CV039-026----	Crannog	Stony Islands	659858	786825
CV039-027----	Ringfort - rath	CORRONAGH	660223	785946
CV039-028----	Ringfort - cashel	CORRONAGH	660313	785119
CV039-029----	Ringfort - rath	CORRONAGH	660416	786039
CV039-030----	Ringfort - rath	CROSSERULE	654369	789995
CV039-031----	Ringfort - unclassified	CROSSERULE	654979	789815
CV039-032----	Crannog	CUILCAGH	663757	789402
CV039-033----	Ritual site - holy well	CURRAGHMORE	656659	790155
CV039-034----	Crannog	Lough Ramor	658178	787135
CV039-035----	Crannog	Lough Ramor	658382	787073
CV039-036----	Crannog	Lough Ramor	658554	786798
CV039-037----	Ritual site - holy well	DEERPARK	658984	787883
CV039-038----	Designed landscape - tree-ring	DEERPARK	659308	787615
CV039-039----	Crannog	Stony Islands	659798	786875
CV039-040----	Crannog	DOON (Castlerahan By.)	661382	790861
CV039-041001-	Ringfort - rath	DOON (Castlerahan By.)	661824	791298
CV039-041002-	Souterrain	DOON (Castlerahan By.)	661828	791286
CV039-043----	Ringfort - unclassified	DRUMGORA (Castlerahan By.)	657430	791338
CV039-044----	Ringfort - rath	DRUMHEEL (Castlerahan By.)	663497	785246
CV039-045----	Ringfort - rath	DRUMMONEY	657295	787973
CV039-046----	Ringfort - rath	DRUMRAT (Castlerahan By.)	663887	788335
CV039-047----	Ringfort - rath	ENAGH (Castlerahan ED)	656737	787425
CV039-048----	Crannog	ENAGH (Castlerahan ED)	658068	786235
CV039-049----	Windmill	ENAGH (Crossbane ED)	662568	790094
CV039-050----	Kiln - lime	ENAGH (Crossbane ED)	662667	790274
CV039-051----	Ritual site - holy well	GALLONNAMBRAHER	654309	790754
CV039-052----	Ritual site - holy well	GALLONNAMBRAHER	654309	790854
CV039-053----	Ringfort - rath	GALLONNAMBRAHER	654989	790404
CV039-054----	Ringfort - rath	GALLONNAMBRAHER	655189	790930
CV039-055----	Castle - motte and bailey	KNOCKATEMPLE	658413	785763

RMP/SMR	Site Type	Townland	ITM (Easting)	ITM (Northing)
CV039-056----	Crannog	Lough Ramor	659238	785825
CV039-057----	Ringfort - rath	LISGREA	658728	790494
CV039-058----	Ringfort - rath	LISLEA (Castlerahan By.)	663360	786182
CV039-059----	Ringfort - rath	LISLEA (Castlerahan By.)	663494	786027
CV039-060----	Ringfort - rath	LISNABANTRY (Crossbane ED)	662028	790152
CV039-061001-	Ringfort - rath	LISNABANTRY (Killinkere ED)	661288	789915
CV039-061002-	Souterrain	LISNABANTRY (Killinkere ED)	661288	789915
CV039-062001-	Ringfort - rath	LISNAFANA	656917	791261
CV039-062002-	Souterrain	LISNAFANA	656922	791253
CV039-063----	Ringfort - unclassified	LISNAFANA	657109	791314
CV039-064----	Ringfort - rath	LISNAFANA	657285	791099
CV039-066----	Crannog	Lough Ramor	658208	786235
CV039-067----	Church	LURGAN	656616	789851
CV039-067001-	Graveyard	LURGAN	656616	789857
CV039-068----	Ringfort - rath	MURMOD	660298	790464
CV039-069----	Megalithic structure	MURMOD	660496	789633
CV039-070----	Ritual site - holy well	MURMOD	660528	789695
CV039-071001-	Church	RAFFONY	662727	789271
CV039-071002-	Souterrain	RAFFONY	662763	789237
CV039-071003-	Ritual site - holy well	RAFFONY	662793	789268
CV039-071004-	Ecclesiastical enclosure	RAFFONY	662737	789263
CV039-071005-	Graveyard	RAFFONY	662744	789262
CV039-072----	Ringfort - rath	RAFFONY	662876	789026
CV039-073----	Megalithic tomb - wedge tomb	RAFFONY	662947	789235
CV039-074----	Ringfort - unclassified	RAHARDRUM	660638	788265
CV039-075----	Crannog	Lough Ramor	661008	786980
CV039-076----	Ringfort - unclassified	RAHARDRUM	661108	787485
CV039-077----	Castle - unclassified	Lough Ramor,RAHARDRUM	661691	786616
CV039-078----	Ringfort - rath	VIRGINIA	659588	788905
CV039-081----	Crannog	Crossafehin Islands	657918	785795
CV039-082----	Crannog	Crane Island	658829	786076
CV039-083----	Crannog	Cow Island	659148	785765
CV039-084----	Crannog	Porters Islands	659808	786035
CV039-085----	Crannog	Cock Island	659648	786015
CV039-086----	Crannog	Corlea Island North	659628	786365

RMP/SMR	Site Type	Townland	ITM (Easting)	ITM (Northing)
CV039-087----	Fulacht fia	LISLEA (Castlerahan By.)	663737	785955
CV039-088----	Well	DEERPARK	659058	787815
CV040-001----	Ringfort - rath	CLOGHBALLYBEG	666005	786296
CV040-002----	Ritual site - holy well	CLOGHBALLYBEG	666244	785614
CV040-003----	Barrow - unclassified	CLOGHBALLYBEG	666773	786179
CV040-004----	Ringfort - rath	CLOGHBALLYBEG	666867	785745
CV040-005----	Castle - unclassified	CLOGHBALLYBEG	667358	785713
CV040-006----	Ringfort - rath	CLOGHERGOOLE	664666	786493
CV040-008----	Ringfort - rath	CORFAD (Castlerahan By.)	664957	786699
CV040-013----	House - 18th/19th century	CORNAGLEA LOWER	664867	787885
CV040-014----	Designed landscape - tree-ring	CORNAGLEA LOWER	665047	787715
CV040-015----	Children's burial ground	CORNAKILL (Castlerahan By.)	666377	787515
CV040-016----	Church	CORNAKILL (Castlerahan By.)	666594	786831
CV040-017----	Designed landscape - tree-ring	CORNAKILL (Castlerahan By.)	666918	786215
CV040-018----	Ringfort - rath	CORRAGLOON	664307	789395
CV040-022----	House - 18th/19th century	CUILCAGH	663977	789215
CV040-023----	Designed landscape - tree-ring	CUILCAGH	664007	789325
CV040-025----	Ringfort - rath	DRUMRAT (Castlerahan By.)	664123	787887
CV040-036----	Ringfort - rath	KILNAGUN	664197	785276
CV040-039----	Ringfort - rath	LISLEA (Castlerahan By.)	664232	786117
CV040-042----	Promontory fort - inland	MULLAGH	667776	785705
CV040-043----	Cairn - unclassified	MULLAGH	667826	786215
CV040-044001-	Church	MULLAGH	668166	785447
CV040-044002-	Graveyard	MULLAGH	668162	785427
CV040-044003-	Redundant record	MULLAGH	668171	785443
CV040-051----	Fulacht fia	CLOGHBALLYBEG	666377	785395
CV040-052----	Fulacht fia	CLOGHBALLY LOWER	666027	785395
CV040-053----	Fulacht fia	LISLEA (Castlerahan By.)	664287	785835
CV040-054----	Fulacht fia	LISLEA (Castlerahan By.)	664607	785835
CV040-057----	Fulacht fia	CLOGHBALLYBEG	666464	785310
CV043-001----	Ringfort - unclassified	BEHERNAGH	660588	783536
CV043-002----	Enclosure	BEHERNAGH	660878	783406
CV043-003----	Ringfort - cashel	BEHERNAGH	661118	783766
CV043-004----	Ringfort - unclassified	CARRAKEELTY BEG	663127	784876

