



Licensing Unit,  
Office of Licensing & Guidance.,  
Environmental Protection Agency.  
Johnstown Castle Estate,  
County Wexford

Sliding Rock,  
Blackglen Road,  
Sandyford,  
Dublin 18.

6-9-2006

**Re: Waste Licence Application W 0231-01 Fingal Landfill**

Dear Sirs,

I wish to object to the development of the Tooman/Nevitt landfill by Fingal County Council on the grounds that it is incompatible with the concepts of sustainable development and spatial planning.

The development of this landfill will prevent the use of groundwater within the Loughshinny aquifer at Tooman/Nevitt by future generations.

The EPA should also reject this application on the grounds that the accompanying Environmental Impact Statement (EIS) fails to establish the distribution of the bedrock formations/aquifers beneath the development site or the groundwater potential of these formations/aquifers.

**Overview**

The Loughshinny groundwater aquifer has over the past 20 years been continually developed in the north Dublin south Meath region as an important source of groundwater.

In addition to the numerous high yielding private wells that are now located in the Loughshinny aquifer, the major public water supply abstractions at the Bog of the Ring and that now planned at Dunshaughlin by Meath County Council are a testimony to the significant resource potential of this limestone aquifer.

Well yields located in the Loughshinny aquifer range from 1,000 m<sup>3</sup>/day to 4,000 m<sup>3</sup>/day, with very high yields reported over the aquifer's aerial extent as published by the Geological Survey of Ireland (GSI).

The Loughshinny aquifer can contribute further to the water supply requirements of the Fingal and south Meath region.

The Loughshinny aquifer is the most important groundwater aquifer in the Fingal administrative region and probably also in the whole of County Dublin. The development of the Tooman/Nevitt landfill as described in the EIS will restrict the

development of that part of the Loughshinny aquifer located in this region of Fingal and is therefore contrary to sustainable development and spatial planning.

The EIS has not established the bedrock geology beneath the development site, the extent to which the footprint is underlain by the Loughshinny aquifer, nor does the EIS quantify the groundwater potential of that part of the Loughshinny aquifer that immediately underlies the landfill footprint.

The EIS is silent on the conflict between the need to develop the Tooman/Nevitt landfill and the need to protect groundwater resources of the wider Loughshinny aquifer for future generations.

The EIS only considers the current aquifer designation for the Loughshinny aquifer without reference to the proven groundwater potential of this limestone formation in counties Dublin and Meath.

The EIS concentrates on the potential impact of the landfill on the present Bog of the Ring abstraction rather than on the implications for that part of the Loughshinny aquifer that immediately underlies the development site.

This landfill proposal should be refused permission by the EPA as it is;

- i) contrary to sustainable development and
- ii) contrary to spatial planning

and that the EIS

- iii) fails to establish the bedrock geology beneath the development site,
- iv) to quantify the extent or potential of the Loughshinny aquifer that lies beneath the development site or
- v) to identify the extent of the Loughshinny aquifer that will be lost to future generations through the location of the landfill in this location.

### **Comments on the EIS**

In Section 3.18 of the EIS the Applicant indicates that;

*'Detailed site investigations were conducted over the past two years to determine the exact geological and hydrogeological characteristics of the site. In summary, these included:*

*Drilling of 102 boreholes;*

*Excavation of twenty seven trial pits;*

*In-situ testing including standard penetration tests, permeability tests and laboratory tests (refer to Geotechnical Report for further description);*

*Installation of groundwater monitoring network in 81 boreholes'*

However, in Section 3.2.2 of Volume 5 it appears that the **exact** bedrock geology beneath the site has **not** been established rather that;

*'The lithologies encountered were limestones, siltstones and mudstones inferred to be of the Balrickard, Loughshinny, Lucan, Naul and Walshestown Formations. Bedrock was found to be highly fractured particularly in proximity to the N-S fault and is demonstrated at HR7 and HR8 to the east of the fault.'*

It is not clear why the main body of the EIS would expand upon the information presented in the supporting technical appendices / volumes.

The suggestion that the EPA should be requested to adjudicate on the development of the largest landfill in the country (57 hectares) where the bedrock geology is only 'inferred' by the Applicant is wholly unacceptable. It is the **exact** distribution and thicknesses of the various bedrock formations beneath the development site that provides the basis for the subsequent hydrogeological model and analysis.

Without this bedrock information the conceptual model can at best only provide a very broad picture of the hydrogeological conditions beneath the footprint. More importantly, the absence of a detailed bedrock map for the development site precludes any realistic effort to establish the groundwater resources that will be compromised by the landfill.

