



~Geological Survey Ireland  
Beggars Bush  
Haddington Road  
Dublin 4  
D04 K7X4

Date: 14 May 2021

**Re:** Proposed development of up to 15 wind turbines with a tip height of up to 175 metres and laying of approximately 26km of underground electricity cabling to facilitate the connection to the national grid, and all associated site development works  
Townlands of Camagh, Carlanstown, Coole, Clonrobert, Clonsura, Doon, Monktown, Mullagh, Newcastle and other townlands, Co. Westmeath

Dear Sir / Madam,

An Bord Pleanála has received your submission in relation to the above mentioned proposed development and will take it into consideration in its determination of the matter.

The Board will revert to you in due course in respect of this matter.

Please be advised that copies of all submissions / observations received in relation to the application will be made available for public inspection at the offices of Westmeath County Council and at the offices of An Bord Pleanála when they have been processed by the Board.

More detailed information in relation to strategic infrastructure development can be viewed on the Board's website: [www.pleanala.ie](http://www.pleanala.ie).

If you have any queries in the meantime please contact the undersigned officer of the Board. Please quote the above mentioned An Bord Pleanála reference number in any correspondence or telephone contact with the Board.

Yours faithfully,

Niamh Thornton  
Executive Officer  
Direct Line: 01-8737247

PA09

Teil	Tel	(01) 858 8100
Glao Áitiúil	LoCall	1890 275 175
Facs	Fax	(01) 872 2684
Láithreán Gréasáin	Website	<a href="http://www.pleanala.ie">www.pleanala.ie</a>
Ríomhphost	Email	<a href="mailto:bord@pleanala.ie">bord@pleanala.ie</a>

64 Sráid Maoilbhríde	64 Marlborough Street
Baile Átha Cliath 1	Dublin 1
D01 V902	D01 V902

**Tell**  
**Glao Áitiúil**  
**Facs**  
**Láithreán Gréasáin**  
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Baile Átha Cliath 1  
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64 Marlborough Street  
Dublin 1  
D01 V902

## Niamh Thornton

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**From:** SIDS  
**Sent:** Monday 10 May 2021 15:27  
**To:** Niamh Thornton  
**Subject:** FW: Reply from DECC - EIS 21/94 - Wind Farm development at Coole and other townlands, Co Westmeath  
**Attachments:** 20\_107\_Upgrade at Coole Wind farm Co.Westmeath.pdf; 20\_214\_Proposed Wind Energy Development in Coole and adjacent townlands in Co. Westmeath.pdf; 21\_94 Wind Farm development at Coole and other townlands Co. Westmeath.pdf; GSI datasets relevant to EIA & SEA\_20210421.pdf; 19\_230\_scoping for Coole substation and electrical underground cable.pdf

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**From:** Bord <bord@pleanala.ie>  
**Sent:** Friday 7 May 2021 12:23  
**To:** SIDS <sids@pleanala.ie>  
**Subject:** FW: Reply from DECC - EIS 21/94 - Wind Farm development at Coole and other townlands, Co Westmeath

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**From:** CorporateSupport.Unit <[CorporateSupport.Unit@decc.gov.ie](mailto:CorporateSupport.Unit@decc.gov.ie)>  
**Sent:** Friday 7 May 2021 12:15  
**To:** Bord <bord@pleanala.ie>  
**Cc:** CorporateSupport.Unit <[CorporateSupport.Unit@decc.gov.ie](mailto:CorporateSupport.Unit@decc.gov.ie)>  
**Subject:** Reply from DECC - EIS 21/94 - Wind Farm development at Coole and other townlands, Co Westmeath

Good afternoon,

Please see attached and below a reply from Ms. Trish Smullen, on behalf of Geological Survey Ireland, (a division of the Department of Environment, Climate and Communications for the subject below. Please forward an acknowledgement of receipt to [CorporateSupport.Unit@decc.gov.ie](mailto:CorporateSupport.Unit@decc.gov.ie) at your earliest convenience.

Yours sincerely,  
Enda Brady,  
Corporate Support Unit,  
Department of Environment, Climate and Communications.  
087 623 7714

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**From:** Trish Smullen  
**Sent:** 07 May 2021 07:59  
**To:** CorporateSupport.Unit  
**Cc:** Clare Glanville; John Butler; GSI Planning  
**Subject:** Re: EIS 21/94 - Wind Farm development at Coole and other townlands, Co Westmeath

Hi Enda,

Please see attached for return to An Bord Pleanála.