RMP/SMR	Site Type	Townland	ITM (Easting)	ITM (Northing)
CV043-005----	Enclosure	CARRICK (Clanmahon By.)	657149	784656
CV043-006----	Ringfort - cashel	CARRICK (Clanmahon By.)	657369	784356
CV043-009001-	Ringfort - rath	CROAGHAN	658367	783929
CV043-009002-	Souterrain	CROAGHAN	658378	783926
CV043-010----	Designed landscape - tree-ring	EIGHTER	656259	784476
CV043-011----	Ringfort - unclassified	EIGHTER	656349	783956
CV043-012----	Children's burial ground	EIGHTER	656529	784596
CV043-013----	Ringfort - unclassified	ISLAND	660718	781836
CV043-014----	Ringfort - rath	ISLAND	661318	781046
CV043-015----	Enclosure	KNOCKARAHEEN	659178	782296
CV043-015001-	Ringfort - cashel	KNOCKARAHEEN	659178	782296
CV043-015002-	Souterrain	KNOCKARAHEEN	659178	782296
CV043-016----	Ringfort - unclassified	KNOCKARAHEEN	659188	782866
CV043-017----	Ringfort - cashel	KNOCKATEMPLE	659408	784356
CV043-018001-	Church	KNOCKATEMPLE	659638	784577
CV043-018002-	Graveyard	KNOCKATEMPLE	659639	784603
CV043-019----	Ringfort - rath	KNOCKNAGARTAN	660588	784186
CV043-020----	Ringfort - cashel	KNOCKNAGARTAN	660643	784662
CV043-021----	Designed landscape - tree-ring	KNOCKNAGARTAN	660708	784496
CV043-022----	Mass-rock	KNOCKNAGARTAN	660768	784786
CV043-023001-	Ritual site - holy well	KNOCKNAGARTAN	660838	784736
CV043-023002-	Ritual site - holy well	KNOCKNAGARTAN	660838	784736
CV043-024----	Crannog	KNOCKNAGARTAN	661218	785006
CV043-025----	Crannog	KNOCKNAGARTAN	661638	784236
CV043-026----	Castle - unclassified	KNOCKNAVEAGH	659644	781837
CV043-027----	Ringfort - rath	LISDUFF (Castlerahan By.)	663857	782856
CV043-028----	Ringfort - unclassified	LURGANBOY (Castlerahan By.)	658298	783496
CV043-029----	Ringfort - cashel	LURGANBOY (Castlerahan By.)	658426	783627
CV043-030----	Church	POLLINTEMPLE	662390	784705
CV043-031----	Ecclesiastical enclosure	POLLINTEMPLE	662926	784758
CV043-032----	Ringfort - rath	POLLINTEMPLE	662947	784426
CV043-033----	Kiln - lime	POLLINTEMPLE	663027	784736
CV043-034----	Redundant record	RYEFIELD	662008	783746
CV043-035----	Crannog	RYEFIELD	662262	783893

RMP/SMR	Site Type	Townland	ITM (Easting)	ITM (Northing)
CV043-036----	Ringfort - rath	KNOCKNAVEAGH	660723	781443
CV044-001----	Ringfort - unclassified	CARRIGABRUSE	664307	785066
CV044-002----	Mill - unclassified	CLOGHBALLY UPPER	666572	783433
CV044-003----	Redundant record	CLOGHBALLY UPPER	666647	783466
CV044-004----	Ringfort - rath	CLOGHBALLY UPPER	666777	784446
CV044-005----	Ringfort - rath	CLOGHBALLY UPPER	667526	784336
CV044-006----	Ringfort - rath	EDENBURT	664608	781972
CV044-007----	Barrow - unclassified	EDENBURT	664707	782066
CV044-008----	Ringfort - rath	EDENBURT	664917	781876
CV044-009----	Ringfort - rath	EDENBURT	665213	781136
CV044-010001-	Church	EDENBURT	665779	780537
CV044-010002-	Ringfort - rath	EDENBURT	665780	780487
CV044-010003-	Graveyard	EDENBURT	665784	780539
CV044-011----	Ringfort - rath	EDENBURT	665807	781106
CV044-012----	Mound	EDENBURT	665897	781166
CV044-013----	Ringfort - rath	FARTAGH (Castlerahan By.)	666161	782943
CV044-014----	Ringfort - cashel	FARTAGH (Castlerahan By.)	666415	782909
CV044-015----	Ringfort - rath	KILNAGUN	664777	785016
CV044-016----	Well	LEITRIM (Castlerahan By.)	668986	782156
CV044-017001-	Ringfort - rath	LEITRIM (Castlerahan By.)	669353	783197
CV044-017002-	Souterrain	LEITRIM (Castlerahan By.)	669345	783192
CV044-022----	Fulacht fia	CLOGHBALLYBEG	667529	784927
CV044-024----	Souterrain	CLOGHBALLY UPPER	667267	783024
ME009-010----	Ringfort - rath	NEWCASTLE (Fore By.)	657909	782222
ME009-023----	Ringfort - rath	RAHARD	662008	780004
ME009-092----	Ringfort - cashel	NEWCASTLE (Fore By.)	658373	782471
ME009-092001-	Hut site	NEWCASTLE (Fore By.)	658374	782469
ME009-092002-	Sweathouse	NEWCASTLE (Fore By.)	658376	782474
ME009-110----	Enclosure	NEWCASTLE (Fore By.)	658236	782226
ME010-018----	Ringfort - rath	LISNAGON	663304	780727
ME010-019----	Earthwork	DERVER	666639	780438
ME010-020----	Earthwork	DERVER	667014	780487
ME010-021----	Castle - motte and bailey	DERVER	666002	779995
ME010-022----	Earthwork	DERVER	666778	779996
ME010-023----	Earthwork	DERVER	667248	779915
ME010-024----	Ringfort - rath	RAHENDRICK	667888	780216

RMP/SMR	Site Type	Townland	ITM (Easting)	ITM (Northing)
ME010-025----	Ringfort - rath	RAHENDRICK	668166	780033
ME010-026----	Ringfort - rath	RAHENDRICK	668238	779700
ME010-027----	Passage tomb art	KINGSMOUNTAIN (Kells Upper By.)	663271	779517
ME010-028----	Ringfort - rath	CLONASILLAGH	663875	779735
ME010-029----	Ringfort - rath	CLONASILLAGH,POTTLEREAGH	664466	779489
ME010-030----	Ringfort - rath	BALGREE	665145	779175
ME010-031----	Enclosure	BALGREE	665900	778898
ME010-032----	Ringfort - rath	BALGREE	665592	778718
ME010-036----	Ringfort - rath	POTTLEBANE	666746	778142
ME010-037----	Ringfort - rath	WOODPOLE	667531	778668
ME010-041----	Megalithic tomb - passage tomb	CLONASILLAGH	663997	780638
ME010-042----	Ritual site - holy well	FEEGAT	668833	782410
ME010-043----	Cist	WOODPOLE	667029	778350
ME010-044----	Cairn - unclassified	CLONASILLAGH	663776	780405
ME010-045----	Decorated stone (present location)	CLONASILLAGH	663834	780267

National Museum of Ireland – Topographical Files (Artefact Finds)

