Inspector's Report ABP-300506-17.

Development	Drehid Waste Management Facility.
Location	Timahoe West, Carbury, County Kildare.
Planning Authority	Kildare County Council.
Applicant	Bord Na Móna.
Type of Application	S.37E (Strategic Infrastructure Case).
Planning Authority Decision	N/A.
Observers	Full list inside.
Date of Site Inspection	18th September 2018
Inspector	Philip Davis

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1.0 Introduction

This application, under Section 37E of the Planning and Development Act, 2000, as amended, is for a significant expansion of the existing Waste Management Facility within a Bord na Móna peat extraction area in central county Kildare. The application was accompanied by an EIAR. An Oral Hearing was opened in Johnstown Estate Hotel from the 10th September 2018. This oral hearing was adjourned pending the submission of an NIS (following a request to the Board by the applicant and a screening) and a subsequent oral hearing was held at the same venue for 3 days from the 11th March 2019.

A series of observations and objections have been submitted by the County Council and other observers, with the primary issues focusing on the scale of the proposed facility, traffic intensification on the local road network, and the protection of local watercourses and groundwater.

The Board appointed Prof. Paul Johnston of Trinity College Dublin as a consultant on design and hydrology/hydrogeological issues. His report is attached in Appendix A of this report.

I would note that there is some overlap with another SID application currently with the Board – **ABP-303211-18**, Knockharley in County Meath – this application is for the disposal and storage of similar waste materials (Incinerator Bottom Ash). A decision is due on this in mid-2020 and the Board may wish to consider both files concurrently.

2.0 Site Location and Description

2.1. Timahoe Bog and surroundings

The existing waste management facility is located within an extensive area of mined peat bog (with an extent given as 272 hectares) within the townlands of Timahoe West, Coolcarrigan, Killinagh Upper, Killinagh Lower, Drummond, Kilkeaskin, Loughnacush and Parsonstown, located approximately 5 km south-east of the village of Carbury, 3.4 km east of the village of Derrinturn, and 5.5 km north of Allenwood. It is 9 km south from the M4 at Johnstown Bridge at the border with County Meath. The bog is known locally as both Drehid bog and Timahoe Bog.

Timahoe Bog is within an extensive area of mostly Bord na Mona landholdings. It is part of a complex of raised bogs almost 10km in length north to south and averaging around 3-5 km in width, stretching from just south of the Meath border near Johnstown, to Allenwood in the south. The former raised bog is now almost entirely mined out and is primarily regenerating with a mixture of wet and dry heath, residual peat, and birch/pine scrub, much of which is rapidly becoming a forest. The former bog road accesses and internal railways are now largely closed or overgrown, with just one high quality link road running around 5km north from the R403 to the Drehid waste management facility located in the heart of the former bog – this road is the sole road access serving the waste management facility.

The surrounding area is mostly low lying plain and low hills typical of the post glacial midlands landscape. Timahoe Bog mostly drains to the south and west, to the Cushaling River, eventually draining into the Barrow/Nore catchment. The drainage to the river system is passive – there is no active pumping to the river system indicating a very slight head relative to areas to the west and south. Around the former bog is mostly grazing land in medium sized fields and a series of villages and small towns. To the south, the R414 is a former turnpike running directly east to west, connecting such historic villages as Prosperous and Clane. The R403/R402 runs in a northerly direction from the R404 through the villages of Derrinturn and Carbury west of the site, before joining up with the M4 at Johnstown in County Meath north of the bog. The area east of the site is served by a sparse network of L-roads which serve the farmlands on the low-lying land.

2.2. Drehid waste management facility

The existing facility is a landfill and waste processing centre within the heart of the former raised bog, served by a single access road approximately 5 km long extending from the R403 to the south. The raised peat bog is intersected with deep land drains and exposed working faces, with extraction having ceased. The existing facility consists of a waste disposal facility (two cells are completed and appear as distinct hills on the otherwise largely flat landscape), along with an indoor composting facility, a landfill gas powered generator, an administrative area, weighbridge, settlement lagoons along with ancillary infrastructure. The site is within a much larger Bord na Mona landholding.

The site overlies acidic peat bog with an underlying geology of deep till deposits over dolomitized limestone, mudstones and shale. The general drainage is to the west and south, eventually discharging to the River Barrow – the northern side of the bog drains north to the Boyne catchment. The former bog around the waste management facility is rapidly regenerating as birch, willow and pine woodland, and is drained through a series of very deep ditches which discharge naturally to the Boyne and Barrow catchments.

3.0 **Proposed Development**

The proposed development is described in full in the accompanying documentation. I would summarise the key elements of the application as follows:

a) The development of a new landfill footprint of approximately 20.89 hectares to accommodate 250,000 tonnes per annum (TPA) of non-hazardous waste including incinerator bottom ash, construction and demolition waste and stabilised biowaste. The existing permitted quantity is disposal of 120,000 TPA of non—hazardous municipal waste.

b) The on-site recovery of approximately 15,000 TPA of metals from a maturation and metals recovery facility (a building of approximately 7,380 square metres).

c) The provision of a 4.69 hectare inert material storage area.

d) The development of a new landfill footprint of approximately 10.79 hectares to accommodate 85,000 TPA of hazardous wastes, including incinerator fly ash and other residues.

e) On-site pre-treatment facility for incinerator fly ash and flue gas treatment residues in an ash solidification building with a floor area of 613 square metres.

f) A hazardous waste handling building with a floor area of 400 square metres.

g) A Hazardous Waste Storage and Quarantine Area with a floor area of 4000 square metres.