Thanks and regards,

Trish



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**From:** John Butler

**Sent:** 23 March 2021 17:35

**Subject:** EIS 21/94 - Wind Farm development at Coole and other townlands, Co Westmeath

EIS 21/94

Wind Farm development at Coole and other townlands, Co Westmeath. Request for observations by MKO to be forwarded via the CSU mailbox to An Bord Pleanála before 14 May 2021. Letter is enclosed. Further information available at the project website.

Regards,

John

Disclaimer:

This electronic message contains information (and may contain files), which may be privileged or confidential. The information is intended to be for the sole use of the individual(s) or entity named above. If you are not the intended recipient be aware that any disclosure, copying, distribution or use of the contents of this information and or files is prohibited. If you have received this electronic message in error, please notify the sender immediately. This is also to certify that this mail has been scanned for viruses.

Tá eolas sa teachtaireacht leictreonach seo (agus b'fhéidir sa chomhaid ceangailte leis) a d'fhéadfadh bheith príobháideach nó faoi rún. Is le h-aghaidh an duine/na ndaoine nó le h-aghaidh an aonáin atá ainmnithe thuas agus le haghaidh an duine/na ndaoine sin amháin atá an t-eolas. Murab ionann tusa agus an té a bhfuil an teachtaireacht ceaptha dó bíodh a fhios agat nach gceadaítear nochtadh, cóipeáil, scaipeadh nó úsáid an eolais agus/nó an chomhaid seo. Más trí earráid a fuair tú an teachtaireacht leictreonach seo cuir, más é do thoil é, an té ar sheol an teachtaireacht ar an eolas láithreach. Deimhnítear leis seo freisin nár aims odh víreas sa phost seo tar éis a scanadh.



Westmeath County Council  
Planning Section,  
County Buildings,  
Mullingar,  
Co. Westmeath

11 June 2020

**Re: Upgrade at Coole Wind farm, Co. Westmeath**

**Ref: 20/6121**

**Our Ref: 20/107**

Geological Survey Ireland is the national earth science agency and has datasets on Bedrock Geology, Quaternary Geology, Geological Heritage Sites, Mineral deposits, Groundwater Resources and the Irish Seabed. These comprise maps, reports and extensive databases that include mineral occurrences, bedrock/mineral exploration groundwater/site investigation boreholes, karst features, wells and springs. Please see our [website](#) for data availability and we recommend using these various data sets, when undergoing the EIAR, planning and scoping processes. Geological Survey Ireland should be referenced to as such and should any data or geological maps be used, they should be attributed correctly to Geological Survey Ireland.

Dear Linda,

With reference to your email received on 26<sup>th</sup> May 2020, concerning the Planning Application for upgrade of Wind Farm at Coole, Co Westmeath, Geological Survey Ireland (a division of Department of Communications, Climate Action and Environment) would like to make the following comments in addition to the previous comments sent in response to the EIAR scoping document for Coole substation and electrical underground cable received from MKO, (**Our Ref: 19/230**), on the 16<sup>th</sup> October 2019.

#### **Geoheritage**

Geological Survey Ireland (GSI) is in partnership with the National Parks and Wildlife Service (NPWS, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs) 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 Irish Geoheritage Programme (IGH) of GSI, under 16 different geological themes, in which the minimum number of scientifically significant sites that best represent the theme are rigorously selected by a panel of theme experts.

County Geological Sites (CGS), as adopted under the National Heritage Plan are now included in County Development Plans and in the GIS of planning departments, to ensure the recognition and appropriate protection of geological heritage within the planning system. CGSs can be viewed online under the Geological Heritage tab on the online [Map Viewer](#). The audit for Co. Westmeath was carried out in 2019. The full report details can be found at [The Geological Heritage of County Westmeath](#). Our records show that there are two CGSs located within the vicinity of the proposed upgrade:

**Lough Derravaragh**, Co. Westmeath (GR 242085, 266847), under IGH themes, IGH7 Quaternary, IGH8 Lower Carboniferous, IGH14 Fluvial and Lacustrine Geomorphology. Link to site report at [WH015](#).