Townland	County	NMI Ref.	Artefact	Notes
Annagharnet	Cavan	1938:138	Leather shoe	Found in bog
Ardlow	Cavan	1930:127	Bronze sword	Bronze sword with later bone hilt made from animal metatarsal. Found in field beside bog
Balgree	Meath	1942:541	Chert arrowhead	Leaf shaped
Balgree	Meath	1942:540	Chert blade	-
Balgree	Meath	1942:539	Flint knife	-
Balgree	Meath	1942:538	Flint arrowhead	Barbed and tanged
Ballaghanea	Cavan	1988:137	Copper alloy openwork harp mount	Found on Lough Ramor, largest island, possible castle site
Ballyhist	Meath	1942:621	Small, tabular piece	Possible gaming piece or unperforated bead
Ballyhist	Meath	1942:619 – 1942:620	x2 Chert flakes	-
Ballyhist	Meath	1942:618	Chert arrowhead	-
Ballyhist	Meath	1942:617	Chert blade	-
Ballyhist	Meath	1942:614 – 1942:616	x3 Chert scrapers	-

Townland	County	NMI Ref.	Artefact	Notes
Ballyhist	Meath	1942:612 – 1942:613	x2 Chert arrowheads	-
Ballyhist	Meath	1942:611	Flint blade	-
Ballyhist	Meath	1942:610	Flint arrowhead	-
Ballyhist	Meath	1942:609	Flint scraper	-
Ballyhist	Meath	1942:608	Flint tool	-
Ballyhist	Meath	1942:607	Flint flake	-
Ballyhist	Meath	1942:602 – 1942:606	x5 Flint scrapers	-
Ballyhist	Meath	1942:599 – 1942:601	x3 Stone axeheads	-
Ballyhist	Meath	1942:431	Glass bead	-
Ballyhist	Meath	1942:1210	Gunflint	-
Boolies	Meath	1977:2344	Copper alloy stick pin	Found on bank of ringfort
Boolies	Meath	1942:714	Microlith	-
Boolies	Meath	1942:713	Chert flake	-
Boolies	Meath	1942:712	Chert scraper	-
Boolies	Meath	1942:711	Chert arrowhead	-
Boolies	Meath	1942:710	Flint scraper	-
Boolies	Meath	1942:709	Flint tool	-
Boolies	Meath	1942:707 – 1942:708	x2 Flint arrowheads	-
Boolies	Meath	1942:706	Stone axehead	-
Carnaross	Meath	1938:9434	Stone axehead	-
Carrick	Cavan	3460:W6	Goat hair textile fragment	Found in Carrick bog on the shore of Lough Sheelin
Cloghballybeg	Cavan	2011:118	Bronze palstave axehead	Found 100 yards from Mullagh Lake
Curracloghan	Cavan	P1954:32	Socketed bronze spearhead	Leaf shaped and peg-hole type, found in bog
Drumlerry	Meath	1000:1002	Human remains	Found in box with chert flakes
Drumlerry	Meath	2012:160 – 2012:162	Glass beads	-
Drumlerry	Meath	1942:1215	Glass bead	-
Drumlerry	Meath	1942:783 – 1942:784	x2 Flint tools	Arrowhead and scraper
Drumlerry	Meath	1942:700 – 1942:704	Flint and chert assemblage	Arrowheads and scrapers
Drumlerry	Meath	1942:440 – 1942:442	Glass beads	-
Drumlerry	Meath	1938:9223	Stone axehead	-
Drumlerry	Meath	1938:9224	Flint arrowhead	-
Drumlerry	Meath	SA1903:3.1 – SA1903:3.10	x10 Arrowheads	Flint and chert arrowheads

Townland	County	NMI Ref.	Artefact	Notes
Drumlerry	Meath	RIA1903:1.252 – RIA1903:1668	Large collection of flint, chert and stone tools	412 individual tools including arrowheads, blades, projectile heads, scrapers, etc
Edenburt	Cavan	1942:1212	Flint scraper	-
Edenburt	Cavan	1942:790	Flint scraper	-
Edenburt	Cavan	1942:732	Flint javelin	-
Edenburt	Cavan	1942:731	Flint scraper	-
Edenburt	Cavan	1942:730	Flint blade	-
Edenburt	Cavan	1942:725 -1942:729	x5 Flint scrapers	-
Edenburt	Cavan	1942:724	Flint flake	-
Edenburt	Cavan	1938:9782	Bronze knife	-
Enagh	Cavan	1959:747	Bog butter in animal bladder	Found in spongy, upper peat
Enagh	Cavan	1937:2770	Stone macehead	-
Enagh	Cavan	1935:19	Possibly worked rock crystal	Found at bottom of bog
Kilmore	Cavan	R1688	Bronze sword fragment	Found 12ft below the surface of Kilmore bog
Kilmore	Cavan	R1687	Bronze spearhead	Found in Kilmore bog
Kilmore	Cavan	E191:653	Wax seal impression	-
Kingsmountain	Meath	1942:1216	Chert triangular arrowhead	-
Kingsmountain	Meath	1942:723	Flint concave scraper	-
Kingsmountain	Meath	1942:722	Flint plano-convex knife	-
Kingsmountain	Meath	1942:721	Stone axehead	-
Lattoon	Cavan	RIA1920:28	Gold disc	-
Lattoon	Cavan	RIA1920:27	Gold bracelet	-
Lattoon	Cavan	RIA1920:26	Gold bracelet	-
Lattoon	Cavan	RIA1920:25	Gold dress fastener	-
Lattoon	Cavan	RIA1920:24	Gold dress fastener	-
Lisnagon	Meath	1942:786	Chert scraper	-
Lisnagon	Meath	1942:542	Chert arrowhead	-
Lisnagon	Meath	1942:415	Bronze axehead	-
Lurganboy	Cavan	1961:81	Hammerstone	Found in surface soil of field
Mullagh	Cavan	1957:8	Countersunk pebble	-
Mullaghmore	Cavan	1957:113	Decorated flat bronze axehead	Found in rocky ground, filled in after quarrying

Townland	County	NMI Ref.	Artefact	Notes
Newcastle	Meath	1960:395	Cremated human remains	Found in small, rectangular cist
Newcastle	Meath	2015:33	Flint projectile head	ITM: 676658, 741504
Newcastle	Meath	2016:175	Stone burnisher	ITM: 676635, 741513
Raffony	Cavan	1995:2012	Stone window moulding	Found at church site
Rahard	Meath	1942:537	Chert scraper	-
Rantavan	Cavan	1972:338	Stone mortar	-
Stonefield	Meath	1942:1222 – 1942:1224	Chert flake and 2 chert scrapers	-
Stonefield	Meath	1942:432	Faience bed	-
Stonefield	Meath	1942:436	Glass bead	-
Stonefield	Meath	1942:437	Amber bead	-
Stonefield	Meath	1942:449	Glass bead	-
Stonefield	Meath	1942:666	Stone bead	-
Stonefield	Meath	1942:667 – 1942:670	x4 Stone axeheads	-
Stonefield	Meath	1942:671 – 1942:681	Flint assemblage	Collection of flint tools including an arrowhead, a javelin, multiple scrapers, blades and knives
Stonefield	Meath	1942:682 – 1942:694 and 1942:767 – 1942:770	Chert assemblage	Collection of chert tools including arrowheads, blades and scrapers
Virginia	Cavan	1959:135	Socketed bronze axehead	-
Virginia	Cavan	1884:496	Wooden vessel	Found in Killinkere bog
Virginia	Cavan	1875:85	Iron candlestick	Found in bog near Virginia village
Virginia	Cavan	1837:wk120	Iron candlestick	Found in bog near Virginia village
Virginia	Cavan	4955:W43	Cast copper alloy cauldron	Found in Lough Ramor
Virginia	Cavan	4952:W40	Cast copper alloy cauldron	Found in Lough Ramor
Virginia	Cavan	7242:W34	Silver arm ring	-
Virginia	Cavan	7345:W33	Silver brooch	Pennanular brooch of the Viking period
Woodpole	Meath	1997:67	Cremated human remains	Small quantity of human bone recovered from cist burial
Woodpole	Meath	1997:66	Pottery	Decorated prehistoric pottery sherds

