



DAERA Environmental Advice for Planning

Practice Guide

Water Features Survey

A guide to EIA and Planning considerations

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Introduction

This guidance document aims to help developers and/or their environmental consultants who are carrying out water features surveys for proposed developments in Northern Ireland. Water features surveys are usually a pre-requisite for or part of Environmental Impact Assessments or risk assessments for planning applications.

The document considers why a survey is required and which activities or developments need a water features survey. Guidance on the features to be surveyed is included and sources of relevant information are also presented.

Why is a water features survey needed?

A variety of activities and developments have the potential to impact on groundwater quality, groundwater quantity and/or the established groundwater flow regime. Changes to the local water environment can affect receptors such as wells/boreholes, springs, wetlands and waterways, and can also have implications for groundwater dependent ecology and/or land stability.

The degree of risk from a particular development or activity is, in part, dependent on the sensitivity of local receptors. At a particular site, the local hydrogeological setting will influence the vulnerability of groundwater and associated receiving surface waters. For this reason it is important to establish local conditions prior to development, termed the “baseline conditions”.

A water features survey enables identification of the receptors that might be affected by the development both during and post-development. Early identification of sensitive receptors can also beneficially influence design and construction elements of the development or activity.

What activities and developments will need a survey?

Developments that could have the potential to impact on groundwater quality, groundwater quantity and/or the established groundwater flow regime include (list not exhaustive):

- cemeteries;
- energy generation - from waste, wind farms, power stations;
- industrial, manufacturing or commercial developments;
- landfills;
- mineral or hydrocarbon extraction – including hydraulic fracturing;
- petrol/filling stations;
- residential developments; and
- transportation developments – roads, railways and airports.

Activities that could have the potential to impact on groundwater quality, groundwater quantity and/or the established groundwater flow regime include:

- groundwater abstraction for water supply, mineral extraction dewatering or ground source heating;

- exploration boreholes for mining, gas or oil;
- discharges from septic tanks, soakaways, or surface water runoff; and
- construction involving piling.

For sites with a potential for contaminated land the water features survey will form part of the Preliminary Risk Assessment (PRA).

What is a water features survey?

A water features survey should identify all potential receptors including surface water and/or groundwater catchments that the development may affect. The water features survey should be combined with an understanding of the geological and hydrogeological setting.

A Water Features Survey should consist of the identification of all potential receptors through desk study work and field survey. The desk study work will involve viewing of available mapping (Ordnance Survey, NIEA and Geological Survey of Northern Ireland) and consultation with relevant authorities (NIEA including the Drinking Water Inspectorate, the local council, Northern Ireland Water). The field study will confirm the data collected during the desk study and provide opportunity to gain more information on potentially sensitive receptors.

The search radius for the survey will depend on the sensitivity of the activity or development, and the hydrogeological setting.

What features need to be identified?

Table 1 in the appendix provides a list of water features to be identified and possible sources of information. This is not an exhaustive list of water features or sources of information.

The information obtained through the water features survey should be factually reported, but also presented on Ordnance Survey Plan(s) of suitable scales (with scale and north direction clearly identified)

What benefit can a field survey give?

The information obtained through desk study should be confirmed through a field survey, as this helps to understand the context of the site in relation to potentially sensitive receptors.

Viewing the water features in the field can allow the following:

- Any variations from the current published mapping to be identified;
- Confirmation of the condition/ current use of the water feature (for example: Is a private water supply still used?; Is low water quality already present?);
- Collection of water data, such as groundwater levels, surface water or spring flows;
- Location of private water supplies for which there are no records identified through the desk study;
- Confirmation of private water supply locations and sources through consultation with land owners (i.e. is a borehole used or is the water sourced from a spring sump?);
- Identification of karst features not observed in mapping;

- Identification and description of wetlands (if occurring, the field survey is best combined with ecological studies) ;
- An understanding of the land topography, and therefore potential flow directions;
- An understanding of the surface material present at the site, its condition, and therefore potential for water infiltration (e.g. hardstanding, concrete, soil type, peat); and
- Identification of any existing pressures, or human influences on or surrounding the site.

Photographs should be taken of the features and provided within the survey report, with the location marked on suitable plans.

How will the water features survey be used?

The completed water features survey, including field survey, will be used to inform any of the following:

- Identification of any receptors that are likely to be sensitive to the activity or development;
- Development of a conceptual site model for risk assessment purposes;
- Changes in the development design or activity location;
- Construction design methods; and
- construction involving piling

Information sources

Geological Survey of Northern Ireland: GeoIndex, geological maps, reports and memoirs, borehole and site investigation reports

Tel: 028 90388462

Website: www.bgs.ac.uk/gsni/
http://mapapps2.bgs.ac.uk/GSNI_Geoindex/home.html

Email: gsni@economy-ni.gov.uk

NIEA River Basin Map Viewer:

Website: <http://apps.d.aera-ni.gov.uk/RiverBasinViewer/>

NIEA WMU Water Information Request Viewer:

Website: <https://apps.d.aera-ni.gov.uk/WaterInformationRequest/>

WMU Digital Dataset Downloads:

Website: <https://www.daera-ni.gov.uk/articles/wmu-digital-dataset-downloads>

NIEA Natural Environment Map Viewer:

Website: <https://www.daera-ni.gov.uk/services/natural-environment-map-viewer>

NIEA Water Management Unit: surface water and groundwater information, hydrogeological data

Tel: 0300 200 7850

Website: <https://www.daera-ni.gov.uk/topics/water>

Email: waterinfo@daera-ni.gov.uk for water information requests

SpatialNI: Historical land use database

Website: www.spatialni.gov.uk/geoportal/catalog/main/home.page

DfI Rivers: Flow data, flood risk areas

Tel: 028 8676 8342

Website: <https://www.infrastructure-ni.gov.uk/topics/rivers-and-flooding>

<https://www.infrastructure-ni.gov.uk/topics/rivers-and-flooding/flood-maps-ni>

Email: rivers.registry@infrastructure-ni.gov.uk

Ordnance Survey of Northern Ireland: Topographical information, historical maps, open data

Tel: 0300 200 7804

Website: <https://www.nidirect.gov.uk/campaigns/ordnance-survey-of-northern-ireland>

<https://www.nidirect.gov.uk/services/osni-open-data-portal>

Email: mapping.helpdesk@finance-ni.gov.uk

NIEA Drinking Water Inspectorate: Private water supplies

Tel: 028 90569282

Website: <https://www.daera-ni.gov.uk/topics/water/drinking-water>

Email: dwi@daera-ni.gov.uk

Northern Ireland Water: Public water supplies

Tel: 08457 440088

Website: www.niwater.com/home/

Email: waterline@niwater.com

Waterways Ireland

Tel: 028 6632 3004

Website: <https://www.waterwaysireland.org/>

Email: info@waterwaysireland.org

All-Ireland karst dataset: data download and map viewer for karst features and karst tracer lines

Website: <https://www.gsi.ie/en-ie/data-and-maps/Pages/Groundwater.aspx#KarstFeatures>

Local Council Environmental Health Departments

Website: www.nidirect.gov.uk/local-councils-in-northern-ireland

Appendix

Table 1: Overview of information for desktop water features survey

	Water feature to be identified	Possible sources of Desk Study information
1.	Rivers or streams (whether designated or not, including any control structures or culverts)	Ordnance Survey of Northern Ireland NIEA River Basin Map Viewer/ NIEA WMU Water Information Request Viewer DfI Rivers
2.	Loughs or ponds with a surface area of >50 m ² or where their ecology or use could be adversely affected (including fishing lakes)	Ordnance Survey of Northern Ireland NIEA River Basin Map Viewer / NIEA WMU Water Information Request Viewer/ Natural Environment Map Viewer DfI Rivers
3.	Man-made features - drainage ditches, canals, navigation channels or reservoirs	Ordnance Survey of Northern Ireland DfI Rivers Waterways Ireland
4.	Coastlines and estuaries	Ordnance Survey of Northern Ireland
5.	Areas of saline or areas of potentially contaminated groundwater	Ordnance Survey of Northern Ireland SpatialNI Historic Land use database NIEA River Basin Map Viewer WMU Digital Datasets Downloads
6.	Boreholes and site investigations (specifying use and construction details e.g. borehole logs)	Geological Survey of Northern Ireland GeoIndex
7.	Springs and seepages (including discharges from adits)	Ordnance Survey of Northern Ireland
8.	Licensed surface water and groundwater abstractions (i.e. those >10 m ³ /day abstraction rate)	NIEA WMU Water Information Request Viewer WMU Digital Datasets Downloads
9.	Private water supply to a commercial/public premises or to a group of two or more dwellings as registered with DWI	(i) NIEA Drinking Water Inspectorate (DWI) (ii) Environmental Health Department of local council (iii) local residents
10.	Private groundwater abstractions (i.e. those outside (8) and (9))	Historic Map (Ordnance Survey of Northern Ireland) local residents
11.	Public water supplies	Northern Ireland Water
12.	Licensed discharges to surface water	NIEA WMU Water Information Request Viewer

13.	Other Features	Groundwater dependent terrestrial ecosystems (could require input from ecology specialist)	NIEA River Basin Map Viewer / Natural Environment Map Viewer WMU Digital Datasets Downloads
14.		Karst features (formed by dissolution of soluble rocks such as limestone, dolomite and gypsum)	All-Ireland karst dataset Ordnance Survey of Northern Ireland Geological Survey of Northern Ireland

DAERA Planning Response Team

Klondyke Building

Cromac Avenue

Malone Lower

Belfast

BT7 2JA

T: (028) 9056 9604

E: PlanningResponse.Team@daera-ni.gov.uk

W: <https://www.daera-ni.gov.uk/topics/environmental-advice-planning>

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