The bedrock geology at and around Lough Derravaragh is all of Lower Carboniferous limestone, with the Derravaragh Cherts being a dominant formation across the site and the wider terrain to the northeast. The chert concentrations may have contributed to the resistance of the enclosing hills to erosion. The chert in this area is sometimes known as 'festoon' chert, comprising multiple concentric thin bands of chert rock. Its





distinctive character is seen in many prehistoric tools found in archaeological excavations in the region. Specific minor excavations of individual beds of chert are found on the top of Knockeyon. These are believed to be from quarrying in the Mesolithic (9,000 to 5,000 years ago).

The position of the lake today would have had a glacier within it during the Ice Age, and it excavated the channel which is now occupied by the lake water.

At the northern end of the lake, a public access point for boats has some rocks which presumably came from the immediate area. These rocks show some evidence of 'rohrekarren' – a rare form of karstic solution feature, known in Lough Mask, Lough Carra and Lough Corrib.

**Portnashangan Quarry**, Co. Westmeath (GR 241778, 259138), under IGH theme, IGH8 Lower Carboniferous. Link to site report at [WH020](#).

The quarry provides a well exposed section within the Derravaragh Cherts Formation, showing the limestone typical of a belt from Lough Owel, northeastwards to beyond Lough Lene. It comprises limestone beds deposited in a fairly deep water basin, broadly related to the 'Calp' or Lucan Formation of the Dublin to Longford area. However, the presence of chert within the limestone in the Lough Derravaragh area makes it a separate mappable unit of rocks. Chert (a non-crystalline form of silica like flint) occurs as discrete nodules and discontinuous beds.

The rocks are a fairly monotonous grey colour with the chert nodules and bands also appearing as a slightly darker grey. The rocks are mostly in medium thickness beds which are roughly horizontal, but there are localised features of sedimentological interest.

With the current plan, there are no envisaged impacts on the integrity of current CGSs by the proposed development. However, if the proposed development plan is altered, please contact Clare Glanville ([Clare.Glanville@gsi.ie](mailto:Clare.Glanville@gsi.ie)) for further information and possible mitigation measures if applicable.

#### **Groundwater**

Groundwater is important as a source of drinking water, and it supports river flows, lake levels and ecosystems. It contains natural substances dissolved from the soils and rocks that it flows through, and can also be contaminated by human actions on the land surface. As a clean, but vulnerable, resource, groundwater needs to be understood, managed and protected. Through our [Groundwater Programme](#), Geological Survey Ireland provides advice and maps to members of the public, consultancies and public bodies about groundwater quality, quantity and distribution. Geological Survey Ireland monitors groundwater nationwide by characterising aquifers, investigating karst landscapes and landforms and by helping to protect public and group scheme water supplies. With regard to Flood Risk Management, there is a need to identify areas for integrated constructed wetlands. We recommend using the GSI's National Aquifer and Recharge maps on our [Map viewer](#) to this end. The Groundwater Vulnerability map indicates 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'.

#### **Geohazards**

Geohazards can cause widespread damage to landscapes, wildlife, human property and human life. In Ireland, landslides are the most prevalent of these hazards. **Landslides are common in areas of peat, such as areas which are found within the vicinity of the proposed cable route.** Geological Survey Ireland has information available on past landslides for viewing as a layer on our [Map Viewer](#). Geological Survey Ireland also engages in national projects such as Landslide Susceptibility Mapping and GWFlood Groundwater Flooding, and in international projects, such as the Tsunami Warning System, coordinated by the Intergovernmental Oceanographic Commission of UNESCO. 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.





#### **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, consideration of the effects of the proposed development on aggregate potential sources such as resource sterilisation may be necessary.

#### **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 strongly recommend that this database be consulted as part of any baseline geological assessment of the proposed development as it can provide invaluable baseline data for the region or vicinity of the proposed development area. This information may be beneficial and cost saving for any site specific investigations that may be designed as part of the development.

#### **Other Comments:**

Geological Survey Ireland would much appreciate a copy of reports detailing any site investigations carried out already or in the future at the site as part of the proposed development. Alternatively, we ask that a digital photographic record of significant new excavations could be provided. Potential visits from Geological Survey Ireland to personally document exposures could also be arranged. The data would be added to GSI's national database of site investigation boreholes, implemented to provide a better service to the civil engineering sector. Data can be sent to Beatriz Mozo, Geological Mapping Unit, at [Beatriz.Mozo@gsi.ie](mailto:Beatriz.Mozo@gsi.ie), 01-678 2795.

