Shanragh GWB: Summary of Initial Characterisation.

Hydrometric Area Local Authority	Associated surface water bodies	Associated terrestrial ecosystems	Area (km^2)
14 – Barrow Carlow, Laois, Kilkenny Co Cos	Crooked, Douglas, Fushoge, Oldleighlin Stream, Monefelim, Gowran.	None	148

Topography		The Castlecomer Plateau and the Barrow Valley dominate the topography of this groundwater body. The surface drainage radiates from the Plateau, which rises to elevations of over 300m OD.
Geology and Aquifers	Aquifer type(s)	**Pl -** Generally unproductive except for local zones **Pu** – Generally unproductive
	Main aquifer lithologies	BE - Bregaun Flagstone Formation - Thick-bedded flaggy sandstones and siltstones KN - Killeshin Siltstone Formation - Muddy siltstone and silty mudstone MC - Moyadd Coal Formation - Black shales siltstones and occasional sandstone LS - Luggacurren Shale Formation - Mudstone and shale with cherty limestone
	Key structures.	There are numerous faults cutting across this groundwater body which appear to radiate from the Castlecomer plateau.
	Key properties	No information is available on the hydrogeological properties of this groundwater body. Estimated transmissivities can be considered to range 1 – 6m^2/d.
	Thickness	Effective thickness is not expected to be large but the bedrock may be more permeable at higher elevations.
Overlying Strata	Lithologies	Till derived from Namurian sandstone and shale with intermittent areas of rock close to surface.
	Thickness	Mostly less than 3m with small areas of thicker subsoil. The thickness increases towards the Barrow Valley.
	% area aquifer near surface	40%
	Vulnerability	EXTREME with local areas of HIGH
Recharge	Main recharge mechanisms	Most recharge to this body is likely to occur at the higher elevations at the top of the slopes, but the amount of recharge will be small because the rocks are considered to be poorly permeable. Surface water draining off the eastern peaks of the Plateau will not seep into the ground because the slopes are too steep and the bedrock is not permeable. Therefore although the potential recharge may be high and there is thin subsoil cover the actual recharge will be considerably lower.
	Est. recharge rates	*[Information will be added at a later date]*
Discharge	Springs and large known abstractions (m^3/d)	Luggacurren GWS. (Spring - 125), Arless (10), Ballinabrannagh (200),
	Main discharge mechanisms	Discharge from this groundwater body will be at the base of the slopes and may be in the form of springs, e.g. Luggacurren. Discharge may be more significant in the area of major faulting.
	Hydrochemical Signature	The bedrock strata of this groundwater body are **Siliceous**.
Groundwater Flow Paths		Groundwater flowpaths in this area are considered to be short, because the area of the groundwater body is small and the bedrock is not considered to constitute a major aquifer. Therefore it is likely that the majority of groundwater flow circulated in the upper tens of metres, recharging and discharging in local zones. The age of the groundwater is considered to be young. The water table is considered to be steep, as it is controlled by the elevated topography, and therefore groundwater flow in the upper metres of the bedrock may be relatively fast.
Groundwater & surface water interactions		Groundwater will discharge locally to streams and rivers crossing the aquifer and also to small springs and seeps. Owing to the poor productivity of the aquifers in this body it is unlikely that any major groundwater - surface water interactions occur. Baseflow to rivers and streams is likely to be relatively low.
Conceptual model		This groundwater body consists of the Westphalian shales of the Castlecomer plateau that lie within the Barrow catchment. The groundwater body is not considered to be an important aquifer. Recharge will occur at the elevated eastern peaks of the plateau, the groundwater will flow, most likely in the shallow weathered bedrock, downhill following the surface topography and it will discharge, sometimes via springs at the base of the hills, into the Barrow Valley.

Attachments	
Instrumentation	Stream gauge: 14043, Borehole Hydrograph: None EPA Representative Monitoring boreholes: None
Information Sources	
Disclaimer	Note that all calculation and interpretations presented in this report represent estimations based on the information sources described above and established hydrogeological formulae