



### Submission

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|---------------------------|---|
| Submitter:                | Mr Luke Thompson  |
| Organisation Name:        | Department of the Environment, Climate and Communications |
| Submission Title:         | GSI Submission  |
| Submission Reference No.: | S010647   |
| Submission Received:      | 25 October 2022   |

### Application

|            |             |
|------------|-------------|
| Applicant: | Irish Water |
| Reg. No.:  | D0544-02    |

See below for Submission details.

Attachments are displayed on the following page(s).



Environmental Licensing Programme  
Office of Environmental Sustainability  
EPA  
Johnstown Castle Estate  
Wexford, Y35 W821

20 October 2022

**Re: Grenagh Wastewater discharge licence application**

**Your Ref: D0544-02**

**Our Ref: 22/398**

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 your email received on the 03 October 2022, concerning the Grenagh Wastewater discharge licence application, 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**

A national inventory of geoheritage sites known as County Geological Sites (CGSs) is managed by the Geoheritage Programme of Geological Survey Ireland. CGSs, as adopted under the National Heritage Plan, include sites that are of national importance which have been selected as the very best examples for NHA (Natural Heritage Areas) designation. NHA designation will be completed in partnership with the National Parks and Wildlife Service (NPWS). CGSs are now routinely 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. Cork will be a three year process that commenced in 2021, but has not been completed yet. However, unaudited CGSs can be viewed online under the Geological Heritage tab on the online [Map Viewer](#). **Our records show that there are no unaudited CGSs within the vicinity of the waste water treatment plant.**

### **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.

**The Groundwater Data Viewer indicates an aquifer classed as a 'Locally Important Aquifer - Bedrock which is Moderately Productive only in Local Zones' underlies the waste water treatment plant. 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.**



Our records show that there is a groundwater drinking water abstraction ([Grenagh Public Water Supply](#)) with two zones of contribution/source protection within the Grenagh area. Key to groundwater protection in general, and protection of specific drinking water supplies, is preventing ingress of runoff to the aquifer. Discharge of effluent and/or design of any potential drainage / infrastructure projects will need to be cognisant of the public water scheme and the interactions between surface water and groundwater as well as run-off. Appropriate design should be undertaken by qualified and competent persons to include mitigation measures as necessary, such as SUDs or other drainage mitigation measures.

Note that there could be other groundwater abstractions in the locality for which Geological Survey Ireland has not undertaken studies, and a robust assessment should be undertaken by qualified and competent persons including a survey of all current wells and water abstractions within the vicinity.

Given the nearby drinking water source (Public Water Scheme), the effects of any potential contamination as a result of any potential waste water treatment plant infrastructure projects or effluent discharge would need to be assessed.

[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 Cork Groundwater Protection Response overview and link to the main reports is here:** <https://www.gsi.ie/en-ie/publications/Pages/Cork-Groundwater-Protection-Scheme-Reports.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.

Our 3D models can help stakeholders visualize, understand and characterise geology, for deposit and resource mapping, for flooding and for urban geology applications including basement impact assessment, Sustainable Drainage Systems (SuDS), and subsurface management. Our 3D models offer a key element of geotechnical risk management by identifying areas requiring further site investigation. **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.



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,

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

Trish Smullen  
**Geoheritage and Planning Programme**  
**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 / 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.  | <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>  |
| Geoheritage                         | 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=a30af518e87a4c0b2fbd2aaac3c228">https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0b2fbd2aaac3c228</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=de7012a99d2748ea9106e7e1b6ab8d58&amp;scale=0">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=de7012a99d2748ea9106e7e1b6ab8d58&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=de7012a99d2748ea9106e7e1b6ab8d58&amp;scale=0">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=de7012a99d2748ea9106e7e1b6ab8d58&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=de7012a99d2748ea9106e7e1b6ab8d58&amp;scale=0">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=de7012a99d2748ea9106e7e1b6ab8d58&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=de7012a99d2748ea9106e7e1b6ab8d58&amp;scale=0">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=de7012a99d2748ea9106e7e1b6ab8d58&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=afa76a420f54877843aca1bc075c62b">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=afa76a420f54877843aca1bc075c62b</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=9768f4818b79416093beb2212a850ce6&amp;scale=0">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=9768f4818b79416093beb2212a850ce6&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.dcaa.gov.ie/goldmine/index.html">https://secure.dcaa.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=7e8a202301594687ab14629a10b748ef">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef</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=7e8a202301594687ab14629a10b748ef">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef</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=7e8a202301594687ab14629a10b748ef">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef</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=7e8a202301594687ab14629a10b748ef">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef</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=7e8a202301594687ab14629a10b748ef">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef</a>  |
| Groundwater & Geothermal            | Catchment and WFD management units.  | Water                          | National |   | <a href="https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef</a>  |
| Groundwater & Geothermal            | karst specific data layers   | water                          | National | For areas underlain by limestone, includes karst features, tracer test database; turf/lough water levels (gwlevel.ie)   | <a href="https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef</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=7e8a202301594687ab14629a10b748ef">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=7e8a202301594687ab14629a10b748ef</a>  |
| 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<br>Also, Roadmap for a Policy and Regulatory Framework for Geothermal Energy, November 2020   | <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 |   | <a href="https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=9e46be08de41278b90a99116d0c0b9e">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=9e46be08de41278b90a99116d0c0b9e</a>  |
| Marine & Coastal Unit               | INFOMAR - Ireland's national marine mapping programme; providing key baseline data for Ireland's       | Water                          | National |   | <a href="https://secure.dcaa.gov.ie/GSI/INFOMAR_VIEWER/">https://secure.dcaa.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=ee8c4c285a49413aa6f1344416dc9956">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=ee8c4c285a49413aa6f1344416dc9956</a>  |
| Minerals                            | Active quarries  | Land & Soils                   | National |   | <a href="https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=ee8c4c285a49413aa6f1344416dc9956">https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=ee8c4c285a49413aa6f1344416dc9956</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://gis.epa.ie/EPAMaps/default?zesting=7&amp;northing=7&amp;lid=EPA:LEMA_Facilities_Extractive_Facilities">https://gis.epa.ie/EPAMaps/default?zesting=7&amp;northing=7&amp;lid=EPA:LEMA_Facilities_Extractive_Facilities</a><br><a href="https://www.epa.ie/enforcement/mines/">https://www.epa.ie/enforcement/mines/</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://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=6304e122b733498b99642707f72754">https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=6304e122b733498b99642707f72754</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=6304e122b733498b99642707f72754">https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=6304e122b733498b99642707f72754</a>  |
| Tellus                              | urban geochemistry mapping (Dublin SURGE project).   | Land & Soils                   | Regional |   | <a href="https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=6304e122b733498b99642707f72754">https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=6304e122b733498b99642707f72754</a>  |

- 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.**