I hope that these comments are of assistance, and if we can be of any further help, please do not hesitate to contact me ([Trish.Smullen@dccae.gov.ie](mailto:Trish.Smullen@dccae.gov.ie)), or my colleague Clare Glanville ([Clare.Glanville@dccae.ie](mailto:Clare.Glanville@dccae.ie)).

Yours sincerely,

Trish Smullen  
**Geoheritage Programme**





Ellen Costello  
MKO  
Tuam Road  
Galway H91 VW84

02 October 2020

**Re: EIA Scoping Document for the Proposed Wind Energy Development in the townland of Coole and adjacent townlands in County Westmeath**

**Your Ref: 200445**

**Our Ref: 20/214 [c.f 19/230, 20/107]**

Geological Survey Ireland is the national earth science agency and has datasets on Bedrock Geology, Quaternary Geology, Geological Heritage Sites, Mineral deposits, Groundwater Resources and the Irish Seabed. These comprise maps, reports and extensive databases that include mineral occurrences, bedrock/mineral exploration groundwater/site investigation boreholes, karst features, wells and springs. Please see our [WebSite](#) for data availability and we recommend using these various data sets, when undergoing the EIAR, planning and scoping processes. Geological Survey Ireland should be referenced to as such and should any data or geological maps be used, they should be attributed correctly to Geological Survey Ireland.

Dear Ellen,

With reference to your letter dated August 31 2020, concerning the EIA Scoping Document for the Proposed Wind Energy Development in the townland of Coole and adjacent townlands in County Westmeath, Geological Survey Ireland (a division of Department of Communications, Climate Action and Environment) would like to make the following comments in addition to the previous comments sent in response to the EIAR scoping document for Coole substation and electrical underground cable received from MKO, (**Our Ref: 19/230**), on the 16<sup>th</sup> October 2019, and in response to the letter from Westmeath County Council dated 26<sup>th</sup> May 2020, concerning the upgrade at Coole Wind farm, Co. Westmeath (**Our Ref: 20/107**).

### **Geoheritage**

Geological Survey Ireland is in partnership with the National Parks and Wildlife Service (NPWS, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs) 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 of Geological Survey Ireland, under 16 different geological themes, in which the minimum number of scientifically significant sites that best represent the theme are rigorously selected by a panel of theme experts.

County Geological Sites (CGS), as adopted under the National Heritage Plan are now included in County Development Plans and in the GIS of planning departments, to ensure the recognition and appropriate protection of geological heritage within the planning system. CGSs can be viewed online under the Geological Heritage tab on the online [Map Viewer](#). The audit for Co. Westmeath was carried out in 2019. The full report details can be found at [The Geological Heritage of County Westmeath](#). **Our records show that there are two CGSs located close to the proposed windfarm:**

**Lough Kinale and Derragh Lough**, Co. Longford (GR 238731, 280354), under IGH themes, IGH7 Quaternary, IGH14 Fluvial and Lacustrine Geomorphology. Link to site report at [LD012](#). Lough Kinale is a lake covering 250 hectares of open water, with two main basins, almost separated by swamp formations. Derragh Lough is a smaller (35 ha) companion lough to the southeast. They are separated by a peninsular area of well drained land, known as 'Derragh Island'.





**Rock of Curry and Hill of Mael**, Co. Westmeath (GR 245104, 276409), under IGH theme, IGH12 Mesozoic and Cenozoic. Link to site report at [WH023](#). The isolated, combined ridge of the Rock of Curry and Hill of Moat are comprised of bedrock of Carboniferous limestone. It is believed however that they represent an erosional landform from the Palaeogene Period (65 to 23 million years ago). A good example of suspected remnant tower karst.

With the current plan, there are no envisaged impacts on the integrity of current CGSs by the proposed development. However, if the proposed development plan is altered, please contact Clare Glanville ([Clare.Glanville@gsi.ie](mailto:Clare.Glanville@gsi.ie)) for further information and possible mitigation measures if applicable.

### **Groundwater**

Groundwater is important as a source of drinking water, and it supports river flows, lake levels and ecosystems. It contains natural substances dissolved from the soils and rocks that it flows through, and can also be contaminated by human actions on the land surface. As a clean, but vulnerable, resource, groundwater needs to be understood, managed and protected.

