

Mosney GWB: Summary of Initial Characterisation*(This GWB deleted from list 7/9/04)*

| Hydrometric Area Local Authority | | Associated surface water bodies | Associated terrestrial ecosystems | Area (km ²) |
|---|---|--|-----------------------------------|-------------------------|
| Meath Co. Co. Hydrometric Area 08 | | R. Mosney | None | ~ 3 |
| Topography | | This GWB lies between Gormanstown and Mosney in east Co. Meath. Elevations in this area fall from 40 m OD towards the coast. In a broader view the area is sloping from the higher elevations at Bellewstown towards the River Mosney and the coast. | | |
| Geology and Aquifers | Aquifer type(s) | Lg: Locally Important Gravel Aquifer | | |
| | Main aquifer lithologies | Sand & Gravel - Interbedded outwash gravels. A drilling programme indicated that the gravel deposits at Mosney do not constitute a continuous body but are rather part of a complex glacial sequence of clays, sands and gravels which can vary significantly over very short distances. | | |
| | Key structures. | N/A | | |
| | Key properties | The estimated transmissivity is around 40 m ² /d, which is rather low and may be due to the very complex sequence of interbedded clays, sands and gravels, which vary laterally in this area. Two gravel pits are located within this GWB: the Richardstown and Greenhills Pits. | | |
| Thickness | By definition (DELG/EPA/GSI, 1999) this gravel deposit must be at least 10m thick. Wells in the area suggest the depth of the deposits exceeds 15 m. | | | |
| Overlying Strata | Lithologies | The gravel is often overlain and commonly interbedded by poorly permeable boulder clay. (Cullen 1984) | | |
| | Thickness | | | |
| | % area aquifer near surface | High | | |
| | Vulnerability | High | | |
| Recharge | Main recharge mechanisms | This GWB is recharged from rainwater percolating through the topsoil and unsaturated sand and gravel deposits. Surface runoff is probably less than 20% of effective rainfall. The presence of less permeable layers in the deposit, even if thin, may create perched water tables and prevent recharge of the true water table. | | |
| | Est. recharge rates | <i>[Information to be added at a later date]</i> | | |
| Discharge | Springs and large known abstractions | None | | |
| | Main discharge mechanisms | Groundwater will leave this aquifer where the water table is above river stage and a permeable riverbed exists. There is also likely to be groundwater seepage from the extremities of the gravel body at the lower elevations, which may appear as springs, seeps or a rise in baseflow to a river. Water may also come to the surface where there is a boundary to groundwater flow i.e. an impermeable layer of till within the gravel deposit. | | |
| | Hydrochemical Signature | The Mosney groundwaters are of calcium bicarbonate type and are characterized by a hardness in the range 270 – 340 mg/l as CaCO ₃ . There is also a noted difference in chloride, which is higher closer to the coast, due to higher content of sea spray in rainfall closer to the coast. (Cullen 1984) | | |
| Groundwater Flow Paths | | Although the aquifer is permeable, groundwater velocity is slow, because storativity is high and water table elevations generally subdued. Flow paths will primarily be limited by the extent of the GWB and of individual sand/gravel lenses within it. | | |
| Groundwater & surface water interactions | | The interaction between surface water and groundwater through out this aquifer is complex and will depend on the position of the water table. The nature of this interaction will not be uniform over the area of the body. There are no rivers shown in this area; this low runoff indicates the aquifer is sufficiently permeable to transmit and store water. | | |
| Conceptual model | This GWB lies between Gormanstown and Mosney in east Co. Meath. Elevations fall from 40 m OD towards the coast. The extent of the body is defined by the presence of gravel deposits more than 10 m thick. The GWB is composed of permeable sand and gravel deposits, which will also have a high storativity. Recharge occurs diffusely through the overlying topsoil. The aquifer is generally unconfined, but may become locally confined where lower permeability deposits overlie the gravels. The water table within gravel aquifers is usually flat and therefore the depth to water will depend on the topography of the area. The flow paths within the aquifer are constrained by the extent of the deposit and therefore will not develop to a regional scale. Groundwater discharge will occur via springs and seeps along the lower boundary of the body and also along river courses. There may also be discharge to rivers as baseflow where the water table lies above the river stage. | | | |
| Attachments | | | | |
| Instrumentation | Stream gauge: None Borehole Hydrograph: None EPA Representative Monitoring boreholes: None | | | |

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| Information Sources | <p>Cullen KT (1984) <i>Report on the Drilling and Testing of Trial and Production Water Wells at Mosney and Balloy, Co. Meath</i>. Report to Meath Co. Co.</p> <p>DELG/EPA/GSI (1999) <i>Groundwater Protection Schemes</i>. Department of Environment & Local Government, Environmental Protection Agency and Geological Survey of Ireland, joint publication.</p> <p>Woods L, Meehan R, Wright GR (1998) <i>County Meath Groundwater Protection Scheme</i>. Report to Meath County Council. Geological Survey of Ireland. 54 p.</p> |
| Disclaimer | <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> |

