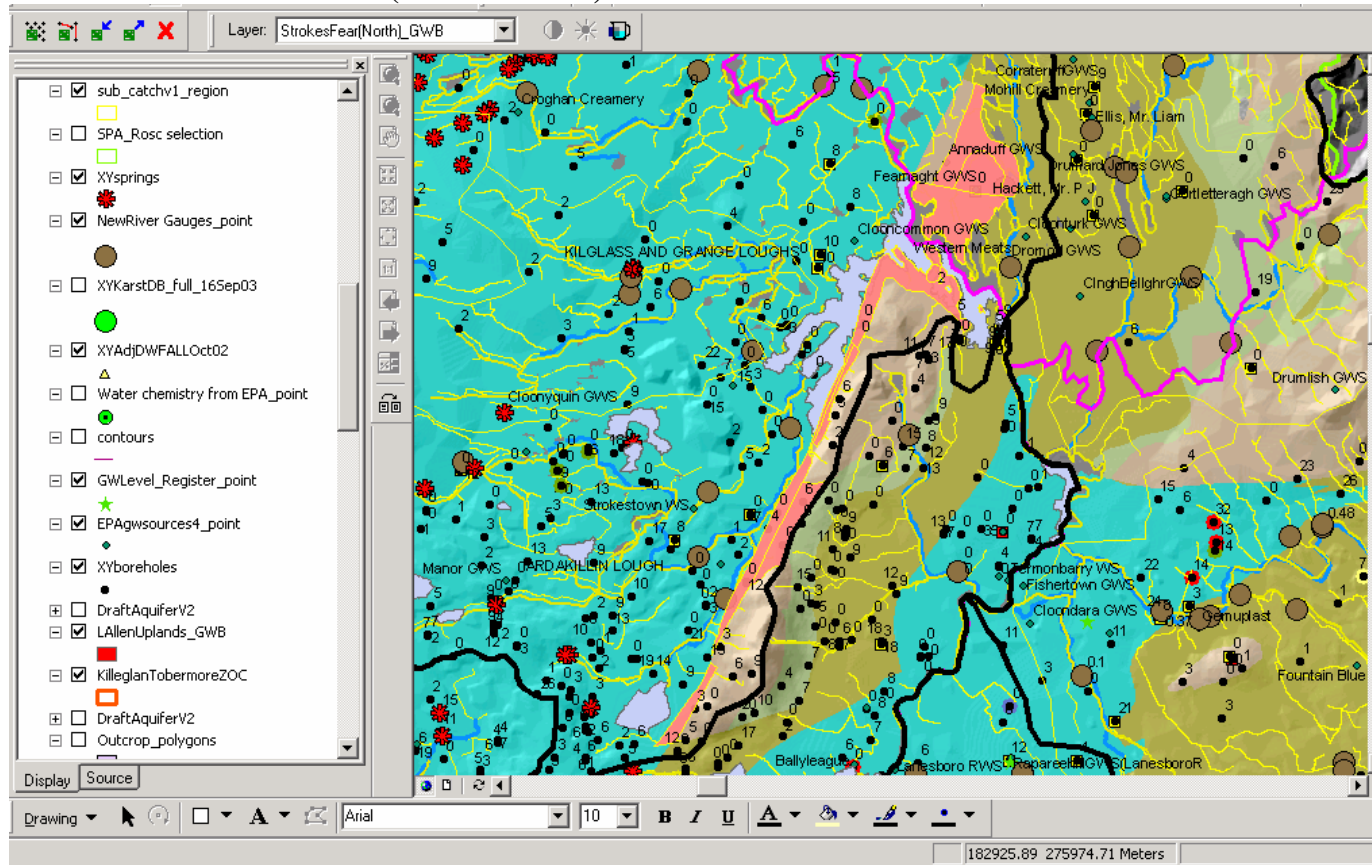


Scramoge North Groundwater Body: Summary of Initial Characterisation.