Through our [Groundwater Programme](#), Geological Survey Ireland provides advice and maps to members of the public, consultancies and public bodies about groundwater quality, quantity and distribution. Geological Survey Ireland monitors groundwater nationwide by characterising aquifers, investigating karst landscapes and landforms and by helping to protect public and group scheme water supplies.

With regard to Flood Risk Management, there is a need to identify areas for integrated constructed wetlands. We recommend using the GSI's National Aquifer, Vulnerability and Recharge maps on our [Map viewer](#) to this end. **The Groundwater Vulnerability map indicates 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 EIAR.**

Our GWflood project is a groundwater flood monitoring and mapping programme aimed at addressing the knowledge gaps surrounding groundwater flooding in Ireland. The project provides the data and analysis tools required by local and national authorities to make scientifically-informed decisions regarding groundwater flooding. **Although primarily focused on karst areas, this may provide information to benefit the proposed wind farm development. We recommend using our [GWflood](#) tools found under our programme activities (in conjunction with OPW data) to this end.**

With regards to Climate Change, there is a need to improve the monitoring capacity of groundwater levels in Ireland so that the potential impacts of climate change can be monitored and assessed. In this context the GSI has established the GWClimate project in January 2020. GWClimate will 1) establish a long-term strategic groundwater level monitoring network and 2) develop modelling and analytical approaches for evaluating the impacts of Climate Change to Irish groundwater systems. **Further information can be found on the [Groundwater flooding page of the Groundwater Programme](#).**

### **Geological Mapping**

Geological Survey Ireland (GSI) maintains online datasets of bedrock and subsoils geological mapping that is reliable, accessible and meets the requirements of all users including depth to bedrock and physiographic maps. These datasets include depth to bedrock data and subsoil classifications. **We would encourage you to use these data which can be found [here](#), in your future assessments.**

### **Geohazards**

Geohazards can cause widespread damage to landscapes, wildlife, human property and human life. In Ireland, landslides are the most prevalent of these hazards. Geological Survey Ireland has information available on past landslides for viewing as a layer on our [Map Viewer](#).





Geological Survey Ireland also engages in national projects such as Landslide Susceptibility Mapping and GWFlood Groundwater Flooding. 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.

#### **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 the proposed wind farm development are sustainably sourced from properly recognised and licensed facilities.**

#### **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 strongly recommend that this database be consulted as part of any baseline geological assessment of the proposed development as it can provide invaluable baseline data for the region or vicinity of the proposed development area. This information may be beneficial and cost saving for any site specific investigations that may be designed as part of the development.

#### **Other Comments:**

Geological Survey Ireland would much appreciate a copy of reports detailing any site investigations carried out already or in the future at the site as part of the proposed development. Alternatively, we ask that a digital photographic record of significant new excavations could be provided. Potential visits from Geological Survey Ireland to personally document exposures could also be arranged. The data would be added to GSI's national database of site investigation boreholes, implemented to provide a better service to the civil engineering sector. Data can be sent to Beatriz Mozo, Geological Mapping Unit, at [Beatriz.Mozo@gsi.ie](mailto:Beatriz.Mozo@gsi.ie), 01-678 2795.

I hope that these comments are of assistance, and if we can be of any further help, please do not hesitate to contact me ([Trish.Smullen@dcae.gov.ie](mailto:Trish.Smullen@dcae.gov.ie)), or my colleague Clare Glanville ([Clare.Glanville@dcae.ie](mailto:Clare.Glanville@dcae.ie)).

Yours sincerely,

Trish Smullen  
Geoheritage Programme





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



**Geological Survey**

Suirbhéireacht Gheolaíochta  
Ireland | Éireann

An Bord Pleanála  
64 Marlborough Street,  
Dublin 1  
D01 V902

07 May 2021

**Re: Wind Farm development at Coole and other townlands, Co Westmeath**

**MKO Ref: 200445**

**Our Ref: 21/94 [cf. 19/230, 20/107 & 20/214]**

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 advice 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'.

With reference to the letter from MKO dated, concerning the proposed Wind Farm development at Coole and other townlands, Co. Westmeath, Geological Survey Ireland have no further additional comments to make regarding this planning application. Please see attached previous Geological Survey Ireland responses to MKO, (19/230, 20/107 & 20/214) regarding the proposed wind farm development.