Licenced Archaeological Excavations from the Study Area (Source: www.excavations.ie)

Licence Ref.	Townland	Notes	ITM (Easting)	ITM (Northing)
04E1059	BALGREE	M3 Clonee-North of Kells testing. No archaeological significance.	666843	779167
04E1053	BOOLIES	3 x spreads of burnt mound material uncovered suring testing for M3 Clonee-North of Kells contract	670938	774660
A030/005 E3167	BOOLIES	Burnt mound – two spreads of charcoal and heat-shattered stone, two pits/troughs. No finds. Excavated as part of M3 Clonee-North of Kells contract	670988	774652
A030/004 E3166	BOOLIES	Burnt mound- spread of coarse black clay with heat-shattered stone, 3 possible pits incl 2 possible troughs. No finds.	671299	774587
02E1475	CABRAGH	Testing at 'enclosure site' SMR32:054. No archaeological significance	668846	781108
11E035	Commons of LLOYD/RATHBRACK/ DERVER/KELLS CO. MEATH & EDENBURT/POLLINTEMPLE/ CARRAKEELTY BEG/CARNAROSS CO. CAVAN	Proximity to CV044-011--- ME016-009--- ME016-016--- Pipeline trench excavations for BGE Kells Feeder Main along route of N3 from Mahera Cross south to Kells. Post-medieval drainage features and surfaces, medieval pit/ditch.	695901	773900
05E0142	CARRICKAVEE	Testing for 2 no. houses, No archaeological significance.	654227	788790
07E0503	CORNAKILL	Testing for a house site near Children's Burial Ground CV040-015---. No archaeological significance	666237	787415
10E0508	CORNAKILL	Test-trenching at house site near ringfort CV021-017---. No archaeological significance.	666559	787116
04E1060	DERVER	Testing for M3 Clonee-North of Kells contract	666172	780351
A008/082, A017/044, A023/028, A029/052, A030/029 E3053	CLONEE to DERVER	Monitoring of topsoil stripping M3 Clonee to North of Kells.	703434	741302
A030/025 E3187	DERVER (1)	Prehistoric activity (M3 Clonee-North of Kells) Possible temporary prehistoric camp – pits, pottery.	666276	780428
A030/024 E3186	DERVER (2)	Possible prehistoric activity. 2 x Pits, charcoal-rich fill. (M3 Clonee-North of Kells)	666358	780252

Licence Ref.	Townland	Notes	ITM (Easting)	ITM (Northing)
A030/023 E3185	DERVER (3)	Possible prehistoric activity. 1 x charcoal-rich pit and in-situ burning. (M3 Clonee-North of Kells)	666488	779995
A030/022 E3184	DERVER (4)	Prehistoric structure and associated pits and post-holes on N bank of R Blackwater. (M3 Clonee-North of Kells)	666843	779241
A030/021 E3183	DERVER (5)	Pits x 4 with burnt stone fill. (M3 Clonee-North of Kells)	666745	779331
A030/020 E3182	DERVER (6)	1 x burnt-stone pit. (M3 Clonee-North of Kells)	666843	779241
A043/002 E3594	DERVER	Testing (M3 Clonee-North of Kells) 2 x small pits.	666510	779901
05E1392	EIGHTER	Testing beside CV043-011---enclosure. Linear feature observed and preserved in situ.	656337	783935
02E1258	EIGHTER	Testing near a Children's Burial Gd. No archaeological significance.	656305	784693
04E0735	FARTAGH	Testing near a ringfort. No archaeological significance.	666155	782737
99E0166	LISLEA	Testing near ringfort CV039-058---levelled ringfort. No archaeological significance.	663384	786195
04E0904 04R101	MULLAGH	Inhumations/enclosure? Testing and metal detection near CV044-021---. Grave cuts, human bone and teeth. Remains of a ditch possibly enclosing the inhumations.	668512	783885
05E0092	MULLAGH	Enclosure and cemetery. Cemetery and potential structure enclosed by large curving ditch. Near church site CV044-018001---. Likely part of the ecclesiastical site. Preserved in situ.	668512	783885
06E0897	MULLAGH	Monitoring and excavation at residential housing site revealed Late Neolithic Pits, Bronze Age fulacht fiadh, burnt spreads and linear and isolated random features.	668512	783885
98E0530	MULLAGH	Testing near a ringfort. No archaeological significance.	668512	783885
04E1058	POTTLEBANE	Testing for M3 Clonee-North of Kells. 2 no. burnt spreads and a pit with prehistoric pottery sherd. Hearth, post-holes, large pit and	667105	778606

Licence Ref.	Townland	Notes	ITM (Easting)	ITM (Northing)
		possible cremation pit. Possible Bronze Age activity.		
04D073	POTTLEBANE/WOODPOLE	Underwater survey in River Blackwater at Pottlebane & Woodpole. Possible archaeological site comprising large mound of stones with a stream tributary of the Blackwater encircling it. Part of N3 Navan-Kells road alignment.	666742	778470
A043/003 E3595	POTTLEBANE	Testing as part of M3 Clonee-North of Kells. No archaeological significance.	667097	778921
A043/010 E3650	POTTLEBANE	Testing as part of M3 Clonee-North of Kells. No archaeological significance.	667035	778560
A030/019 E3181	POTTLEBANE	Testing as part of M3 Clonee-North of Kells. 8 no. small pits and 1 no. large pit, hearth, possible camp site.	666901	778998
A030/018 E3180	POTTLEBANE	Testing as part of M3 Clonee-North of Kells. 4 no. small pits, possibly associated with a camp site.	666977	778803
A030/017 E3179	POTTLEBANE	Testing as part of M3 Clonee-North of Kells. Burnt mound and kiln.	667068	778685
15E0574	POTTLEREAGH/CLONSILLAGH	Testing at a quarry site. No archaeological significance.	664509	780183
06E1229	RAHARDRUM	Testing at residential development. No archaeological significance.	660624	787785
02E1049	RAHARDRUM	Testing at residential development. No archaeological significance. Enclosure identified in field survey preserved in situ.CV039-075---	660624	787785
06E0308	RANTAVAN	Testing for residential development. No archaeological significance.	668636	784466
07E0875	RANTAVAN/ROSEHILL	Testing at greenfield site. No archaeological significance.	668636	784466
04E1057	WOODPOLE	Testing for M3 Clonee-North of Kells. No archaeological significance.	667778	777497
A043/006 E3640	WOODPOLE	Testing for M3 Clonee-North of Kells. No archaeological significance.	667417	778425

Licence Ref.	Townland	Notes	ITM (Easting)	ITM (Northing)
A043/007 E3641	WOODPOLE	Testing for M3 Clonee-North of Kells. Burnt mound activity. Preserved in situ.	667598	778229
E1144	WOODPOLE	ME010-043--- Early Bronze Age Cist rescue excavation by NMI	667029 667037	778350 778217

Architectural Heritage Sites: Record of Protected Structures (RPS), Co Cavan & Co Meath