The precautionary principle would naturally require the EPA to assume that the entire footprint is underlain by the Loughshinny aquifer until such time as the Applicant can demonstrate otherwise to the EPA's satisfaction.

The main body of the EIS appears to promote the suggestion that the Loughshinny aquifer found at Bog of the Ring and that found beneath the footprint are somehow unrelated or unconnected as at page 317;

*'The Bog of the Ring aquifer and the aquifer that underlies the aquifer are two separate groundwater bodies. There is no overlap between the current zone of contribution for the Bog of the Ring and the buffer zone of the landfill.'*

and again at and page 321;

*'The transmissivities obtained were generally significantly lower than those found within the Bog of the Ring groundwater body as reported by GSI which is to be expected as the groundwater is derived from two separate aquifers.'*

This suggestion is misleading and incorrect. This concept is not promoted in Appendix H on Hydrogeology which supposedly provides the technical support to the Main Volume.

Again, it is not clear why the main body of the EIS would expand upon the information presented in the supporting technical appendices / volumes.

Both the Bog of the Ring and the landfill are underlain by the Loughshinny aquifer and both parts of the aquifer are hydraulically connected. To suggest otherwise would require the Applicant to demonstrate the existence of an intervening impermeable geological barrier. No such barrier has been proposed by the Applicant in either the text or accompanying geological drawings.

The suggestion that the available groundwater resources in the north Fingal area from the Loughshinny aquifer are limited to the Bog of the Ring area is also promoted by references to the GSI Report and TES examining the abstraction of the present well field area.

It is obvious that the quantum of groundwater available to the Local Authority can be readily increased through the development of additional production wells in the Loughshinny aquifer removed from the Bog of the Ring area.

The EIS suggests that the completion of a single pumping well to 'approximately 10m' into the **inferred** location of the Loughshinny aquifer beneath the footprint is adequate to demonstrate the groundwater potential at this location of the most productive aquifer found in County Dublin.

The EIS reports in Table 2 of Vol. 5 that the Loughshinny aquifer is between 100m and 150m thick in this part of Fingal. Sampling a **10m** thick section of the Loughshinny aquifer at **one** location is therefore hardly a realistic attempt to quantify the groundwater potential of the aquifer beneath the footprint.

Neither the depth nor the construction of this pumped well are sufficient to provide even an indication of the groundwater potential of the Loughshinny aquifer beneath the landfill footprint. A comparison with the depth of the wells completed in the Loughshinny aquifer at the Bog of the Ring and at Dunshaughlin would indicate the type of investigations required to establish the full potential of a bedrock aquifer.

The qualitative risk assessment detailed in Section 3.18.6 concludes that;

*'No significant residual impact on the geology and hydrogeology is anticipated as a result of development of this scheme.'*

The risk assessment properly identifies the Loughshinny aquifer as a potential receptor but ignores the fact that the development of the 57 hectare landfill will result in the loss of a significant part of the Loughshinny aquifer in Fingal to future generations. The EIS conclusion of that there will be no significant residual impact associated with the landfill on the hydrogeology of the area is at variance with the obvious loss to future generations of the underlying groundwater resource.

### **Summary**

If the concepts of sustainable development and spatial planning have any meaning or status in the Irish planning system then this landfill proposal should be rejected outright by the EPA.

It is plainly obvious that the development of the planned 57 hectare landfill will limit the future development of the Loughshinny aquifer in Fingal. Does it make any sense to place a landfill over the most productive aquifer in a region where the powers of compulsory power allow the Applicant to place the development area in a less productive area?

No one would suggest that a landfill could be developed on the limestone aquifer that underlies the Bog of the Ring. How then is correct to promote the development of a major landfill over exactly the same limestone aquifer a short distance away?

That the GSI presently designates the Loughshinny aquifer as an Lm should not be used as an excuse to compromise this proven and significant groundwater resource.

It is ironic that at a time when Fingal County Council are reportedly unable to meet the present water demands in north Dublin that they should be planning to compromise the very groundwater resource that could help alleviate the water shortage now and into the future.

Should the EPA decide to consider the landfill proposal further then the issues highlighted above warrant examination through requests for additional information and through debate at an oral hearing.

By way of additional information the EPA should request the Applicant to establish;

- i) the **exact bedrock geology** beneath the landfill
- ii) the groundwater potential of the aquifer(s) found beneath the footprint and to
- iii) quantify the groundwater resource within the Loughshinny aquifer that will be lost to future generations through the development of the landfill at this location.

The Applicant should also be requested to resolve the conflict between the landfill development at this location and its responsibility to protect known groundwater resources for future generations as is envisaged in the concept of sustainable development.

Thank you for your attention.

Yours Sincerely,



EurGeol Kevin T. Cullen PGeo.

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