Daingean GWB: Summary of Initial Characterisation.

Hydrometric Area Local Authority	Associated surface water bodies	Associated terrestrial ecosystems	Area (km^2)
14 – Barrow Offaly Co Co	Esker Stream, Daingean	Daingean Bog	48

Topography		The topography of this body has elevated areas circling the town of Daingean to the north, west and south. The surface drainage from these areas coalesces into the Esker stream and the Philipstown River, which flow eastward out of the groundwater body. The highest elevation is at Croghan Hill at 234m OD to the north of Daingean.
Geology and Aquifers	Aquifer type(s)	**Ll** – Moderately productive only in local zones Volcanics may be more porous if they are tuff-type deposits
	Main aquifer lithologies	LU - Lucan Fm - Dark Limestone and Shale ("Calp") V – Volcanic Rock
	Key structures.	There is a NE – SW trending fault located in the northeast of the body, which appears to have a significant influence on the groundwater flow of this body and the adjacent one.
	Key properties	No information is available on the hydrogeological properties of this groundwater body. Estimated transmissivities can be considered to range 1 – 10m^2/d.
	Thickness	The effective thickness of this aquifer will be different for the two rock types present. The Calp is likely to transmit water mostly at shallow depths (?less than 25m). There is an indication that the volcanics may be permeable to greater depth.
Overlying Strata	Lithologies	Mostly limestone till with some peat to the south and areas of rock close to surface to the north.
	Thickness	Thickness is generally between 3 and 5m with areas of thicker subsoil to the south and thinner subsoil to the north.
	% area aquifer near surface	30%
	Vulnerability	Mostly HIGH with some areas of MODERATE to the south and EXTREME to the north.
Recharge	Main recharge mechanisms	Recharge to this groundwater body from rainfall will mostly be in areas of highest vulnerability, although much of this potential recharge will not enter the aquifer because it is not very permeable and will therefore flow overland to surface water bodies. The recharge will be high in the volcanic areas because these are typical elevated topographically, extremely vulnerable and the bedrock is more permeable.
	Est. recharge rates	*[Information will be added at a later date]*
Discharge	Springs and large known abstractions (m^3/d)	Daingean WS (Spring - 420),
	Main discharge mechanisms	Discharge from this aquifer will be to the surface water bodies in the area but also across the geological divide into the more productive aquifer of the Rhode GWB.
	Hydrochemical Signature	There are both **siliceous** and **calcareous** bedrock strata in this groundwater body.
Groundwater Flow Paths		Groundwater flow paths in this area are considered to be short. Therefore it is likely that the majority of groundwater flow circulates in the upper tens of metres, recharging and discharging in local zones. The age of the groundwater is considered to be young. There is also an indication that groundwater flow may occur from the volcanics in the centre and north of this groundwater body underground into the adjacent Rhode GWB.
Groundwater & surface water interactions		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 almost completely seal off the surface water from the groundwater.
Conceptual model		This groundwater body is located in the extreme northwest of the Barrow River valley. The main bedrock unit is the Lucan Formation, which is a Calp-type limestone, and therefore considered to be a minor aquifer. Intruding through this, forming small hills, are local areas of volcanics, which may be better aquifers. Groundwater flow is shallow and occurs in local small-scale units. There may be some deeper flow in the volcanic bedrock.

Attachments	
Instrumentation	Stream gauge: None Borehole Hydrograph: None EPA Representative Monitoring boreholes: None
Information Sources	Hudson, M. (1996) Toberdaly Water Supply Scheme Groundwater Source Protection Zones.
Disclaimer	Note that all calculation and interpretations presented in this report represent estimations based on the information sources described above and established hydrogeological formulae