# Arklow Local Area Plan Submission - Report

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|---|---|
| **Who are you:** | State Body |
| **Name:** | Department of the Environment, Climate and Communications |
| **Email Address:** | [redacted] |
| **Reference:** | ARKLAP-142125 |
| **Submission Made** | March 28, 2024 2:39 PM |

**Topic**

Heritage – Biodiversity- Green infrastructure- Climate Action- Energy

**Submission**

Please see attached a submission on behalf of the Department of the Environment, Climate and Communications.

**File**

2024-03-28 DECC Submission Pre-Draft Arklow LAP.pdf, 2.12MB

**An Roinn Comhshaoil,**
**Aeráide agus Cumarsáide**
Department of the Environment,
Climate and Communications

**29-31 Bóthar Adelaide, Baile Átha Cliath, D02 X285**
29-31 Adelaide Road, Dublin, D02 X285
T +353 1 678 2000 | 1890 44 99 00
www.gov.ie/decc

Le Chéile 23

Agenda 2030,

the Sustainable Development Goals (SDGs) and their respective targets

Climate Action and Low Carbon Development (Amendment) Act 2021 (Climate Act 2021)

Climate Action Plan 2023

Climate Action Plan 2024

National Adaption Framework

# Bioeconomy Action Plan 2023 – 2025

National Development Plan 2021-2023

Renewable Electricity Support Scheme

National Energy Security Framework

National Heat Study

National Planning Framework

Waste Action Plan for a Circular Economy

Circular Economy Act 2022

Whole of Government Circular Economy Strategy

Regional Waste Management Planning Office

Regional Waste Management Planning Office

Policy Statement on Mineral Exploration and Mining

Policy Statement on Geothermal Energy for a Circular Economy

Harnessing Digital – The Digital Ireland Framework

An Roinn Comhshaoil, Aeráide agus Cumarsáide
Department of the Environment, Climate and Communications

Geological Survey
Suirbhéireacht Gheolaíochta
Ireland | Éireann

Planning Department
Wicklow County Council
County Buildings
Wicklow Town
Wicklow, A67 FW96

12 March 2024

**Re: Arklow and Environs LAP – Pre draft consultation**

**Your Ref: n/a**
**Our Ref: 24/72**

Dear Sir/Madam,

Geological Survey Ireland is the national earth science agency and is a division of the Department of the Environment, Climate and Communications. We provide independent geological information and gather various data for that purpose. Please see our website for data availability. We recommend using these various data sets, when conducting the EIAR, SEA, planning and scoping processes. Use of our data or maps should be attributed correctly to 'Geological Survey Ireland'.

The publicly available data referenced/presented here, should in no way be construed as Geological Survey Ireland support for or objection to the proposed development or plan. The data is made freely available to all and can be used as independent scientific data in assessments, plans or policies. It should be noted that in many cases this data is a baseline or starting point for further site specific assessments.

With reference to your email received on the 11 March 2024, concerning the Arklow and Environs LAP – Pre draft consultation, Geological Survey Ireland would encourage use of and reference to our datasets. Please find attached a list of our publicly available datasets that may be useful to the environmental assessment and planning process. We recommend that you review this list and refer to any datasets you consider relevant to your assessment. The remainder of this letter and following sections provide more detail on some of these datasets.

**Geoheritage**

Geological Survey Ireland is in partnership with the National Parks and Wildlife Service (NPWS) in the Department of Culture, Heritage and the Gaeltacht to identify and select important geological and geomorphological sites throughout the country for designation as geological NHAs (Natural Heritage Areas). This is addressed by the Geoheritage Programme in Geological Survey Ireland, under 16 different geological themes, in which the minimum number of scientifically significant sites that best represent the theme were rigorously selected by a panel of theme experts.

County Geological Sites (CGSs) have been adopted in the National Heritage Plan, and will form a major strand of geological nature conservation to complement the various ecological and cultural conservation measures. It is important to note however, that management issues for the majority of geological heritage sites may differ from ecological sites. County Geological Sites are the optimal way of addressing the responsibility of each authority under the Planning and Development Act 2000 and its amendments, to protect sites of geological interest.

