

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

Hydrometric Area Local Authority		Associated surface water bodies	Associated terrestrial ecosystems	Area (km <sup>2</sup> )
15 – Nore Kilkenny Co. Co.		Nore, Kings, Ennisnag Stream	Mount Juliet, Thomastown	
<b>Topography</b>		The Nore valley narrows considerably and the lateral extent of the gravels decreases to a thin strip along the river. The surrounding topography for a large area on both sides of the rivers is lowland. Much of the area has a characteristic hummocky terrain, typical of water-lain sand and gravel, although some more poorly sorted lenses have also been encountered, particularly in the north		
<b>Geology and Aquifers</b>	Aquifer type(s)	Lg: Locally Important Sand and Gravel Aquifer		
	Main aquifer lithologies	Sand and Gravel. The sand and gravel deposits associated with the Nore are believed to be fluvio-glacial in origin, deposited by large quantities of meltwater associated with ice-retreat. This means that coarse sands and gravels are likely to predominate.		
	Key structures.			
	Key properties	Though permeability testing data are limited, productivity, borehole logging and quarry data tend to support the suggestion that coarse material predominates and that the permeability of the aquifer is high.		
	Thickness	The saturated thickness is generally in excess of 5m		
<b>Overlying Strata</b>	Lithologies	There may be some locations where the aquifer is overlain by glacial till.		
	Thickness			
	% area aquifer near surface	HIGH		
	Vulnerability	HIGH		
<b>Recharge</b>	Main recharge mechanisms	The Nore Valley narrows considerably and the lateral extent of the gravels decreases to a thin strip along the river. As such, the potential catchment area for rainfall recharge is significantly reduced compared to the portion of the gravel aquifer to the north. Therefore the proportion of direct recharge is reduced and the indirect recharge from the river is more significant.		
	Est. recharge rates	[Information to be added at a later date]		
<b>Discharge</b>	Springs and large known abstractions	Bausheenmore - Woolengrange (Spring), Dumbell Big (Spring), Bennettsbridge WS, St. John's Well, Mt Juliet (Spring), Thomastown Wells.		
	Main discharge mechanisms	Discharge from this aquifer is to the Nore river as baseflow. Infiltration galleries in Bennettsbridge and Thomastown have successfully exploited river recharge in this portion of the gravel aquifer in the past, and the public supply borehole at Bennettsbridge is also thought to derive much of its supply by inducing river recharge		
	Hydrochemical Signature	The sand and gravel deposits in this groundwater body are <b>Calcareous</b> . Waters appear to be typically 'hard' to 'very hard', with a calcium-bicarbonate signature, reflecting the limestone mineralogy of much of the gravel deposit.		
<b>Groundwater Flow Paths</b>		The gravels are generally unconfined. The water level data for the aquifer show that static water levels can fluctuate from 2 m to 20 m below ground level. At some points it also comes to the surface, as in Kilkenny City, where a high yielding spring is found. This suggests that the saturated thickness of the aquifer is likely to vary both spatially and temporally.		
<b>Groundwater &amp; surface water interactions</b>		River hydrograph analysis by E.P. Daly (1994) showed that the aquifer is likely to contribute to baseflow in the Nore, it also showed that over some stretches of the aquifer, particularly in the northern portion, the Nore could be influent into the sand and gravels.		
<b>Conceptual model</b>	This groundwater body is defined by the extent of the sand and gravel deposits in the Nore Valley south of Kilkenny city. The groundwater body is considered to be a locally important gravel aquifer. There is some overlying till but the aquifer is considered to be highly vulnerable to pollution. The groundwater body has limited areal extent and therefore the volume of direct recharge is small. Any large borehole discharges from the gravels will be recharged from river water flowing up through the gravels.			
<b>Attachments</b>				
<b>Instrumentation</b>	Stream gauge: 15011, 15001 Borehole Hydrograph: none EPA Representative Monitoring boreholes: Springs at Bausheenmore (#39 – S552469), Thomastown WS (#32 – 589415)			
<b>Information Sources</b>	Buckley R, Fitzsimons V (2002) County Kilkenny Groundwater Protection Scheme. Daly EP (1994) Groundwater Resources of the Nore River Basin. Geological Survey of Ireland Internal report.			
<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			