Hydrometric Area Local Authority	Associated surface water features	Associated terrestrial ecosystem(s)	Area (km ²)
26 – Shannon Upstream Roosky Roscommon & Leitrim Co. 's.	Rivers: Eslin, Shannon (through Loughs Boderg & Bofin) Loughs: Boderg; Bofin; Kilglass & Grange; Erril; Cloonfinnan.	(000608) Kilglass & Grange Loughs; (001642) Lough Boderg & Lough Bofin	29
Topography	This body occupies part of the northwestern side of a northeast-southwest trending ridge formed by the Strokestown Inlier. The body forms an elongate strip skirting the ridge which broadens in the north of the body. Most of the body occurs on the lower slopes of the ridge but just southeast of Strokestown, Co. Roscommon, the body extends to the top of the ridge to an elevation of 140 m AOD. In the north of the body just west of Dromod, Co. Leitrim, the body broadens into a low-lying region around Loughs Boderg and Bofin, with lowest point of the body (40 m AOD) found along the southern shore of Lough Bofin. The River Shannon flows south through Loughs Boderg and Bofin. Numerous streams rising along the ridge flow across the body onto the adjoining "Carrick-on-Shannon" karstic groundwater body to the northwest.		
Geology and Aquifers	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 (25.5km ²). Two very small areas within the groundwater body have aquifer categories of Ll: Locally important aquifer which is moderately productive only in local zones (0.5km ²) and Pl: Poor aquifer which is generally unproductive except for local zones (3km ²)	
	Main aquifer lithologies	The majority of the area of this groundwater body consists of: Dinantian Sandstones (25.5km ²). Two very small areas within the groundwater body consist of: Dinantian Lower Impure Limestones (0.5km ²) Ordovician Metasediments (3km ²)	
	Key structures	This groundwater body forms part of the Strokestown Inlier, a fault-bounded inlier within an area of Dinantian Pure Bedded Limestones. The inlier has a core of Ordovician metasediments which are flanked by Dinantian Sandstones, Dinantian (early) Sandstones, Shales and Limestones, and Dinantian Impure Limestones (Upper & Lower). The Dinantian Sandstones rest unconformably on the Ordovician metasediments. On the northwestern side, the inlier is bounded by the Strokestown Fault, which brings the Dinantian Sandstones into contact with the Dinantian Pure Bedded Limestones of the karstic Carrick on Shanonn GWB. A series of northwest southeast faults cut across the inlier.	
	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. The Dinantian Sandstone would be expected to be less permeable than the surrounding Karstic Dinantian Pure Bedded Limestone.	
	Thickness	This groundwater body is composed of the Fearnaght 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 Lower Impure Limestones that occur within the body are considered less permeable than the surrounding Dinantian Sandstones with a reduced effective aquifer thickness.	
Overlying Strata	Lithologies	Lower Paleozoic Sandstone and Shale Till (TLPSsS), Devonian Sandstone Till (TDSs), Limestone Till (TLs), areas of shallow rock and outcrop (Rck) and areas of cut peat (Cut) – Teagasc Parent Material Mapping. <i>[More information to be added at a later date]</i>	
	Thickness	On the higher ground the overlying strata are generally less than 3 m thick. In more low-lying areas, particularly in the north of the body, the subsoil cover is thicker. <i>[More information to be added at a later date]</i>	
	% area aquifer near surface	A large percentage of body has aquifer near the surface <i>[More information to be added at a later date]</i>	
	Vulnerability	Most of the groundwater body is in an area of extreme vulnerability, particularly in the south of the body, and on higher ground. Areas of high vulnerability skirt the extreme vulnerability areas. In more low lying areas where subsoil thickness is greater there are areas of moderate and low vulnerability. (The southern part of this groundwater body occurs within the area of the Roscommon Groundwater Protection Scheme where groundwater vulnerability has been mapped.)	
Recharge	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.	
	Est. recharge rates	<i>[Information to be added at a later date]</i>	

