

**Kildare GWB: Summary of Initial Characterisation.**

Hydrometric Area Local Authority		Associated surface water bodies	Associated terrestrial ecosystems	Area (km <sup>2</sup> )
14 – Barrow Kildare Laois		Figile, Slate, Cloncumber Stream, Barrow	Mouds Bog, Ballynafagh Bog, Ballynafagh Lake, Hodgestown Bog, Pollardstown Fen, Curragh.	226
<b>Topography</b>		This area is low-lying with some slightly elevated areas just north of Kildare town e.g. Grange Hill & Dunmurry Hill. To the northwest is the Bog of Allen and to the southeast lies the Curragh (both of which have very low drainage densities). The catchment divide between the Eastern and South Eastern RBDs lies along a line from Edenderry to Prosperous with the Slate River flowing southwest from this area. South of Kildare there is an increase in the surface drainage density as the subsoil composition changes.		
<b>Geology and Aquifers</b>	Aquifer type(s)	<b>LI</b> – Moderately productive only in local zones <b>PI</b> - Generally unproductive except for local zones		
	Main aquifer lithologies	BN - Boston Hill Fm - Nodular and muddy limestone & shale ORS - Old Red Sandstone - Red conglomerate sandstone and mudstone WA - Waulsortian Limestones - Massive unbedded lime-mudstone		
	Key structures.	The area is dominated by faulting in a NW – SE direction. There are also a number of unconformities around the Chair of Kildare.		
	Key properties	No information is available on the hydrogeological properties of this groundwater body. Estimated transmissivities can be considered to range 1 – 10m <sup>2</sup> /d.		
	Thickness	Effective thickness is not expected to be large but may be around 25m in some areas.		
<b>Overlying Strata</b>	Lithologies	The gravel aquifer of the Curragh is found overlying the eastern boundary of this groundwater body. Elsewhere the subsoil is a mixture of Limestone Till and peat deposits.		
	Thickness	The thickness of the subsoil is greater than three metres in most of the area except around the Chair of Kildare.		
	% area aquifer near surface	15%		
	Vulnerability	Vulnerability is high over the Curragh gravel aquifer and to the northeast of this there is an elongate area of EXTREME along the Chair of Kildare. Otherwise the are is of LOW and MODERATE vulnerability.		
<b>Recharge</b>	Main recharge mechanisms	Recharge can enter this groundwater body from areas exposed to the surface where subsoil is thin and also from surrounding groundwater bodies. The topography and surface drainage show flow from the Bagenalstown GWB into this GWB. It is also likely that some karstic conduits may also carry flow across the geological boundary where structural fractures are more important than lithology in determining groundwater flow.		
	Est. recharge rates	<i>[Information will be added at a later date]</i>		
<b>Discharge</b>	Springs and large known abstractions (m <sup>3</sup> /d)	Midland Growers (55), BNM Carbury (460), ESB (Allenwood), Blackwood WS (121), Roadstone (Allen - 32), Boston GWSS, Monasterevin WS(Lughill) (3 Spring - 180), Lackagh GWS		
	Main discharge mechanisms	Discharge from this groundwater body will be to the associated surface water bodies and also, in local zones, to adjacent groundwater bodies. Discharge may be in the form of karstic springs, which then flow into nearby rivers.		
	Hydrochemical Signature	There are both <b>siliceous</b> and <b>calcareous</b> bedrock strata in this groundwater body. The few details available show elevated electrical conductivity levels.		
<b>Groundwater Flow Paths</b>		This GWB is considered to comprise local or poor aquifers. Nevertheless the lithologies are limestone and therefore groundwater flow may be karstic to some degree and more so in local zones where purer limestones exist. This implies the groundwater flow may be fast if concentrated in conduits along openings in the rock e.g. fractures and faults.		
<b>Groundwater &amp; surface water interactions</b>		The interaction between surface water and groundwater will differ throughout the area depending largely on the overlying strata type. In areas of outcrop the surface water and groundwater will be very closely linked at streams etc. Where there are areas of till covering the bedrock the interactions may be more subdued depending on the thickness of the over burden. In areas where there are deposits of peat this may completely seal off the surface water from the groundwater. Where the gravel aquifers occur there will be little or no interaction between the bedrock groundwater and the surface water bodies.		

<b>Conceptual model</b>	<p>This aquifer is located northwest of Kildare town. The area is defined by the SERBD - ERBD boundary to the northeast and elsewhere by the Waulsortian and Boston Hill formations. Recharge to the body will be highest in exposed areas and there may also be some flow of groundwater into the aquifer from adjacent groundwater bodies. Groundwater flow will be through a poorly developed karstic system over most of the area. The extent of the karstic development will depend partly on the nature and thickness of the overlying strata. There are numerous hydrogeological settings in the area due to the variation in the following</p> <ul style="list-style-type: none"> <li>• Subsoil (Bog, till, outcrop and major gravel aquifers)</li> <li>• The degree of structural deformation (from intense faulting in the area of Allenwood to little or none in the south)</li> <li>• The variety of rock type and hence aquifer types.</li> </ul> <p>Such variations make broad statements fallible and individual site investigation will be essential to understanding any given location of interest.</p>
<b>Attachments</b>	(Figure 1) GSI Borehole Hydrograph
<b>Instrumentation</b>	Stream gauge: None GSI Borehole Hydrograph: 2621NWW281 EPA Representative Monitoring boreholes: Monasterevin WS (#20 – N635064)
<b>Information Sources</b>	Kelly, C. & Fitzsimons, V. (2002) Kildare County Council, Groundwater Protection Scheme.
<b>Disclaimer</b>	Note that all calculation and interpretations presented in this report represent estimations based on the information sources described above and established hydrogeological formulae

**Well Hydrograph.  
Bostoncommon (County Council well).  
2621NWW281**

