

**Cahore Point GWB: Summary of Initial Characterisation.**

| Hydrometric Area<br>Local Authority                 | Associated surface water<br>bodies  | Associated terrestrial ecosystems   | Area (km <sup>2</sup> ) |
|---|---|---|-------------------------|
| 11 – Coastal Area<br>Wexford Co Co                  | Owenavarragh, Blackwater,<br>Ballyedmond, Aughboy   | Ballyteige marsh, Ardamine Wood, Cahore Polders and Dunes,<br>Ballyroe fen & lake, Wexford slobbs & harbour, Screen Hills   | 223 km <sup>2</sup>     |
| <b>Topography</b>                                   | This body lies on the East Coast of Wexford. It extends north from the most northeasterly tip of Wexford harbour to Courtown. The highest point is Carrigroe Hill at 231m OD, which defines the eastern boundary of the groundwater body. Slopes reduce towards the sea, but there is a hummocky topography in the area around Screen village. The Screen area is ‘excessively drained’ and there are virtually no rivers. Other areas in the north are poorly drained.   |   |                         |
| <b>Geology and Aquifers</b>                         | Aquifer type(s)   | <b>L1</b> ; Locally important aquifer, moderately productive only in local zones.<br><b>PI</b> – A small area at the coast around Courtown.   |                         |
|   | Main aquifer lithologies  | The aquifer is probably confined to the north and unconfined to the south, as determined by the overlying strata lithology<br>To the south the bedrock consists of Cambrian grey-green greywackes and slates called the Newtown Formation (NN). To the north this is overlain by an Ordovician rock unit with dark grey slates and siltstone laminae called the Ballyhoge Formation (BH). Other small formations outcrop from Courtown to Cahore point. |                         |
|   | Key structures.   | The Bedrock has been folded by the Caledonian Orogeny. This does not appear to have enhanced the transmissivity of these rocks, perhaps because they did not shatter when folded.<br>Transmissivity and Permeability may be enhanced near some faults.  |                         |
|   | Key properties  | Assumed transmissivity $5m^2/d$ - $20m^2/d$ in local zones, but generally less than $5m^2/d$<br>Porosity estimated as $0.01$  |                         |
|   | Thickness   | Effective thickness typically 30m   |                         |
| <b>Overlying Strata</b>                             | Lithologies   | The aquifer is mostly overlain by the Macamore Marl / Irish Sea Till. – The Irish sea till is a clay based, lime rich till containing small pebbles and shells, with occasional local lenses of sand and gravel.<br>In the southeast the Screen sands & gravels exhibit a kame and kettle topography that consists of a thick layer of very sandy till, forming a very hummocky landscape.  |                         |
|   | Thickness   | There is generally a thick covering of strata, typically 30m. Thinner subsoils are present towards the uplands in the east and thickness increases to the southeast up to 40m.  |                         |
|   | % area aquifer near surface   | <i>[Information will be added at a later date]</i>  |                         |
|   | Vulnerability   | <i>[Information will be added at a later date]</i>  |                         |
| <b>Recharge</b>                                     | Main recharge mechanisms  | Rainfall recharge in unconfined or outcropping areas of the rock, most likely in the uplands where overlying strata are thinner and to the southeast where the overlying strata are composed of sands & gravels.  |                         |
|   | Est. recharge rates   | <i>[Information will be added at a later date]</i>  |                         |
| <b>Discharge</b>                                    | Springs and large known abstractions  | Public supply - Ballina (<40), Monamolin (<50), Oulart (<50), (est. total 140 m <sup>3</sup> /day)<br>Group schemes – Ballybregagh, Tomberlolina, Garryniskbeg, Garryvadden, and Ballyroe.  |                         |
|   | Main discharge mechanisms   | There is discharge to the Owenavarragh, Blackwater and other associated surface water bodies.<br>There will be some discharge to the Irish Sea.<br>The stream flow gauge at Courtown measures flow from the Owenavarragh river, but this would include water from the Gorey groundwater body to the north, which is a regionally important aquifer. Therefore the analysis of low flows is not representative of one groundwater body.                  |                         |
|   | Hydrochemical Signature   | Waters are mostly “moderately hard” with a few softer occurrences. The type signature is from Calcium-Bicarbonate to Magnesium-Bicarbonate. The bedrock strata in this groundwater body are <b>Siliceous</b> .  |                         |
| <b>Groundwater Flow</b>                             | The samples do not show elevated chloride signature, which would be expected with closer proximity to the sea. Saltwater intrusion is limited by the low transmissivity of the bedrock and lack of major abstractions.<br>Groundwater flow will mostly occur in the top 20m of rock, and will occur in fractures.<br>Flowpaths will be short, most discharging to the closest surface water body.<br>The age of the groundwater is likely to be young (i.e. in the order of months at the most). Hydrochemical analyses show frequent bacteriological pollution and low Fe, which would imply short flow paths and low residence times. |   |                         |
| <b>Groundwater &amp; Surface water interactions</b> | Baseflow to rivers will exit the groundwater and not return to the groundwater body.  |   |                         |