**The audit for Wicklow was published in 2014. The full report details and individual CGS Reports can be found here. Our records show that there are no CGSs in the vicinity of the proposed LAP.**

**Geotourism**

Over the past number of years geology has become a large part of Irish tourism. Ireland currently has three UNESCO Global Geoparks, and a number of other geotourism projects. These Geoparks, along with other tourism initiatives such as the Wild Atlantic Way, Irelands Ancient East, and Irelands Hidden Heartlands have bolstered tourism in various parts of Ireland and helped to increase its levels in areas that were previously not as popular with tourists. **We are encouraged by Wicklow County Council continuing this trend, making the geological audit information easily available to the general public by way of a popular book, 'Glaciers, Glens and Granites' that has been published and launched in November 2022.** We would encourage geology to be a significant part of any tourism initiatives that may be introduced.

**Dimension Stone/Stone Built Ireland**

Stone Built Ireland is a 2 year research collaboration agreement between Geological Survey Ireland, Trinity College Dublin & the office of Public Works. The project aims to document building and decorative stone in Ireland to inform government agencies, building owners and conservationists of the sources for suitable replacement stone in restoration work and to develop a greater awareness among the general public.

In addition to promoting citizen science and awareness of local materials, the inventory will aid the public in complying with part 4 of the Planning and Development Act 2000, which requires owners to conserve protected structures. It will also assist local authorities in issuing Section 57 Declarations, which outline 'the type of works which it considers would or would not materially affect the character of the structure or any element of the structure'.

This project builds on work already completed funded by the Irish Research Council (March 2019 - September 2020) that carried out primary research on the topic and developed a simple database and web-based platform as well as hosting various heritage displays at venues (www.stonebuiltireland.com).

**Groundwater**

Geological Survey Ireland's Groundwater and Geothermal Unit, provides advice, data and maps relating to groundwater distribution, quality and use, which is especially relevant for safe and secure drinking water supplies and healthy ecosystems.

Proposed developments need to consider any potential impact on specific groundwater abstractions and on groundwater resources in general. We recommend using the groundwater maps on our Map viewer which should include: wells; drinking water source protection areas; the national map suite - aquifer, groundwater vulnerability, groundwater recharge and subsoil permeability maps. Background information is also provided in the Groundwater Body Descriptions. Please read all disclaimers carefully when using Geological Survey Ireland data.

**There are aquifers underlying the proposed LAP including a 'Locally Important Aquifer - Bedrock which is Moderately Productive only in Local Zones', a 'Poor Aquifer - Bedrock which is Generally Unproductive except for Local Zones' and a 'Locally important gravel aquifer'. The Groundwater Vulnerability map indicates the range of groundwater vulnerabilities within the area covered is variable. We would therefore recommend use of the Groundwater Viewer to identify areas of High to Extreme Vulnerability and 'Rock at or near surface' in your assessments, as any groundwater-surface water interactions that might occur would be greatest in these areas.**

GWClimate is a groundwater monitoring and modelling project that aims to investigate the impact of climate change on groundwater in Ireland. This is a follow on from a previous project (GWFlood) and the data may be useful in relation to Flood Risk Assessment (FRA) and management plans. Maps and data are available on the Map viewer.

Geological Survey Ireland has completed Groundwater Protection Schemes (GWPSs) in partnership with Local Authorities, and there is now national coverage of GWPS mapping. A Groundwater Protection Scheme provides guidelines for the planning and licensing authorities in carrying out their functions, and a framework to assist in decision-making on the location, nature and control of developments and activities in order to protect groundwater. **The Groundwater Protection Response overview and link to the main reports is here: https://www.gsi.ie/en-ie/programmes-and-projects/groundwater/projects/protecting-drinking-water/what-is-drinking-water-protection/county-groundwater-protection-schemes/Pages/default.aspx**

**Geological Mapping**

Geological Survey Ireland maintains online datasets of bedrock and subsoils geological mapping that are reliable and accessible. We would encourage you to use these data which can be found here, in your future assessments.

