Goresbridge GWB: Summary of Initial Characterisation.

Hydrometric Area Local Authority		Associated surface water bodies	Associated terrestrial ecosystems	Area (km2)
Carlow Co. Co. Kilkenny Co. Co. Hydrometric Area 14		Barrow		
Topography		This groundwater body is located around Goresbridge, on the boundary of counties Kilkenny and Carlow. In this area the topography is sloping from the west towards the River Barrow.		
Geology and Aquifers	Aquifer type(s) Main aquifer lithologies			
	Key structures.	The limestones in this area dipping in towards the west, i.e. opposite to the direction of the slope of the land and direction of groundwater flow.		
	Key properties	Although there are no investigations for this GWB in particular, hydrogeological investigation of similar limestones has indicated that the aquifers have a moderately low permeability and storativity.		
	Thickness	The majority of groundwater flow is considered to take place in the upper weathered zone of the aquifer (3m). Below this the volume of flow through the aquifer reduces gradually and it is unlikely that there will be much flow beneath 10m apart from that encountered in deep isolated fractures which are often found at depth of great than 30m.		
Overlying Strata	Lithologies	The main lithology found in the area is undifferentiated till which is of moderate permeability. Along the river there are some gravel deposits, which have a higher permeability.		
	Thickness			
	% Area aquifer near surface			
	Vulnerability			
Recharge	Main recharge mechanisms	Diffuse recharge will occur via rainfall percolating through the subsoil. The proportion of the effective rainfall that recharges the aquifer is largely determined by the thickness and permeability of the soil and subsoil, and by the slope. Close to the River Barrow a certain amount of recharge may be rejected as the water table is likely to be close to the surface. Due to the generally low permeability of the aquifers within this GWB, a high proportion of the recharge will then discharge rapidly to surface watercourses via the upper layers of the aquifer, effectively reducing further the available groundwater resource in the aquifer.		
	Est. recharge rates	*[Information will be added at a later date]*		
Discharge	Springs and large known abstractions			
	Main discharge mechanisms	Groundwater discharge will be directly to the River Barrow as baseflow.		
	Hydrochemical Signature	There is no hydrochemical data available for this particular GWB, it is expected that these limestones will have a high electrical conductivity and have hard water with a calcium/carbonate signature.		
Groundwater Flow Paths		Groundwater flow in this GWB is considered to take place towards the River Barrow and the other rivers in the area.		
Groundwater & surface water interactions		Information to be added at a later date		
Conceptual model		This groundwater body is located near Goresbridge, on the boundary between counties Carlow and Kilkenny. The topography in the area slopes from the southwest towards the River Barrow in the east. The boundaries of this GWB are defined to the southwest by the Rivers Nore and Barrow catchment divide. Elsewhere the boundaries of the bodies are defined by the extent of the XXXXXXX rock in that area. Recharge will occur via effective rainfall percolating through the overlying subsoils. Groundwater flow is expected to occur in the upper weathered area of the rock and through dolomitised fractures. Discharge from the aquifer is expect to occur as baseflow to the River Barrow.		
Attachments				
Instrumentation		Stream gauge: Borehole Hydrograph: none EPA Representative Monitoring boreholes:		

Information Sources	Buckley, R., Fitzsimons, V., Hegarty, S., Gately, C. (2002). *County Kilkenny Groundwater Protection Scheme*. GSI report for Kilkenny Council, 167pp. Tietzsch-Tyler, D. and Sleeman, A.G. (1994). *Geology of Carlow - Wexford. A geological description to accompany the Bedrock Geology 1:100,000 map series, Sheet 19, Carlow - Wexford.* With contributions by B.J. McConnell, E.P. Daly, A.M. Flegg, P.J. O'Connor and W.P. Warren. Edited by B. McConnell. Geological Survey of Ireland.
Disclaimer	Note that all calculation and interpretations presented in this report represent estimations based on the information sources described above and established hydrogeological formulae