RPS Ref.	Site Type	Townland	ITM (Easting)	ITM (Northing)
423 (Cavan)	Church of Ireland, Mullagh	Mullagh	668211	785488
236 (Cavan)	Bellasis Presbyterian Church	Drumgora	657408	792263
318 (Cavan)	Windmill	Enagh	662558	790098
319 (Cavan)	Fort Fredrick	Deerpark	657893	786600
319 (Cavan)	Fort Fredrick	Deerpark	657369	787288
319 (Cavan)	Fort Fredrick	Deerpark	657263	786882
320 (Cavan)	The Park Hotel	Deerpark	659670	787659
331 (Cavan)	Church of Ireland	Virginia	660104	787812
332 (Cavan)	Entrance Gates and Lodge to Park Hotel	Virginia	660041	787758
332 (Cavan)	Entrance Gates and Lodge to Park Hotel	Virginia	660056	787756
333 (Cavan)	House, Formerly Known as The Cottage	Virginia	660120	787735
338 (Cavan)	House with shopfront	Virginia	660310	787668
339 (Cavan)	Courthouse	Virginia	660345	787706
342 (Cavan)	Seamus O'Reilly	Virginia	660362	787646
346 (Cavan)	Capri Takeaway & Fortuna Restaurant	Virginia	660404	787623
350 (Cavan)	O'Donoghues Pharmacy	Virginia	660422	787613
361 (Cavan)	Former Estate Cottage	Virginia	660455	787488
363 (Cavan)	Ramor Theatre	Virginia	660554	787546
364 (Cavan)	National Irish Bank	Virginia	660537	787552
368 (Cavan)	3 Bay House (1 in a terrace)	Virginia	660610	787546
369 (Cavan)	Cos Abhann	Virginia	660620	787548
370 (Cavan)	Bridge	Virginia	660679	787587
371 (Cavan)	Kellet's Mill	Rahardrum	660683	787620
382 (Cavan)	O'Daly's Bridge	Edenburt	665193	780366

RPS Ref.	Site Type	Townland	ITM (Easting)	ITM (Northing)
383 (Cavan)	Lime Kiln Edenburt	Edenburt (Pollintemple)	663030	784756
422 (Cavan)	Ardlow National School, Virginia	Ardlow	662809	790649
424 (Cavan)	Lakeview House, Mullagh	Cloghbally	667127	785386
426 (Cavan)	Church of Ireland, Munterconnaught, Virginia	Knockatemple	659635	784589
427 (Cavan)	St Bartholomew's Roman Catholic Church, Virgini	Knockatemple	660107	784573
428 (Cavan)	Pollintemple House, Virginia	Pollintemple	663039	784815
233 (Cavan)	Billis Mill	Drummallaght	655980	793504
321 (Cavan)	The Park Hotel Lodges, Gates and Walls	Deerpark	659241	788061
321 (Cavan)	The Park Hotel Lodges, Gates and Walls	Deerpark	658014	787778
321 (Cavan)	The Park Hotel Lodges, Gates and Walls	Deerpark	659698	787876
321 (Cavan)	The Park Hotel Lodges, Gates and Walls	Deerpark	659946	787802
321 (Cavan)	The Park Hotel Lodges, Gates and Walls	Deerpark	658638	787950
322 (Cavan)	Boat Houses	Deerpark	659618	787186
322 (Cavan)	Boat Houses	Deerpark	659855	787317
322 (Cavan)	Boat Houses	Deerpark	659348	786998
323 (Cavan)	Laura Beth Boutique	Virginia	660179	787829
324 (Cavan)	Water Hydrant & Vent Pipe	Virginia	660175	787816
325 (Cavan)	Former Estate Cottage	Virginia	660244	787772
326 (Cavan)	Former Estate Cottage	Virginia	660249	787768
327 (Cavan)	Former Estate Cottage	Virginia	660256	787764
328 (Cavan)	Former Estate Cottage	Virginia	660261	787760
329 (Cavan)	Former Estate Cottage	Virginia	660269	787755
330 (Cavan)	Former Estate Cottage	Virginia	660274	787751
334 (Cavan)	Former Estate Cottage	Virginia	660193	787709
335 (Cavan)	Former Estate Cottage	Virginia	660199	787707
336 (Cavan)	Former Estate Cottage	Virginia	660208	787705
337 (Cavan)	Former Estate Cottage	Virginia	660214	787703
340 (Cavan)	Healy's Bar	Virginia	660356	787696
341 (Cavan)	Head Rush/KoKo Havanah	Virginia	660366	787688

RPS Ref.	Site Type	Townland	ITM (Easting)	ITM (Northing)
343 (Cavan)	Swift Restaurant	Virginia	660375	787640
344 (Cavan)	E. O'Ceallaig	Virginia	660385	787671
345 (Cavan)	House	Virginia	660396	787662
347 (Cavan)	Riverfront Hotel	Virginia	660415	787646
348 (Cavan)	Dwellinghouse	Virginia	660431	787635
349 (Cavan)	G. Fitzsimons	Virginia	660445	787628
351 (Cavan)	Garda Station	Virginia	660429	787609
352 (Cavan)	Dwellinghouse/DeGog Boutique	Virginia	660438	787604
353 (Cavan)	E. O'Reilly	Virginia	660477	787580
354 (Cavan)	Former Estate Cottage (1 of 4)	Virginia	660439	787501
355 (Cavan)	Former Estate Cottage (2 of 4)	Virginia	660435	787495
356 (Cavan)	Former Estate Cottage (3 of 4)	Virginia	660431	787487
357 (Cavan)	Former Estate Cottage (4 of 4)	Virginia	660429	787481
358 (Cavan)	Entrance Gate	Virginia	660436	787469
359 (Cavan)	Former Estate Cottage	Virginia	660448	787474
360 (Cavan)	Former Estate Cottage	Virginia	660451	787479
362 (Cavan)	Former Estate Cottage	Virginia	660459	787493
365 (Cavan)	House (1 of Pair)	Virginia	660580	787542
366 (Cavan)	House (2 of Pair)	Virginia	660586	787543
367 (Cavan)	Stone Fronted House (1 in a terrace)	Virginia	660596	787544
376 (Cavan)	Stramatt Bridge	Stramatt	662991	783407
377 (Cavan)	Brady's Ryefield Cross Mills	Ryefield	663599	781021
378 (Cavan)	Knocknaveagh Railway Bridge	Knocknaveagh	659852	781010
429 (Cavan)	Ballydurrow Community Centre, Virginia	Ballaghdorragh	661789	780755
335A (Cavan)	Forge at rear of Former Estate Cottage	Virginia	660198	787688
MH016-114 (Meath)	Woodpole Bridge	Carnaross	667599	777749
MH010-100 (Meath)	Virginia Road Station	Carnaross	664871	779838
MH010-101 (Meath)	Virginia Road Station	Carnaross	664953	779800
MH010-102 (Meath)	Post box	Carnaross	664979	779729

RPS Ref.	Site Type	Townland	ITM (Easting)	ITM (Northing)
MH010-103 (Meath)	Bridge	Carnaross	665003	779796

Architectural Heritage Sites: National Inventory of Architectural Heritage (NIAH) Co. Cavan