I hope that these comments are of assistance, and if we can be of any further help, please do not hesitate to contact me Clare Glanville, or my colleague Trish Smullen at [GSIPlanning@gsi.ie](mailto:GSIPlanning@gsi.ie).

Yours sincerely,

Clare Glanville  
**Senior Geologist**  
**Geological Survey Ireland**

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



**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	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.	<a href="https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=b68cf1e4a9044a5981f950e9b9c5625c">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=b68cf1e4a9044a5981f950e9b9c5625c</a>
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]	<a href="https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=848f83c85799436b808652f9c735b1cc">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=848f83c85799436b808652f9c735b1cc</a>
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]	<a href="https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=848f83c85799436b808652f9c735b1cc">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=848f83c85799436b808652f9c735b1cc</a>
Geohazards	Radon Map	Land & Soils/Air	National		<a href="http://www.epa.ie/radiation/radonmap/">http://www.epa.ie/radiation/radonmap/</a>
Geohazards	County Geological Sites as adopted by National Heritage Plan and listed in County Development Plans	Land & Soils/Landscape	Regional	All geological heritage sites identified by Geological Survey Ireland are categorised as CGS pending any further NHA designation by NPWS.	<a href="https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e874c0ab2fbd2aacc3c228">https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e874c0ab2fbd2aacc3c228</a>
Geological Mapping	Bedrock geology:	Land & Soils	National	1:100,000 scale and associated memoirs.	<a href="https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=de7012a99d2748ea9106e7ee1b6ab8d5&amp;scale=0">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=de7012a99d2748ea9106e7ee1b6ab8d5&amp;scale=0</a>
Geological Mapping	Bedrock geology:	Land & Soils	Regional	1:50,000 scale	<a href="https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=de7012a99d2748ea9106e7ee1b6ab8d5&amp;scale=0">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=de7012a99d2748ea9106e7ee1b6ab8d5&amp;scale=0</a>
Geological Mapping	Quaternary geology: Sediments	Land & Soils	National	1:50,000 scale	<a href="https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=de7012a99d2748ea9106e7ee1b6ab8d5&amp;scale=0">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=de7012a99d2748ea9106e7ee1b6ab8d5&amp;scale=0</a>
Geological Mapping	Quaternary geology: Geomorphology	Land & Soils	National	1:50,000 scale	<a href="https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=de7012a99d2748ea9106e7ee1b6ab8d5&amp;scale=0">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=de7012a99d2748ea9106e7ee1b6ab8d5&amp;scale=0</a>
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	<a href="https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=afa76a420fc54877843ac1bc075c62b">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=afa76a420fc54877843ac1bc075c62b</a>
Geological Mapping	GeoUrban: Spatial geological data for the greater Dublin and Cork areas	Land & Soils	Regional	Includes 3D models	<a href="https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=9768f4818b79416093b6b2212a850ce6&amp;scale=0">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=9768f4818b79416093b6b2212a850ce6&amp;scale=0</a>
Geological Mapping	Geotechnical database	Land & Soils	National	Digitised geotechnical and Site Investigation Reports and boreholes which can be accessed through online downloads	<a href="https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=a2718be1873d47a585a3f0415b4a724c">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=a2718be1873d47a585a3f0415b4a724c</a>
Goldmine	Historical data sets including geological memoirs and 6" to 1 mile geological mapping records	Land & Soils/Water	National	available online	<a href="https://secure.dccae.gov.ie/goldmine/index.html">https://secure.dccae.gov.ie/goldmine/index.html</a>
Groundwater & Geothermal	Groundwater resources (aquifers)	Water	National	Data limited to 1:100,000 scale; sites should be investigated at local scale	<a href="https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7a8a202301594687ab14629a10b748ef">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7a8a202301594687ab14629a10b748ef</a>
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	<a href="https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7a8a202301594687ab14629a10b748ef">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7a8a202301594687ab14629a10b748ef</a>
Groundwater & Geothermal	Groundwater vulnerability.	Water	National	Data limited to 1:40,000 scale; sites should be investigated at local scale	<a href="https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7a8a202301594687ab14629a10b748ef">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7a8a202301594687ab14629a10b748ef</a>
