

### Camross GWB: Summary of Initial Characterisation.

Hydrometric Area Local Authority		Associated surface water bodies	Associated terrestrial ecosystems	Area (km <sup>2</sup> )
15 – Nore Laois Co Co		Cappanacloghy, Mountrath, Delour, Killeen, Tonet,	Slieve Bloom Mountains, Delour River near Lacca Manor	86.7
<b>Topography</b>		The topography of this area is dominated by the Slieve Bloom mountains. The highest peak is at the NW edge of the groundwater body. The land surface then falls away very sharply to the northeast. Mountain streams cut deep valleys in the mountainsides.		
<b>Geology and Aquifers</b>	Aquifer type(s)	<b>LI:</b> Locally Important Aquifer, moderately productive only in local zones. <b>PI:</b> Poor aquifer, generally unproductive except in local zones.		
	Main aquifer lithologies	CW : Cadamstown Formation - Yellow & red sandstone & green mudstone CP : Capard Formation – Silurian Greywacke.		
	Key structures.	The strata dip northwards at 10 – 20°. A number of faults with a N-S direction are noted in the area of the Clonaslee well field		
	Key properties	This aquifer is considered to have low transmissivity and storativity.		
	Thickness	The thickness of the sandstone units increases from where it pinches out at the peak of the mountain to around 500m in thickness where it becomes confined by the Lower Limestone Shale.		
<b>Overlying Strata</b>	Lithologies	Peat is found at the highest elevations of Slieve Bloom. Further down the mountain there is a large variety in the subsoil type. In the north of the groundwater body there is a large proportion of rock close to surface. South of that there is a large area of gravel deposition. These gravel deposits are an aquifer and are classed as a separate groundwater body. South of this there are deposits of limestone-derived till.		
	Thickness	The thinnest subsoil is found over the Capard Formation inlier, which this groundwater body surrounds. The thickness increases quite rapidly to over 10m where the gravels are deposited.		
	% area aquifer near surface	There are large areas of rock close to surface especially in the north and also between the peat deposits and the gravel and till deposits further down the mountain.		
	Vulnerability	Vulnerability also varies throughout the aquifer. The groundwater body has EXTREME vulnerability where it outcrops and HIGH vulnerability elsewhere. The vulnerability decreases to the west where the subsoil is thicker.		
<b>Recharge</b>	Main recharge mechanisms	Most recharge takes place where the subsoil cover is less than 5m. This is in the north and west of the area.		
	Est. recharge rates	[Recharge estimates will be entered at a later date]		
<b>Discharge</b>	Springs and large known abstractions	None		
	Main discharge mechanisms	The groundwater body discharges to over lying rivers in the area as baseflow. It is also possible that groundwater may pass from this groundwater body into the Clonaslee Sandstone.		
	Hydrochemical Signature	In Slieve Bloom during the last glacial period, thick subsoils were deposited in the area occupied by the present day Delour Valley. The groundwaters in the bedrock are only moderately hard waters (220-240mg/l as CaCO <sub>3</sub> ) but waters sampled from the recharging outcropping areas will be much softer. However, the bedrock waters have a high Mg/Ca ratio, which reflects the lower levels of calcium and higher levels of magnesium in the strata. The groundwaters in this aquifer are mainly calcium/magnesium bicarbonate type waters. The average electrical conductivity is 374 (µs/cm). The bedrock strata in this aquifer are <b>Siliceous</b> . ??		
<b>Groundwater Flow Paths</b>		Groundwater flow in this aquifer will be concentrated in the upper weathered layers. Regional groundwater flow paths are not expected to form. Recharge / Discharge cycles will take place over small areas with the groundwater body area.		
<b>Groundwater &amp; surface water interactions.</b>		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.		
<b>Conceptual model</b>	This groundwater body is defined to the north by the boundary of the Nore River basin and to the south by the extent of the Cadamstown Sandstone. Most groundwater recharges in the north where subsoil thickness is lowest, then flows southeast. The rock units contained within this groundwater body area considered to be poor or locally important aquifers at best. Regional groundwater flow systems are not expected to develop. Discharge from the aquifer will be the nearest surface water feature in the area. Hydraulic gradients are likely to be high due to the elevated topography and therefore groundwater flow may be faster than anticipated from similar rock types located in low lying lands.			
<b>Attachments</b>	Well Hydrograph for EPA stations LAO058 & LAO059			
<b>Instrumentation</b>	Stream gauge: None EPA Borehole Hydrograph: LAO059 EPA Representative Monitoring boreholes: None			

<b>Information Sources</b>	<p>Barber, W. (1979) Evaluation of Groundwater Resources, Clonaslee Area. Co. Offaly. Georex Limited.</p> <p>Daly, E.P. (1988) The Kiltorcan Sandstone Aquifer. <i>Proceedings of Eighth Annual International Association of Hydrogeologists (Irish Group) Seminar</i>, Portlaoise, 1988.</p> <p>Daly E.P. (1994) Groundwater Resources of the Nore River Basin. Geological Survey of Ireland.</p> <p>Deakin, J., Fitzsimons, V., Gately, C., Wright, G. 2002. <i>Laois Groundwater Protection Scheme</i>. Geological Survey of Ireland.</p>
<b>Disclaimer</b>	<p>Note that all calculation and interpretations presented in this report represent estimations based on the information sources described above and established hydrogeological formulae</p>