**Please note we have recently launched QGIS compatible bedrock (100K) and Quaternary geology map data, with instructional manuals and videos. This makes our data more accessible to general public and external stakeholders. QGIS compatible data can be found in our downloadable bedrock 100k .zip file on the Data & Maps section of our website.**

**Geotechnical Database Resources**

Geological Survey Ireland continues to populate and develop our national geotechnical database and viewer with site investigation data submitted voluntarily by industry. The current database holding is over 7500 reports with 134,000 boreholes; 31,000 of which are digitised which can be accessed through downloads from our Geotechnical Map Viewer. We would encourage the use of this database as part of any baseline geological assessment of the proposed development as it can provide invaluable baseline data for the region or vicinity of proposed development areas. This information may be beneficial and cost saving for any site-specific investigations that may be designed as part of the project.

**Geohazards**

Geohazards can cause widespread damage to landscapes, wildlife, human property and human life. In Ireland, landslides, flooding and coastal erosion are the most prevalent of these hazards. We recommend that geohazards be taken into consideration, especially when developing areas where these risks are prevalent, and we encourage the use of our data when doing so.

Geological Survey Ireland has information available on landslides in Ireland via the National Landslide Database and Landslide Susceptibility Map both of which are available for viewing on our dedicated Map Viewer. Associated guidance documentation relating to the National Landslide Susceptibility Map is also available.

Geological Survey Ireland also engaged in a national project on Groundwater Flooding. The data from this project may be useful in relation to Flood Risk Assessment (FRA) and management plans, and is described in more detail under 'Groundwater' above.

Coastal Vulnerability while seen as a potential geohazard, is discussed in more detail under our marine and coastal unit information below.

**Geothermal Energy**

Geothermal energy harnesses the heat beneath the surface of the Earth for heating applications and electricity generation, and has proven to be secure, environmentally sustainable and cost effective over long time periods. Geothermal applications can range in depth from a few metres below the surface to several kilometres. Ireland has widespread shallow geothermal resources for small and medium-scale heating applications, which can be explored online through Geological Survey Ireland's Geothermal Suitability maps for both domestic and commercial use. We recommend use of our Geothermal Suitability maps to determine the most suitable type of ground source heat collector for use with heat pump technologies. Ireland also has recognised potential for deep geothermal resources.

The Roadmap for a Policy and Regulatory Framework for Geothermal Energy was launched at the Geoscience 2020 Conference in November 2020. The Assessment of Geothermal Resources for District heating in Ireland and the Roadmap for a Policy and Regulatory framework for Geothermal Energy in Ireland documents have been developed to support the Government's commitments under the Climate Action Plan 2019 and the Programme for Government.

For further information please see our Geoenergy pages on our website or contact the Groundwater and Geothermal Unit of the Geological Survey Ireland directly.

**Natural Resources (Minerals/Aggregates)**

Geological Survey Ireland is of the view that the sustainable development of our natural resources should be an integral part of all development plans from a national to regional to local level to ensure that the materials required for our society are available when required. Geological Survey Ireland highlights the consideration of mineral resources and potential resources as a material asset which should be explicitly recognised within the environmental assessment process.

Geological Survey Ireland provides data, maps, interpretations and advice on matters related to minerals, their use and their development in our Minerals section of the website. The Active Quarries, Mineral Localities and the Aggregate Potential maps are available on our Map Viewer. **We would recommend use of the Aggregate Potential Mapping viewer to identify areas of High to Very High source aggregate potential within the area.** In keeping with a sustainable approach we would recommend use of our data and mapping viewers to identify and ensure that natural resources used in developments are sustainably sourced from properly recognised and licensed facilities, and that consideration of future resource sterilization is considered.

**Geochemistry of soils, surface waters and sediments**

Geological Survey Ireland provides baseline geochemistry data for Ireland as part of the Tellus programme. Baseline geochemistry data can be used to assess the chemical status of soil and water at a regional scale and to support the assessment of existing or potential impacts of human activity on environmental chemical quality. Tellus is a national-scale mapping programme which provides multi-element data for shallow soil, stream sediment and stream water in Ireland. At present, mapping consists of the border, western and midland regions.