NIAH Ref.	Site Type	Townland	ITM (Easting)	ITM (Northing)
40311001	Gate Lodge	DEERPARK	659695	787876
40311001	Gate Lodge	DEERPARK	659686	787880
40311002	Garden Structure Misc	CRANNADILLON	659711	787864
40311002	Garden Structure Misc	CRANNADILLON	659726	787861
40311002	Garden Structure Misc	CRANNADILLON	659722	787854
40311003	Stables	DEERPARK,VIRGINIA	659575	787706
40311003	Stables	DEERPARK,VIRGINIA	659596	787718
40311003	Stables	DEERPARK,VIRGINIA	659492	787754
40311004	Hunting/Fishing Lodge	DEERPARK	659663	787665
40311005	House	VIRGINIA	660120	787734
40311006	Gate Lodge	VIRGINIA	660039	787759
40311007	Church/Chapel	VIRGINIA	660105	787811
40311008	House	VIRGINIA	660311	787668
40311009	House	VIRGINIA	660361	787648
40311011	House	VIRGINIA	660421	787612
40311012	Bank/Financial Institution	VIRGINIA	660534	787549
40311013	Church/Chapel	VIRGINIA	660554	787542
40311014	House	VIRGINIA	660611	787544
40311015	House	VIRGINIA	660621	787546
40311016	Bridge	RAHARDRUM,VIRGINIA	660679	787587
40311017	Mill (Water)	RAHARDRUM	660681	787617
40311017	Mill (Water)	RAHARDRUM	660671	787629
40311017	Mill (Water)	RAHARDRUM	660676	787623
40311017	Mill (Water)	RAHARDRUM	660686	787611
40311017	Mill (Water)	RAHARDRUM	660691	787605
40311018	House	VIRGINIA	660571	787575
40311019	Market House	VIRGINIA	660347	787709
40311020	Shop/Retail Outlet	VIRGINIA	660403	787623
40311021	House	VIRGINIA	660392	787630
40311023	House	VIRGINIA	660384	787635

NIAH Ref.	Site Type	Townland	ITM (Easting)	ITM (Northing)
40403306	Bridge	BILLIS (Castlerahan By.),FINTAWAN	656108	793371
40403307	Post Box	BILLIS (Castlerahan By.)	656128	793379
40403308	Church/Chapel	DRUMGORA (Castlerahan By.)	657412	792256
40403309	Bridge	DRUMAGOLAN,STRAMAQUERTY	659436	792105
40403901	Bridge	CURRAGHMORE	656603	790177
40403902	Mill (Water)	CURRAGHMORE	656873	790053
40403903	Farmhouse	COPPANAGH GLEBE	656934	789288
40403905	Church/Chapel	COPPANAGH GLEBE	657724	788775
40403906	Farmhouse	DUNANCORY	658426	788453
40403907	House	VIRGINIA	659558	788634
40403908	School	ARDLOW	662808	790651
40403909	Farmhouse	LISNABANTRY (Killinkere ED)	661946	789463
40403910	School	GARRYROSS	655286	785369
40403912	Farmhouse	ENAGH (Virginia ED)	657083	786981
40403913	Gate Lodge	ENAGH (Virginia ED)	657252	786892
40403914	Country House	ENAGH (Virginia ED)	657893	786601
40403915	Gate Lodge	ENAGH (Virginia ED)	657368	787289
40403916	Worker's House	DEERPARK	659306	787998
40403917	Farmhouse	RAHARDRUM	661405	787049
40404009	Church/Chapel	MULLAGH	668211	785488
40404011	House	CLOGHBALLYBEG	667326	785706
40404012	Country House	CLOGHBALLYBEG	667127	785386
40404301	Rectory/Glebe/Vicarage/Curate's House	CROAGHAN	658454	784923
40404302	House	CROAGHAN	658725	785054
40404303	Church/Chapel	KNOCKATEMPLE	659635	784589
40404304	Church/Chapel	KNOCKATEMPLE	660107	784574
40404305	Farmhouse	BEHERNAGH	660903	783417
40404306	Kiln	POLLINTEMPLE	663005	784722
40404307	Farmhouse	POLLINTEMPLE	663039	784814
40404308	Church/Chapel	STRAMATT	663744	783526
40404310	Farmhouse	BALLAGHDORRAGH	662628	781328
40404311	Farmhouse	BALLAGHDORRAGH	662659	781318
40404402	Bridge	EDENBURT	665187	780368
40404404	Kiln	FARTAGH (Castlerahan By.)	666132	782256

Architectural Heritage Sites: National Inventory of Architectural Heritage (NIAH) Co. Meath

NIAH Ref.	Site Type	Townland	ITM (Easting)	ITM (Northing)
14307012	Bridge	WOODPOLE	667599	777749
14401001	Bridge	POTTLEREAGH	665003	779795
14401002	Railway Station	POTTLEREAGH	664955	779799
14401003	Store/Warehouse	POTTLEREAGH	664872	779836
14401004	Post Box	POTTLEREAGH	664978	779728

National Inventory of Architectural Heritage (NIAH) Garden Survey Sites

NIAH Garden ID.	Site Type	Townland	ITM (Easting)	ITM (Northing)
3832	Eighter House	Eighter (Cavan)	656859	785674
3833	Fort George Glebe House	Lurgan Glebe (Cavan)	657855	787396
3834	Fort Fredrick	Deerpark (Cavan)	657893	786601
3835	Hunting Lodge	Deerpark (Cavan)	659663	787665
3836	Farmhouse	Rahardrum (Cavan)	661405	787050
3838	Cuilcagh House	Cuilcagh (Cavan)	663977	789215
3839	Cornaglea House	Cornaglea Lower (Cavan)	664867	787885
3841	Cornashesk	Cornashesk (Cavan)	662474	787443
3843	Palmira House	Cornaglare or Palmira (Cavan)	666867	788037
3844	Lakeview House	Cloghbally (Cavan)	667128	785386
3845	Mullagh Cottage	Mullagh (Cavan)	667458	785781
4987	Cabragh House	Cabragh (Meath)	669820	780895
5085	Jonesborough House	Killaconin or Jonesborough	667038	777613
5139	Newcastle House	Newcastle	658012	781911
5191	Stonefield House	Stonefield	661556	778691
5712	Glebe House, Mullagh	Glebe	668020	785355
5771	Cornakill House	Cornakill	667124	786315

Placenames (townlands) Review

Townland	County	Irish	Translation/Meaning	Indicative Cultural Heritage potential
Aghacashel	Cavan	*Achadh Chaisil*	Field of the stone fort	Natural topography and possible location of Cashel (fort)
Aghalion	Cavan	*Achadh Lia/dhain*	Lyne's field	Natural topography and possible named ownership of farmed area
Aghaloughan	Cavan	*Achadh Locháin*	Field of the pool	Natural topography

Townland	County	Irish	Translation/Meaning	Indicative Cultural Heritage potential
Aghnadrung	Cavan	*Achadh na Drong*	Field of the tribes	Natural topography and possible indication of distinguished communities
Annagharnet	Cavan	*Eanach Airnit* or *Áth na Chárnnachtaidh*	*'Eanach Airnit'* Harnett's moor or cut out bog	Natural topography and possible named ownership of bog area
Ardlow	Cavan	*Ard Loch*	High Lough	Natural topography
Balgree	Meath	*Baile Graí*	'*Baile graoi'* Town of the cattle	Indication of settlement and its possible farming associations
Ballaghanea	Cavan	*Beallach an Feadha* or *Bealach an Fhéidh*	*'Beallach an Feadha'* Road of the wood	Natural topography and possible location of roadway
Ballaghdorragh	Cavan	*Bealach dorcha*	The dark road or pass	Possible location of roadway
Ballinlough Little	Meath	*Baile an Locha*	Town of the Lough	Settlement and natural topography
Ballyhist	Meath	*Baile Hoiste*	*'Baile Hist'* Hist's town	Settlement and possible named ownership
Behernagh	Cavan	*Beithearnach*	A place abounding in birch	Natural topography
Billis	Cavan	*Na Bilí*	*'Biledha'* The large sacred trees	Natural topography and possible associated folklore
Boolies	Meath	*Na Buailidhe*	The Dairies	Farmed land (cattle/dairying)
Bruse	Cavan	*Sliabh Brúis*	*'Mullach Brúis'* Top of the brambles or dried sticks	Natural topography
Burnew	Cavan	*Boirne*	Rocks	Natural topography
Burrencarragh	Cavan	*Buirrinn Carach*	Rough rocky land	Natural topography
Burrenrea	Cavan	*Buirinn Réidh*	Smooth rocky surfaced land	Natural topography
Cabragh	Meath	*Cabrach*	Bad land	Natural topography
Carn	Cavan	*Carn*	A heap of stones, a cairn	Potential Cairn location
Carnaross	Meath	*Carn na Ros*	*'Cairn'*, pile of rocks or an abbreviation of '*Carraigh na Ros',* rock of the woods	Natural topography and/or potential Cairn location
Carnin	Cavan	*An Cairnín*	*'Cairnin'* A small heap (of stones), a small *cairn*	Potential Cairn location
Carrakeelty Beg	Cavan	*Cara Caoilte beg*	Keelty's eel-weir (little)	Aquaculture and possible indication of named ownership
Carrakeelty More	Cavan	*Cara Caoilte Mor*	Keelty's eel-weir (big)	Aquaculture and possible indication of named ownership
Carrick	Cavan	*Carraic*	A rock	Natural topography