Discharge	Springs and large known abstractions (m ³ /d)	[More information to be added at a later date]
	Main discharge mechanisms	Discharges will be to the streams crossing the groundwater body, to Lough Boderg and Bofin and to the adjoining karstic Carrick-on-Shannon GWB to the northwest.
	Hydrochemical Signature	No relevant hydrochemical data are available in this GWB for assessment. The body is composed of Dinantian Sandstone.
Groundwater Flow Paths	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 groundwater flow in this GWB is expected to be in a northwesterly direction away from the ridge towards the Carrick on Shannon GWB. In the north of the body regional groundwater flow is expected to be downslope to the surrounding GWB's and Lough Bofin.	
Groundwater & Surface water interactions	Groundwater will contribute baseflow to the streams crossing the body.	
Conceptual model	<ul style="list-style-type: none"> • This groundwater body consists of an elongate strip on the northwestern side of a ridge formed by the Strokestown Inlier. The strip broadens in the north of the body. • The groundwater body is bounded on the northwestern side by the contact with the karstic Carrick-on-Shannon GWB. On the northeastern side, it is bounded in part by a topographic high and groundwater divide which coincides a surface water catchment boundary, and in part by contact with the Ordovician Metasediments of the Slieve Bawn Telton and Kilglass Dromod GWB's. • The groundwater body is composed of Dinantian Sandstone which is considered to have the potential for relatively high fissure permeability. Dominant sandstone lithology and lack of shale generally results in a higher frequency of more open fractures and consequently a higher fissure permeability. The Dinantian Sandstone would be expected to be less permeable than the surrounding karstified Dinantian Pure Bedded Limestone. • Groundwater flow will occur along fractures, joints and major faults. • Recharge occurs diffusely through the subsoils and via outcrops. • Groundwater is generally unconfined within this GWB. Most flow in this aquifer will occur in a zone near the surface. In general the effective thickness of this aquifer is likely to be about 30m, comprising a weathered zone of a few metres and a connected fracture zone below this. However, deep-water strikes in more isolated faults/fractures can be encountered. Regional groundwater flow is expected to be away from the ridge to the northwest towards the karstic Carrick-on-Shannon GWB and in the north of the body towards Loughs Boderg and Bofin, but on a local scale, flow will be generally to the streams and rivers crossing the aquifer. In a higher permeability rock such as the Dinantian Sandstones, flow path lengths can be up to 500-2000 m. • Groundwater will discharge to the small streams crossing the body, and to the adjoining karstic Carrick-on-Shannon GWB. • Groundwater will contribute baseflow to the streams crossing the body. 	
Attachments	None	
Instrumentation	Stream Gauges: None EPA Water Level Monitoring boreholes: None EPA Representative Monitoring boreholes: None	
Information Sources	Lee, M. & Daly D. (2003) <i>County Roscommon Groundwater Protection Scheme</i> . Main Report. Roscommon County Council & Geological Survey of Ireland, 54pp. Morris J.H., Somerville I.D. and MacDermot C.V. (2002). <i>Geology of Longford-Roscommon</i> . A Geological Description to Accompany the Bedrock Geology 1:100,000 Bedrock Series Sheet 12. With contributions by D.G. Smith, M. Geraghty, B. McConnell, K. Carlingbold, W. Cox, D. Daly. Geological Survey of Ireland, 121pp. (publication pending) Aquifer Chapters: Dinantian Sandstones.	
Disclaimer	Note that all calculation and interpretations presented in this report represent estimations based on the information sources described above and established hydrogeological formulae	

GROUNDWATER BODY (For Reference)



List of Rock units in Strokestown Fearnaght (North) Groundwater Body

Rock unit name and code	Description	Rock unit group
Fearnaght Sandstone Formation (FT)	Pale conglomerate & red sandstone	Dinantian Sandstones
Finnalaghta Formation (FA)	Blue-grey greywacke & black argillite	Ordovician Metasediments & volcanics
Ballysteen Formation (BA)	Dark muddy limestone, shale	Dinantian Lower Impure Limestones

NOTES ON GWB DESCRIPTION

NOTES

There are two v small areas of Ordovician Volcanics that occur within the Fearnaght. These areas are included in the Strokestown Fearnaght GWB as they are two small to be GWB's in their own right.

Area (km ²)
28.94

Associated surface water features
Rivers: Eslin
Streams: tributaries of Lissapobble & Boranoge, tribs to Kilglass Grange
Boderg Bofin, Erril (lake & river), Cloonfinnan
Loughs: Boderg; Bofin; Kilglass & Grange; Erril; Cloonfinnan,

(Coalpits GWS plots in body but is noted as drawing water from Limestone)
Castlecoote (ROS15) (No Data - EPA GW Sources List)