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|---|--|---|
| <b>Number of Monitoring Points in GW Body</b>   | <b>Note: These columns may include reference to particular reports or maps supported by GIS as well as providing specific information in the relevant box.</b><br><b>2 EPA Qualitative Monitoring Points located in the Groundwater Body</b><br><b>5 Water Abstraction Register Points</b>   |   |
| <b>Monitoring Point Construction Details</b><br><br>No Monitoring Point Construction Details for the Qualitative Data | <b>Qualitative:</b> Ballygarron Gorey PWS NGRT150420<br>Newtown Kilmuckridge PWS NGR T137415<br>Monitoring Period: 06/93-10/01<br>Refer to Table 5.1 Hydrometric Area 11 Monitoring Data in Appendix 1 of Docun 0860101.   | <b>Quantitative:</b> No water level monitoring data.<br>Quantitative data as above from GSI<br><b>Monamolin GWS: Population served:90</b><br><b>Ballygarron PWS: No information</b><br><b>Newtown PWS: Rate of Abstraction: 500m3/day</b><br><b>Oulart PWS: Small borehole, Rate of Abstraction: &lt;50m3/day, Population served: 56</b><br><br><b>Knocknasilloge PWS: Small borehole, Rate of Abstraction: &lt;50m3/day, Population served: 50</b><br><b>Refer to MapInfo Files in Water Abstraction Folder.</b> |
| <b>Quantitative Status including risk assessment based on water balance</b>   | No data currently available  |   |
| <b>Pressures Assessment</b>   | 5 WWTP's identified, 2 on the Ballyhoge Formation at Monamolin and Oulart and 3 WWTP on the Newtown Fm at Morriscastle, Kilmuckridge and Blackwater.<br>5 Section 4 industries at Courtown, Ballyragget, Cahore Pt on the Ballyhoge Formation and Kilmuckridge and Inch on the Newtown Formation.<br>Refer to MapInfo Files in Point Sources Folder.<br>Awaiting diffuse sources data assessment.          |   |
| <b>Vulnerability Assessment</b>   | No Vulnerability data currently available.   |   |
| <b>Protected Areas Assessment</b>   | 5 NHA's: 000700, 001930, 001741, 00742, 000741 on the Newtown Fm, located over an area of ? Vulnerability.<br>1 SAC 001741 on the Newtown Formation located over an area of ? Vulnerability.<br>Protected Areas assessment incomplete.   |   |
| <b>Chemical Status including Risk Assessment</b>  | Samples from Newtown Kilmuckridge PWS exceeded the EU MAC for Iron and Manganese in each sampling event, over the monitoring period by 0.096-0.19mg/l and 0.317-0.376 mg/l, respectively.<br>Newtown Kilmuckridge exceeded the GSI threshold value of 0.15mg/l for Ammonia in each sampling event, across the Monitoring Period, and in 10/97 the EU MAC for Ammonia of 0.23mg/l was exceeded by 0.01mg/l. |   |
| <b>Monitoring Point Recommendations</b>   | Based on the available data there will be a need to install additional qualitative and level monitoring points in the groundwater body. Locations to be agreed with GWG,GSI and EPA.   |   |