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.	<a href="https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7a8a202301594687ab14629a10b748ef">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7a8a202301594687ab14629a10b748ef</a>
Groundwater & Geothermal	Groundwater Protection Schemes	Water	National	Data is limited to scale of 1:40,000. Data does not include all of the source protection areas	<a href="https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7a8a202301594687ab14629a10b748ef">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7a8a202301594687ab14629a10b748ef</a>
Groundwater & Geothermal	Catchment and WFD management units.	Water	National		<a href="https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7a8a202301594687ab14629a10b748ef">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7a8a202301594687ab14629a10b748ef</a>
Groundwater & Geothermal	karst specific data layers	water	National	For areas underlain by limestone, includes karst features, tracer test database; turlough water levels (gwlevel.ie).	<a href="https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7a8a202301594687ab14629a10b748ef">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7a8a202301594687ab14629a10b748ef</a>
Groundwater & Geothermal	Wells and Springs	Water	National	Not comprehensive, there may be unrecorded wells and springs	<a href="https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7a8a202301594687ab14629a10b748ef">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7a8a202301594687ab14629a10b748ef</a>
Groundwater & Geothermal	Groundwater body Descriptions	Water	National	Not exhaustive; only those in designated SACs; could be other GWDTs; for more information contact NPWS / EPA / site investigations	<a href="https://www.gsi.ie/en-ie/programmes-and-projects/groundwater-and-geothermal-unit/activities/understanding-ireland-groundwater/Pages/Groundwater-bodies.aspx">https://www.gsi.ie/en-ie/programmes-and-projects/groundwater-and-geothermal-unit/activities/understanding-ireland-groundwater/Pages/Groundwater-bodies.aspx</a>
Groundwater & Geothermal	Geothermal Suitability maps	Land & Soils/Water	National	Also, Roadmap for a Policy and Regulatory Framework for Geothermal Energy, November 2020	<a href="https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=9ee46bee08de41278b90e991d6000b9e">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=9ee46bee08de41278b90e991d6000b9e</a>
Marine & Coastal Unit	INFOMAR - Ireland's national marine mapping programme; providing key baseline data for Ireland's	Water	National		<a href="https://secure.dccae.gov.ie/GSI/INFOMAR_VIEWER/">https://secure.dccae.gov.ie/GSI/INFOMAR_VIEWER/</a>
Marine & Coastal Unit	CHERISH - Coastal change project (Climate, Heritage and Environments of Reefs, Islands, and Headlands)	Water	Regional		<a href="http://www.cherishproject.eu/en/">http://www.cherishproject.eu/en/</a>
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	<a href="https://www.gsi.ie/en-ie/programmes-and-projects/marine-and-coastal-unit/projects/Pages/Coastal-Vulnerability-Index.aspx">https://www.gsi.ie/en-ie/programmes-and-projects/marine-and-coastal-unit/projects/Pages/Coastal-Vulnerability-Index.aspx</a>
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	<a href="https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=ee8c4c28549413aa6f1344416d-9956">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=ee8c4c28549413aa6f1344416d-9956</a>
Minerals	Active quarries	Land & Soils	National		<a href="https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=ee8c4c28549413aa6f1344416d-9956">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=ee8c4c28549413aa6f1344416d-9956</a>
Minerals	Historic mines	Land & Soils/Cultural Heritage	National	Inventory and Risk Classification 2009. Environmental Protection Agency, Economic Minerals Division and Geological Survey Ireland (DECC).	<a href="https://ais.epa.ie/EPAMaps/default?eastlng=78&amp;northlng=8&amp;id=EPA/LEMA_Facilities_Extractive_Facilities">https://ais.epa.ie/EPAMaps/default?eastlng=78&amp;northlng=8&amp;id=EPA/LEMA_Facilities_Extractive_Facilities</a>
Tellus	Geochemical data: multi-element data for shallow soil, stream sediment and stream water	Land & Soils	Regional	A national mapping programme	<a href="https://www.epa.ie/enforcement/mines/">https://www.epa.ie/enforcement/mines/</a>
Tellus	Airborne geophysical data including radiometrics, electromagnetics and magnetics	Land & Soils	Regional	A national mapping programme	<a href="https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=6304e122b733498b99642707f721754">https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=6304e122b733498b99642707f721754</a>
Tellus	urban geochemistry mapping (Dublin SURGE project).	Land & Soils	Regional	A national mapping programme	<a href="https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=6304e122b733498b99642707f721754">https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=6304e122b733498b99642707f721754</a>

- Notes:
- 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>
  - Please read all disclaimers carefully when using Geological Survey Ireland data
  - Geological Survey Ireland and Irish Concrete Federation published guidelines for the treatment of geological heritage in the extractive industry in 2008.