Townland	County	Irish	Translation/Meaning	Indicative Cultural Heritage potential
Carrickavee	Cavan	*Carraic a Bhidh*	Rock of the food or rocks in the shape of a 'V'	Natural topography
Carrickeeshil	Cavan	*Carraic Ísle*	Low Rocks	Natural topography
Carrigabruse	Cavan	*Carraigeach Bruis*	Rocky land of Bruis	Natural topography and possible named ownership
Carrigasimon	Cavan	*Carraic mic Simeoin*	Mac Simon's rock	Natural topography and possible named ownership
Cleggan	Cavan	*Clagan*	A rocky hill	Natural topography
Cloghbally Lower	Cavan	*Cloch Bhaile Íochtarach*	*'Cloch Bhaile'* Stone town	Settlement and natural topography (possible reference to the stone castle of *Baile Beag*)
Cloghbally Upper	Cavan	*Cloch Bhaile Uachtarach*	*'Cloch Bhaile'* Stone town	Settlement and natural topography (possible reference to the stone castle of *Baile Beag*)
Cloghballybeg	Cavan	*Cloch Bhaile Bhig*	*'Cloch Baile Beg'* Stone-town (little)	Settlement and natural topography (possible reference to the stone castle of *Baile Beag*)
Cloghergoole	Cavan	*Cloch ar gCul*	Stone on the back	Natural topography
Clonasillagh	Meath	*Cluain na Saileach*	Lawn or meadow of the sallows	Natural topography
Clonkeiffy	Cavan	*Cluain Chaochmhaí*	*'Cluain Cobhthaigh'* Coffey's lawn or meadow	Natural topography and possible named ownership
Clonmacmara	Cavan	*Cluain Mhic Maire*	Mac Mara's lawn or isolated meadow	Natural topography and possible named ownership
Cloonagrouna	Meath	*Cluain na gCrobhana*	Land of the clusters	Natural topography
Coppanagh Glebe	Cavan	*Copanach*	Abounding in dock leaves	Natural topography and possible ecclesiastical glebe lands
Corfad	Cavan	*Cor Fada*	Long hill	Natural topography
Cormaddyduff	Cavan	*Cor Maide Duibh*	Round hill of the black stick	Natural topography and possible reference to the old bridge at Kearney's crossroads which was made of black oak
Cormeen	Cavan	*Cor Mhín*	Smooth hill	Natural topography
Cornacreeve	Cavan	*Cor na Craoibhe*	Round hill of the bush or wide branching tree	Natural topography
Cornaglare or Palmira	Cavan	*Corr na gClár,*	Hill of the smooth fields	Natural topography
Cornaglea Lower	Cavan	*Cor na gCliath*	Hill of the hurdles	Natural topography
Cornaglea Upper	Cavan	*Cor na gCliath*	Hill of the hurdles	Natural topography
Cornakill	Cavan	*Cor na Coille*	Hill of the wood	Natural topography

Townland	County	Irish	Translation/Meaning	Indicative Cultural Heritage potential
Cornakilly	Cavan	*Cor na Cille*	Round hill of the church	Natural topography and possible indication of monastic site
Cornashesk	Cavan	*Cor na Seisce*	Hill of the sedge	Natural topography
Cornaslieve	Cavan	*Cor na Sliabh*	Hill of the mountains	Natural topography
Corragloon	Cavan	*Currach Cluin*	Moor of the lawn or meadow	Natural topography
Corraneden	Cavan	*Cor an Éudain*	Round hill of the brows	Natural topography
Corratinner	Cavan	*Cor a tSean-iubhair*	Round hill of the old yew	Natural topography
Correagh Glebe	Cavan	*Cor Riach*	Grey hill	Natural topography and possible ecclesiastical glebe lands
Corronagh	Cavan	*Coranach*	*'Cor-eanach'* Marsh of the cranes?	Natural topography [marsh] and possible faunal indication [cranes]
Corryrourke	Cavan	*Cor Ui Ruairc*	O'Rourk's hill	Natural topography and possible named ownership
Crannadillon	Cavan	*Crann a Dealamh*	Tree of the image or apparition	Natural topography and indication of possible associated folklore
Croaghan	Cavan	*Cruachán*	A round hill like a stack	Natural topography
Crossafehin	Cavan	*Crosa Feichin*	"Cruces Sancti Feichini" [dúbh] Black cross/crossing point?	Possible location of cross/crossing point
Crosserule	Cavan	*Crois air Ghabhal*	Cross on the fork	Possible location of crossing point [roadway]
Crossreagh	Cavan	*An Chros Riabhach*	*'Cros Riach'* Streaked grey cross	Possible location of cross/crossing point
Cuilcagh	Cavan	*Cuilceach*	Chalky	Natural topography
Curracloghan	Cavan	*Currach Clochain*	Moor of the stony ford	Natural topography and river crossing
Curragh	Meath	*An Currach*	A moor	Natural topography
Curraghkeel	Cavan	*Currach Caol*	Narrow curragh or moor	Natural topography
Curraghmore	Cavan	*Currach Mór*	Great moor	Natural topography
Deerpark	Cavan	*Páirc na bhFianna*	Deer park	Farmed area (pastoral)
Derver	Meath	*Dair-mhaighe*	Oak field	Natural topography
Doon	Cavan	*Dún*	'It has 2 forts' [Desc Rem.] OS Parish Namebook	Possible location of defensive enclosure(s)/fort(s)
Drumagolan	Cavan	*Druim a Ghabláin*	Ridge of the small fork	Natural topography and possible location of road fork
Drumderg	Cavan	*Druim Deirg*	Red back, or long hill	Natural topography