Data is available at https://www.gsi.ie/en-ie/data-and-maps/Pages/Geochemistry.aspx. Geological Survey Ireland and partners are undertaking applied geochemistry projects to provide data for agriculture (Terra Soil), waste soil characterisation (Geochemically Appropriate Levels for Soil Recovery Facilities) and mineral exploration (Mineral Prospectivity Mapping).

**Geophysical data**

Geological Survey Ireland produces high-resolution geophysical data (Magnetic field, electrical conductivity, natural gamma-ray radiation) of soils & rocks as part of the Tellus programme. These data currently cover approximately 75% of the country and provide supporting geological information on a regional scale useful for assessing environmental impact and risk.

**Historic Mines**

The EPA, Geological Survey Ireland and the former Exploration & Mining Division undertook a joint project entitled "Historic Mine Site - Inventory and Risk Characterisation (HMS - IRC)". This project carried out detailed site investigations and characterisation on priority historic mine sites in the country.

A risk ranking methodology was developed which categorised the sites according to the risks posed to human and animal health and the environment. The project commenced in January 2006 and was completed in December 2008. A final report and a GIS geodatabase was produced on completion of the project. Reports and maps available here. The project provides an understanding of the impacts of historic mining sites in Ireland and their status at the time of the study.

**Marine and Coastal Unit**

Our marine environment is hugely important to our bio-economy, transport, tourism and recreational sectors. It is also an important indicator of the health of our planet. Geological Survey Ireland's Marine and Coastal Unit in partnership with the Marine Institute, jointly manages INFOMAR, Ireland's national marine mapping programme; providing key baseline data for Ireland's marine sector. The programme delivers a wide range of benefits to multi-sectoral end-users across the national blue economy with an emphasis on enabling our stakeholders. Demonstrated applications for the use of INFOMAR's suite of mapping products include Shipping & Navigation, Fisheries Management, Aquaculture, Off-shore Renewable Energies, Marine Leisure & Tourism and Coastal Behaviour.

INFOMAR data such as bathymetry, backscatter, sediment classification, shipwrecks and survey metadata can be downloaded free of charge in a variety of formats at the INFOMAR Marine Data Download Portal:

https://experience.arcgis.com/experience/9213db3d963d4f3cab3a220323d7cd4e/page/Page-1/?views=Download-Vector-Datasets

INFOMAR also produces a wide variety of seabed mapping products that enable public and stakeholders to visualize Ireland's seafloor environment https://www.infomar.ie/maps/downloadable-maps/maps. Story maps have also been developed providing a different perspective of some of the bays and harbors of the Irish coastline. We would therefore recommend use of our Marine and Coastal Unit datasets available on our website and Map Viewer.

The Marine and Coastal Unit also participate in coastal change projects and are undertaking mapping in areas such as coastal vulnerability and coastal erosion. Further information on these projects can be found here.

**National Coastal Change Assessment**

Geological Survey Ireland is undertaking a National Coastal Change Assessment. As part of this initiative two mapping products will be delivered for the entire Irish coastline: **coastal vulnerability mapping and shoreline change.**

Coastal vulnerability maps will provide an insight into the relative susceptibility of the Irish coast to adverse impacts of sea-level rise through the use of a **Coastal Vulnerability Index** (CVI). Currently the project is being carried out on the east coast and will be rolled out nationally over the next couple of years, detailed information and maps are available here. **Shoreline change rates** for the period 2000 to 2023 are being prioritised and will be released by county on a rolling basis over the next 12 months. Shoreline change rates database and reports will be accessible from GSI web mapping viewers. These suite of coastal mapping products are aimed at coastal managers to prioritise or concentrate efforts on adaptation.

I hope that these comments are of assistance, and if we can be of any further help, please do not hesitate to the Geological Survey Ireland Planning Team [redacted]

Yours sincerely,

**Geoheritage and Planning Programme**

Enc: Table - Geological Survey Ireland's Publicly Available Datasets Relevant to Planning, EIA and SEA processes.

