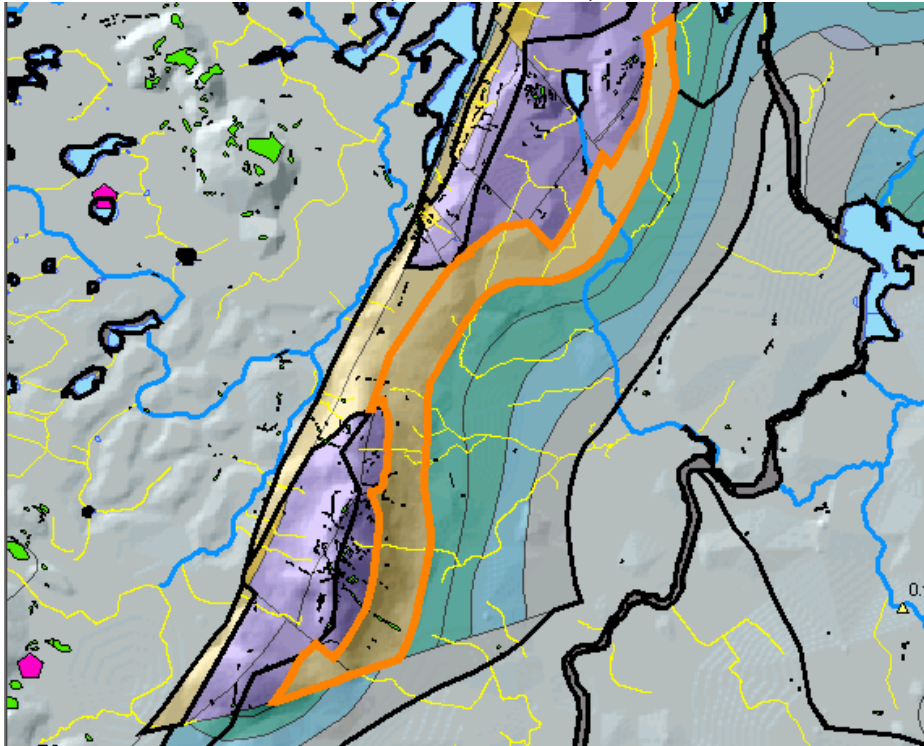


Scramoge South Groundwater Body: Summary of Initial Characterisation.

Hydrometric Area Local Authority		Associated surface water features	Associated terrestrial ecosystem(s)	Area (km ²)
26 – Hind/Lough Ree Roscommon & Leitrim Co. Co.'s.		Rivers: Curraghro Stream; Feorish Termonbarry	n/a	18
Topography	This body occupies part of the southeastern side of a northeast-southwest trending ridge formed by the Strokestown Inlier. The body forms an elongate strip skirting the ridge. The highest elevations (160-170 mAOD) are in the southern half of the body where the ridge slopes are steepest on the flanks of Sieve Bawn Telton. Further north the ridge is more subdued and the groundwater body covers a more low-lying area with elevations of 50-70 mAOD. Numerous streams flow east and southeast across the body onto the adjoining Curraghroe GWB.			
Geology and Aquifers	Aquifer categories	Lm: Locally important aquifer which is generally moderately productive.		
	Main aquifer lithologies	Dinantian Sandstones (Fearnaght Sandstone Formation FT).		
	Key structures	This groundwater body forms part of the Strokestown Inlier, a fault-bounded inlier with a core of Ordovician metasediments, 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. The major northeast-southwest trending Strokestown Fault bounds the body and the inlier along the northwest side while 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 that occur within the Lough Acrick GWB and part of the Curraghroe GWB, and the overlying Dinantian (early) Sandstones, Shales and Limestones of the Curraghroe.GWB.		
	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.		
Overlying Strata	Lithologies	Lower Paleozoic Sandstone and Shale Till (TLPSsS), Devonian Sandstone Till (TDSs), 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	<i>[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. (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)	<i>[Information to be added at a later date]</i>		
	Main discharge mechanisms	Groundwater will discharge as baseflow to the streams crossing the GWB and as cross flow to the adjoining downslope part of the Curraghroe GWB. The Dinantian (early) Sandstones, Shales and Limestones of the Curraghroe GWB, whilst considered to be of a lower overall permeability than the Dinantian Sandstones, are still likely to be sufficiently permeable to accept a certain amount of groundwater flow from the adjoining Dinantian Sandstones.		
	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 southeasterly direction away from the ridge and towards the River Shannon.
Groundwater & Surface water interactions	Groundwater will contribute baseflow to the streams and the River Feerish crossing the body.
Conceptual model	<ul style="list-style-type: none"> • This groundwater body consists of an elongate strip on the southeastern side of a ridge formed by the Strokestown Inlier. • The groundwater body is bounded on the northwestern side in part by a topographic high and groundwater divide which coincides with a surface water catchment boundary, and in part by contact with the Ordovician Metasediments of the L. Acrick GWB and the inner part of the Curraghroe GWB at the core of the Strokestown Inlier. Downslope to the southeast the body is bounded by contact with the Dinantian (early) Sandstones, Shales and Limestones of the Curraghroe GWB. • 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. • 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 southeast downslope towards the Curraghroe GWB in the direction of the River Shannon, 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 streams crossing the body, and to the adjoining Curraghroe GWB. • Groundwater will contribute baseflow to the streams and the River Feerish crossing the body.
Attachments	None
Instrumentation	Stream Gauges: 26266 Feorish-Slatah; 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 (South) Groundwater Body

Rock unit name and code	Description	Rock unit group
Fearnaght Sandstone Formation (FT)	Pale conglomerate & red sandstone	Dinantian Sandstones

NOTES ON GWB DESCRIPTION

NOTES

Fearnaght – Roscommon GWPS

This rock is made of quartz-rich conglomerates and sandstones, and therefore constitutes a clean sandstone aquifer. It covers a total of 42 km², and is mainly situated on the north, east and west flanks of Slieve Bawn. Another smaller area is mapped north west of Athleague.

Stratigraphically, the Fearnaght sandstone sits unconformably on the much less permeable Lower Palaeozoic (Ordovician) rocks, and beneath thin bands of the Meath and then Moathill rocks, which are also less permeable. Therefore, this aquifer is likely to form a more permeable pathway for groundwater flow within these few strata.

There are no available hydrogeological data for this unit either in County Roscommon, or in the surrounding counties. The rock's clean sandstone lithology suggests a potentially highly permeable aquifer. However, there are no data to support this. Therefore, based on the lithology, this unit is classified as a locally important aquifer, which is generally moderately productive (Lm).