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Drumderg Glebe	Cavan	*Druim Deirg*	Red back, or long hill	Natural topography and possible ecclesiastical glebe lands
Drumgora	Cavan	*Druim Gobhrach*	Ridge of the goats	Natural topography and farmed area (pastoral)
Drumheel	Cavan	*Druim Shiadhail*	Sheel's dorsum or ridge	Natural topography and possible named ownership
Drumlerry	Meath	*Druim Learaidh*	Lerry's hill or ridge	Natural topography and possible named ownership
Drummallaght	Cavan	*Druim Mallacht*	Ridge of the curses	Natural topography and indication of associated folklore
Drummoney	Cavan	*Druim Muine*	Ridge of the brake	Natural topography
Drumrat	Cavan	*Druim Breat*	Speckled ridge, or long hill	Natural topography
Dunancory	Cavan	*Dun Angcoire*	Fort of the anchorite	Possible location of defensive enclosure/fort and possible indication of ecclesiastical ownership [religious recluse]
Edenburt	Cavan	*Eudan na bPort*	Brae of the banks	Natural topography
Eighter	Cavan	*Íochtar*	The lower part of any place	Natural topography
Enagh	Cavan	*Eanach*	A marsh	Natural topography
Fartagh	Cavan	*Feartach*	Full of groves	Natural topography
Feegat	Meath	*Fiodh gCat*	Wood of the (wild) cats	Natural topography and faunal indicator
Fennor Lower	Meath	*Fionnabhair*	The monk Joclinus Furnensis translates this "Campus albus"'	Possible ecclesiastical lands/associations
Fennor Upper	Meath	*Fionnabhair*	The monk Joclinus Furnensis translates this "Campus albus"'	Possible ecclesiastical lands/associations
Fintawan	Cavan	*Fionn-tamhain*	Fair or white hill	Natural topography
Gallon	Cavan	*Gallon*	Gallons and Poles were old terms of land measure now obsolete	Natural topography, possibly farmed land
Gallonnambraher	Cavan	*Gallun na mBrathor*	Gallon of the friars	Possible monastic associations
Garryross	Cavan	*Garraidh Ros*	Garden of the wood	Tended grounds and natural topography
Glebe	Cavan	*Glebe*	Parish grounds	Ecclesiastical lands
Island	Cavan	*Oilean*	An island	Natural topography
Keelagh Glebe	Cavan	*Caol-achadh*	Narrow field	Natural topography and possible ecclesiastical glebe lands
Killaconin or Jonesborough	Meath	*Coill Mhic Sheoinín*	*'Coille Coinín'* Rabbit woods	Natural topography and faunal indicator

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Killyconny	Cavan	*Coillidh Chonnaidh*	*'Coill a Chonaidh'* Wood of the wood	Natural topography and indication of timber source
Killyduff	Cavan	*Coille Dubh*	Black wood	Natural topography
Killyfinla	Cavan	*Coillidh Fionnlacha*	*'Coill Fionnlocha'* Wood of the white lough	Natural topography
Kilmore	Cavan	*Coill Mhor or Cill Mhór*	Great wood or great church	Natural topography or possible ecclesiastical site
Kilnagun	Cavan	*Coill na gCon*	Wood of the hounds	Natural topography and faunal indicator
Kingsmountain	Meath	*Sliabh an Rí*	Mountain of the King	Natural topography and possible named [mythical?] ownership
Knockaraheen	Cavan	*Cnoc a Ráithín*	Hill of the little fort	Natural topography and possible location of defensive enclosure/fort
Knockatemple	Cavan	*Cnoc a Teampuill*	Hill of the church	Natural topography and possible location of ecclesiastical site
Knocknagartan	Cavan	*Cnoc na gCeartan*	Hill of the forges or smithies	Natural topography and possible location of metal working site
Knocknaveagh	Cavan	*Cnoc na bhFiach*	Hill of the ravens	Natural topography and faunal indicator
Lateaster	Cavan	*Leacht Adhastair*	*'Leacht Eustair'* Esther's grave/monument	Possible burial place of named person
Lattoon	Cavan	*Leatóin*	Half Bottom-land	Natural topography
Leitrim	Cavan	*Liath Druim*	Grey ridge	Natural topography
Lisduff	Cavan	*An Lios Dubh*	The black ringfort	Possible location of defensive enclosure/fort
Lisgrea	Cavan	*Lios Cré*	*'Lios Gredh'* Grey's fort, ringfort of clay, earth	Possible location of defensive enclosure/fort and indication of named ownership
Lislea	Cavan	*Lios Liath*	Grey fort	Possible location of defensive enclosure/fort
Lismeen	Cavan	*Lios Maoin*	Maon's fort or Mooney's fort	Possible location of defensive enclosure/fort and indication of named ownership
Lisnabantry (Killinkere Civil Parish)	Cavan	*Lios na Baintreabhaighe*	Fort of the widow	Possible location of defensive enclosure/fort and indication of owner's status
Lisnabantry (Mullagh Civil Parish)	Cavan	*Lios na Baintreabhaighe*	Fort of the widow	Possible location of defensive enclosure/fort and indication of owner's status
Lisnafana	Cavan	*Lios na Fannadh*	Fort on the declivity or slope	Natural topography and possible location of defensive enclosure/fort
Lisnagon	Meath	*Lios na gCon*	Fort of the hounds	Possible location of defensive enclosure/fort and faunal association

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Lissacapple	Cavan	*Lios a Chapaill*	Fort of the horse	Possible indication of defensive enclosure/fort and faunal association
Lissanymore	Cavan	*Lios Enna Mor*	Fort of Enna Mor	Possible indication of defensive enclosure/fort and indication of named ownership
Loughan	Meath	*Lochán*	Small lough	Natural topography
Lurgan	Cavan	*An Lorgain*	Long low ridge; strip of land	Natural topography
Lurgan Glebe	Cavan	*An Lorgain*	Long low ridge; strip of land	Natural topography and possible ecclesiastical glebe lands
Lurganboy	Cavan	*An Lorgain Bhuí*	The yellow long low ridge	Natural topography
Mullagh	Cavan	*An Mullach*	A summit	Natural topography
Mullaghmore	Cavan	*Mullach Mor*	Great summit	Natural topography
Murmod	Cavan	*Mormaid*	Wormwood	Natural topography
Newcastle	Meath	*Caisleain Nuadh*	New castle	Possible indication of defensive structure
Pollamalady	Cavan	*Pollamaladag*	Malady's pole (of land)	Possible indication of land ownership
Pollintemple	Cavan	*Poll an Teampaill*	*'Polla an Teampuill'* Pole of the church	Possible indication of ecclesiastical holdings
Pottlebane	Meath	*Puiteal Bán*	White pottle	Pottle is a measure of land. Possible indication of ownership or natural topography
Pottlereagh	Meath	*Poiteal Riach*	Grey pottle	Pottle is a measure of land. Possible indication of ownership or natural topography
Raffony	Cavan	*Rafanaigh*	*'Rath Fionnchadha'* Rath of Fionnchadh	Possible location of defensive enclosure/fort and indication of named ownership
Rahard	Meath	*Rath Árd*	High rath or fort	Possible location of defensive enclosure/fort
Rahardrum	Cavan	*Rath Árd Drom*	High fort of the ridge	Natural topography and possible location of defensive enclosure/fort
Rahendrick	Meath	*Ráth Eanraic*	*'Rath Hineirce'* Hendrick's rath or fort'	Possible location of defensive enclosure/fort and indication of named ownership
Rantavan	Cavan	*Ráth an Tamhain*	Fort of the stock or trunk	Possible location of defensive enclosure/fort
Rasuddan	Cavan	*Rath Sŭdan*	Sodan's fort	Possible location of defensive enclosure and indication of named ownership
Ryefield	Cavan	*Achadh an tSeagail*	Field of the rye	Farmed area
Stonefield	Meath	*An Chlocharnach*	Stony land	Natural topography

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Stramaquerty	Cavan	*Srath Mhic Chuarta*	Mac Cuort's strath or holm	Natural topography and possible named ownership
Stramatt	Cavan	*Srath Mata*	Matthew's strath or holm	Natural topography and possible named ownership
Virginia	Cavan	*Achadh an Iúir*	The field of the yew tree	Natural topography
Woodpole	Meath	*Polla na Coille*	Pole of the wood	Natural topography