An Roinn Comhshaoil, Aeráide agus Cumarsáide
Department of the Environment, Climate and Communications

Geological Survey
Suirbhéireacht Gheolaíochta
Ireland | Éireann

# Geological Survey Ireland's Publicly Available Datasets Relevant to Planning, EIA and SEA processes

**following European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018**
**(S.I. No. 296 of 2018)**

| Geological Survey Ireland Programme | Dataset | Relevant EIA Topic | Coverage | Description / Notes / Limitations | Link to Geological Survey Ireland map viewer |
|---|---|---|---|---|---|
| | | | | | |
| Geohazards | Landslide: National landslide database and landslide susceptibility map | Land & Soil/Climate/Landscape | National | Associated guidance documentation relating to the National Landslide Susceptibility Map is also available. | https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=b68cf1e4a9044a5981f950e9b9c5625c |
| Geohazards | Groundwater Flooding (Historic) | Water | Regional | Provide information of historic flooding, both surface water and groundwater. [A lack of flooding presented in any specific location of the map only indicates that a flood has not been detected. It does not indicate that a flood cannot occur in that location at present or in the future] | https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=848f83c85799436b808652f9c735b1cc |
| Geohazards | Groundwater Flooding (Predictive) | Water | Regional | Provides information on the probability of future karst groundwater flooding (where available). [The maps do not, and are not intended to, constitute advice. Professional or specialist advice should be sought before taking, or refraining from, any action on the basis of the flood maps] | https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=848f83c85799436b808652f9c735b1cc |
| Geohazards | Radon Map | Land & Soils/Air | National | | http://www.epa.ie/radiation/radonmap/ |
| Geoheritage | County Geological Sites as adopted by National Heritage Plan and listed in County Development Pla | Land & Soils/Landscape | Regional | All geological heritage sites identified by Geological Survey Ireland are categorised as CGS pending any further NHA designation by NPWS. | https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228 |
| Geological Mapping | Bedrock geology: | Land & Soils | National | 1:100,000 scale and associated memoirs. | https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=de7012a99d2748ea9106e7ee1b6ab8d5&scale=0 |
| Geological Mapping | Bedrock geology: | Land & Soils | Regional | 1:50,000 scale | https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=de7012a99d2748ea9106e7ee1b6ab8d5&scale=0 |
| Geological Mapping | Quaternary geology: Sediments | Land & Soils | National | 1:50,000 scale | https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=de7012a99d2748ea9106e7ee1b6ab8d5&scale=0 |
| Geological Mapping | Quaternary geology: Geomorphology | Land & Soils | National | 1:50,000 scale | https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=de7012a99d2748ea9106e7ee1b6ab8d5&scale=0 |
| Geological Mapping | Physiographic units: | Land & Soils | National | Broad-scale physical landscape units mapped at 1:100,000 scale in order to be represented as a cartographic digital map at 1:250,000 scale | https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=afa76a420fc54877843aca1bc075c62b |
| Geological Mapping | GeoUrban: Spatial geological data for the greater Dublin and Cork areas | Land & Soils | Regional | includes 3D models | https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=9768f4818b79416093b6b2212a850ce6&scale=0 |
| Geological Mapping | Geotechnical database | Land & Soils | National | Digitised geotechnical and Site Investigation Reports and boreholes which can be accessed through online downloads | https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=a2718be1873d47a585a3f0415b4a724c |
| Goldmine | Historical data sets including geological memoirs and 6" to 1 mile geological mapping records | land & Soils/Water | National | available online | https://secure.dccae.gov.ie/goldmine/index.html |
| Groundwater & Geothermal | Groundwater resources (aquifers) | Water | National | Data limited to 1:100,000 scale; sites should be investigated at local scale | https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef |
| Groundwater & Geothermal | Groundwater recharge. | Water | National | Data limited to 1:40,000 scale; sites should be investigated at local scale; long term annual average recharge | https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef |
