**Annaghmore Groundwater Body: Summary of Initial Characterisation.**

<table>
<thead>
<tr>
<th>Hydrometric Area</th>
<th>Associated surface water features</th>
<th>Associated terrestrial ecosystem(s)</th>
<th>Area (km²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>26 – Camlin Rinn Leitrim &amp; Longford Co. Co.’s.</td>
<td>Rivers: Black (South Leitrim); Creelaghta; Cloone Lough: Drumshanbo; Sallagh; Keeltra; Forbes</td>
<td>No NHA’s currently recorded.</td>
<td>55</td>
</tr>
</tbody>
</table>

**Topography**

This groundwater body occupies a low-lying area on the Longford Leitrim border east of Lough Gowna. Ground elevation rises gently to the east, northeast and southeast. The lowest point is 40 m AOD in the southwest of the body near Lough Forbes; the highest point is in the east of the body at 130 m AOD east of Kedrah Lough. There are a number of small low hills which increase in frequency towards the north of the body.

**Aquifer categories**

The majority of the area of this groundwater body has an aquifer category of:

- **Lm**: Locally important aquifer which is generally moderately productive.

  A number of small areas (3.3 km²) in the south of the body have an aquifer category of:

- **P**l**: Poor aquifer which is generally unproductive except for local zones.

  And a small area (0.9 km²) in the south of the body has an aquifer category of:

- **Ll**: Locally important aquifer which is moderately productive only in local zones.

**Main aquifer lithologies**

The majority of the area of this groundwater body consists of:

- Dinantian Sandstones

  A number of small areas within the south of the groundwater body consist of:

- Ordovician Metasediments & volcanics (3.3 km²).

  There is also a small area of

- Dinantian (early) Sandstones, Shales and Limestones (0.9 km²).

**Key structures**

There appear to be two main fault orientations within the body, north-south and northeast-southwest. There are a number of small fault-bounded inliers of Ordovician Metasediments within the body. The Dinantian Sandstones rest unconformably on Ordovician Metasediments to the east (Longford/Mohill GWB).

**Key properties**

No data on the hydrogeological properties specific to this groundwater body are available. In general, Dinantian Sandstones, given their dominant sandstone lithology, which generally results in a higher fissure permeability, has the potential to be a quite permeable aquifer, and would be expected to have a higher transmissivity than the underlying Ordovician Metasediments of the Longford Ballinalee GWB and the overlying Dinantian (early) Sandstones, Shales and Limestones of the Mohill GWB.

**Thicknness**

This groundwater body is composed of the Fearnaught Sandstone Formation (Dinantian Sandstone). Having a dominantly sandstone lithology the permeability of individual fractures and the degree of interconnection is expected to be generally high. Based on experience in other Irish aquifers this aquifer is expected to have a broken and weathered rock zone of a few metres at the top of the rock and below this a zone of more interconnected fissures to a depth of 30 m. Deeper flow can occur in areas of higher structural deformation and faulting. The small areas of Ordovician Metasediments and Dinantian (early) Sandstones, Shales and Limestones that occur within the body are considered less permeable. In the Ordovician Metasediments in particular, the groundwater flow will be concentrated in the upper few metres of bedrock with an effective aquifer thickness generally not extending deeper than 15 m.

**Lithologies**

[Information to be added at a later date]

**Thickness**

Two data points with depth to bedrock of 19 m and >37 m are recorded indicating presence of thick subsoil deposits. More data are needed to confirm the presence of thick tills over the groundwater body. Very little outcrop is mapped in the body. A small area of outcrop mapped on Ordovician inlier in the south of the body suggesting possible shallower subsoils over that area.

[More information to be added at a later date]

**% area aquifer near surface**

[Information will be added at a later date]

**Vulnerability**

Lack of outcrop and two data points with >10 m subsoil suggest that areas of extreme vulnerability may be limited, however further data are required and mapping of areas of extreme vulnerability has to be completed.

[Information will be added at a later date]

**Main recharge mechanisms**

Diffuse recharge will occur over the entire groundwater body via rainfall soaking through the subsoil. More recharge will occur where overlying strata are thinner. If thick low permeability subsoils occur in the body they may cause potential recharge to be rejected.

**Est. recharge rates**

[Information will to be added at a later date]

**Springs and large known abstractions (m³/d)**

[More information to be added at a later date]
Groundwater flow in the Dinantian Sandstones is expected to be concentrated in fractured and weathered zones and in the vicinity of fault zones. The dominant sandstone lithology and lack of shale will generally result in a higher frequency of more open fractures and, consequently, higher fissure permeability. Where there has been more intense faulting and folding these zones of high permeability will be more common. Because of the nature of the lithology, the degree of interconnection of fissures is expected to be relatively high in Dinantian Sandstones, enabling an element of regional groundwater flow.

Flow path lengths in such high permeability rocks can be up to 500-2000 m. Regional flow in this groundwater body is expected to be in a broad west southwesterly direction towards the River Rinn and River Shannon. On a more local scale groundwater flow in the Dinantian Sandstones will be influenced by local topography and flow will be generally to the streams and rivers crossing the body. The western boundary of the body is formed by the contact with the Dinantian (early) Sandstones, Shales and Limestones of the Mohill GWB. While expected to have generally a lower permeability than the Dinantian Sandstones, the Dinantian (early) Sandstones Shales and Limestones do have zones of enhanced permeability and would not be expected to form a significant barrier to flow from the Dinantian Sandstones.

Groundwater will contribute baseflow to the streams and the Black River crossing the body if subsoil nature and thickness permit.
List of Rock units in Annaghmore Fearnaght Groundwater Body

<table>
<thead>
<tr>
<th>Rock unit name and code</th>
<th>Description</th>
<th>Rock unit group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fearnaght Sandstone Formation (FT)</td>
<td>Pale conglomerate &amp; red sandstone</td>
<td>Dinantian Sandstones</td>
</tr>
<tr>
<td>Coronea Formation (CA)</td>
<td>Turbidite, red shale, minor volcanic</td>
<td>Ordovician Metasediment &amp; volcanics</td>
</tr>
<tr>
<td>Meath Formation (ME)</td>
<td>Limestone, calcareous sandstone</td>
<td>Dinantian (early) Sandstones, Shales and Limestones</td>
</tr>
</tbody>
</table>