Roinn Cumarsáide, Gníomhaithe  
ar son na hAeráide & Comhshaoil  
Department of Communications,  
Climate Action & Environment



**Geological Survey**  
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H91 VW84  
County Galway

16 October 2019

**Re: EIAR scoping document for Coole substation and electrical underground cable**

**Your Ref: 190549**

**Our Ref: 19/230**

John, a chara,

With reference to the email received on 08 October 2019, concerning the EIAR scoping document for Coole substation and electrical underground cable, Geological Survey Ireland (a division of Department of Communications, Climate Action and Environment) would like to make the following comments:

Geological Survey Ireland is the national earth science agency and has datasets on Bedrock Geology, Quaternary Geology, Geological Heritage Sites, Mineral deposits, Groundwater Resources and the Irish Seabed. These comprise maps, reports and extensive databases that include mineral occurrences, bedrock/mineral exploration groundwater/site investigation boreholes, karst features, wells and springs. Please see our [website](#) for data availability and we recommend using these various data sets, when undergoing the planning and scoping processes. Geological Survey Ireland should be referenced to as such and should any data or geological maps be used, they should be attributed correctly to Geological Survey Ireland.

#### **Geoheritage**

Geological Survey Ireland (GSI) is in partnership with the National Parks and Wildlife Service (NPWS, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs) 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 Irish Geoheritage Programme (IGH) of GSI, under 16 different geological themes, in which the minimum number of scientifically significant sites that best represent the theme are rigorously selected by a panel of theme experts.

County Geological Sites (CGS), as adopted under the National Heritage Plan are now included in County Development Plans and in the GIS of planning departments, to ensure the recognition and appropriate protection of geological heritage within the planning system. CGSs can be viewed online under the Geological Heritage tab on the online [Map Viewer](#). The audit for Co. Westmeath is due for publication later in October, and **our records show that there is a CGSs located within the vicinity of the grid connection end point near Mullingar:**

**Mullingar bypass, Co. Westmeath (GR 243300 256400), under IGH 8: Lower Carboniferous.**  
Road section of Derryvaragh Cherts, Upper Lucan formation.

With the current plans, there are no envisaged impacts on the integrity of CGSs. However, if the proposed development plan is altered, please contact myself or my colleague, Siobhán Power at [Siobhan.Power@gsi.ie](mailto:Siobhan.Power@gsi.ie), for further information and possible mitigation measures if applicable.

#### **Groundwater**

Groundwater is important as a source of drinking water, and it supports river flows, lake levels and ecosystems. It contains natural substances dissolved from the soils and rocks that it flows through, and can also be contaminated by human actions on the land surface. As a clean, but vulnerable, resource, groundwater needs to be understood, managed and protected. Through our [Groundwater Programme](#), Geological Survey Ireland provides advice and maps to members of the public, consultancies and public bodies about groundwater quality,

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quantity, distribution and vulnerability. Geological Survey Ireland monitors groundwater nationwide by characterising aquifers, investigating karst landscapes and landforms and by helping to protect public and group scheme water supplies. With regard to Flood Risk Management, there is a need to identify areas for integrated constructed wetlands. We recommend using the GSI's National Aquifer and Recharge maps on our [Map viewer](#) to this end.

### **Geohazards**

Geohazards can cause widespread damage to landscapes, wildlife, human property and human life. In Ireland, landslides are the most prevalent of these hazards. Landslides are possible in areas of peat land, which occur over the proposed development areas. Geological Survey Ireland is happy to see that ground conditions and peat stability will be address in the report and has information available on past landslides, for viewing on our website and as a layer on our [Map Viewer](#). Geological Survey Ireland also engages in national projects such as Landslide Susceptibility Mapping and GWFlood Groundwater Flooding, and in international projects, such as the Tsunami Warning System, coordinated by the Intergovernmental Oceanographic Commission of UNESCO. 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.

### **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](#).

I hope that these comments are of assistance, and if we can be of any further help, please do not hesitate to contact me, or my colleague Siobhán Power ([Siobhan.Power@gsi.ie](mailto:Siobhan.Power@gsi.ie)).

Le meas,

Amrine Dubois Gafar  
**Geoheritage Programme**