| Groundwater & Geothermal | Groundwater vulnerability. | Water | National | Data limited to 1:40,000 scale; sites should be investigated at local scale | https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef |
| Groundwater & Geothermal | Group scheme and public supply source protection areas. | Water | National | Not all PWS / GWS have SPZ / ZOC. Check with IW / coco / NFGWS for private supplies. | https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef |
| Groundwater & Geothermal | Groundwater Protection Schemes | Water | National | Data is limited to scale of 1:40,000. Data does not include all of the source protections areas | https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef |
| Groundwater & Geothermal | Catchment and WFD management units. | Water | National | | https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef |
| Groundwater & Geothermal | karst specific data layers | water | National | For areas underlain by limestone, includes karst features, tracer test database; turlough water levels (gwlevel.ie). | https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef |
| Groundwater & Geothermal | Wells and Springs | Water | National | Not comprehensive, there may be unrecorded wells and springs | https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef |
| Groundwater & Geothermal | Groundwater body Descriptions | Water | National | Not exhaustive; only those in designated SACs; could be other GWDTEs; for more information contact NPWS / EPA / site investigations | https://www.gsi.ie/en-ie/programmes-and-projects/groundwater-and-geothermal-unit/activities/understanding-ireland-groundwater/Pages/Groundwater-bodies.aspx |
| Groundwater & Geothermal | Geothermal Suitability maps | land & Soils/Water | National | Also, Roadmap for a Policy and Regulatory Framework for Geothermal Energy, November 2020 | https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=9ee46bee08de41278b90a991d60c0b9e |
| Marine & Coastal Unit | INFOMAR - Ireland's national marine mapping programme; providing key baseline data for Ireland's | Water | National | | https://secure.dccae.gov.ie/GSI/INFOMAR_VIEWER/ |
| Marine & Coastal Unit | CHERISH - Coastal change project (Climate, Heritage and Environments of Reefs, Islands, and Headla | Water | Regional | | http://www.cherishproject.eu/en/ |
| Marine & Coastal Unit | Coastal Vulnerability Index (CVI). | water /Land & Soils | Regional | Currently the project is being carried out on the east coast and will be rolled out nationally | https://www.gsi.ie/en-ie/programmes-and-projects/marine-and-coastal-unit/projects/Pages/Coastal-Vulnerability-Index.aspx |
| Minerals | Aggregate potential | Land & Soils/Material Assets | National | Consideration of mineral resources and potential resources as a material asset which should be explicitly recognised within the environmental assessment process | https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=ee8c4c285a49413aa6f1344416dc9956 |
| Minerals | Active quarries | Land & Soils | National | | https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=ee8c4c285a49413aa6f1344416dc9956 |
| Minerals | Historic mines | Land & Soils/Cultural Heritage | National | Inventory and Risk Classification 2009. Environmental Protection Agency, Economic Minerals Division and Geological Survey Ireland (DECC). | https://gis.epa.ie/EPAMaps/default?easting=?&northing=?&lid=EPA:LEMA_Facilties_Extractive_Facilities https://www.epa.ie/enforcement/mines/ |
| Tellus | Geochemical data: multi-element data for shallow soil, stream sediment and stream water | Land & Soils | Regional | A national mapping programme | https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=6304e122b733498b99642707ff72f754 |
| Tellus | Airborne geophysical data including radiometrics, electromagnetics and magnetics | Land & Soils | Regional | A national mapping programme | https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=6304e122b733498b99642707ff72f754 |
| Tellus | urban geochemistry mapping (Dublin SURGE project), | Land & Soils | Regional | | https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=6304e122b733498b99642707ff72f754 |

**Notes:**

**1. The maps and data listed above are available on the Geological Survey Ireland map viewer https://www.gsi.ie/en-ie/data-and-maps/Pages/default.aspx**

**2. Please read all disclaimers carefully when using Geological Survey Ireland data**

**3. Geological Survey Ireland and Irish Concrete Federation published guidelines for the treatment of geological heritage in the extractive industry in 2008.**