h) An increase by 20,000 TPA to be accepted at the existing composting facility (currently 25,000 TPA), and removal of the restriction on the operating life of this facility.

i) An extension to the existing composting facility to cater for an additional 45,000 TPA entailing a composting building with a floor area of 6,905 square metres.

j) A waste control building with a floor area of 188 square metres.

k) An existing maintenance building converted to a Welfare Building.

l) A maintenance building with a floor area of 850 square metres with associated fuel storage bund.

m) The provision of a Leachate Treatment Facility within a 3,402 square metre bunded areas to cater for leachate from the facility (leachate is currently tankered off).

n) The provision of 7 additional surface water attenuation lagoons.

o) The provision of 4 no. additional integrated constructed wetlands.

p) Service and dedicated circulation roads.

q) 35 additional parking spaces.

r) Weighbridges and wheel washes.

s) All associated ancillary development works.

I would note that the above is proposed to be in addition to a permitted, but not yet constructed Mechanical Biological Treatment (MBT) facility on the site with a capacity of 250,000 tonnes per annum of mainly municipal solid waste.

4.0 Planning Authority

4.1. Planning Authority Reports

4.1.1. Chief Executives Report

In a detailed submission later elaborated upon in July 2018 and in the oral hearing, the planning authority (Kildare County Council) argued that the proposed development would not be in accordance with the proper planning and sustainable development of the area.

The three key reasons are as follows:

1. It is considered that it would contravene the policies set out in the Kildare County Development Plan 2017-2023, specifically WM3; WM15; WM17 and WM18 (waste management), in addition to landscape policy LA2.
2. It is argued that it conflicts with the vision and targets set out in the Eastern and Midlands Waste Management Plan 2015-2021, with specific regard to meeting a circular economy and reducing the direct disposal of unprocessed residual municipal waste to landfill and the proportion of the proximity principle.
3. It is considered that the EIAR and AA Screening are inadequate with specific regards to the assessment of likely environmental impacts, including water, air and ecology.

In an elaboration of the above points, the planning authority submission outlined the following:

- It is noted that there are a number of permissions and/or applications current for large scale developments in the area including PA041 (windfarm), 15/1172; 16/1265 and 17/1222) solar farms (Figure 4 in the submission).
- It is considered that insufficient assessment or justification has been provided in regard to the assessment of reasonable alternatives, with particular regard to the size and scale of the proposed development.
- It is noted that the EPA will have to address the acceptance of Flue Gas Treatment Residues and Fly Ash as part of its license requirements.

- It is considered likely that the proposed development would be in breach of Water Framework Directive requirements to have all waters at good ecological status – with particular reference to the Cushaling River catchment (a tributary of the Barrow).
- It is noted that the IED license notes 2 no. exceedances in 2016 and 20 no. exceedances in 2005 of emissions.
- A detailed list of recommended conditions are set out in page 28 of the report.

The report includes 6 appendices covering: Policy Context; Internal KCC reports; EIAR Assessment; AA Screening; development description; and the recorded views of KCC elected members.

In Appendix 3 of the Chief Executives Report, a detailed series of comments are set out on the EIAR. Key comments include:

- It is questioned if the proposal is in accordance with the Regional Waste Management Plan.
- It is questioned whether the assessment of reasonable alternatives addresses the Proximity Principle adequately.
- A number of detailed concerns are outlined concerning surface and groundwater and heritage issues – it is considered that insufficient baseline information has been provided.
- Concerns are expressed at the proposals for groundwater pumping and the impact on the existing peatland – it is considered that the EIAR has not adequately addressed emissions of ammonia resulting from the drying out of peat deposits.
- It is considered that the visual impacts are understated with regard to existing conditions (it is noted that in **PL09.212059** the Inspector stated that the site could not be considered 'brownfield). It is also considered that insufficient assessment has been provided of proposed and permitted solar and windfarm developments in the area.
- With regard to odour emissions, it is noted that an increasing number of complaints have been reported to the EPA in its Annual Environmental Reports.

- It is noted that there is no assessment on the impact on protected structures along the haul routes.
- With regard to Community Gain, it is requested that any scheme should take account of the wider impacts from extra traffic.
- It is considered that there is insufficient baseline information on hydrogeology

Appendix 4 addresses the AA Screening

- It is considered that while it is unlikely that there would be impacts, that it has not been fully demonstrated that there are no hydrological connections with the Ballynafagh Lake SAC.
- The Board is requested to consider whether the cumulative impact on the Barrow SAC has been adequately addressed.
- The Board is requested to satisfy itself that adequate detail has been provided on method statements and design details to carry out an adequate screening.

4.1.2. Other Technical Reports

Transportation Section

This section is of the opinion that the proposal should be refused for the following four reasons:

- The increased HCV (*note: in the context of this appeal, all parties have used the terms 'HCV' and 'HGV' interchangeably to refer to waste and related heavy vehicles*) traffic will endanger public safety on the local (substandard) road network.
- The carriage of hazardous waste may endanger public safety by way of increased risk of accidents on a substandard road network.
- The development does not comply with the objectives of the Development Plan on the improvement of the public realm within the settlements of County Kildare.
- It would endanger public safety by way of traffic hazard and obstruction of road users due to the movement of the extra traffic generated.

- In Appendix 2 of the Chief Executives Report the Transportation Section outlines **a number of detailed recommended conditions**, including restrictions on haul roads and recommended development contributions (these total to several million euro).

Water Services

- No objections subject to standard conditions.

Environment Section

- Raises a number of concerns and in a detailed report addresses issues of concern in the EIAR.
- It is not considered that the size and scale have been justified.
- It is not considered that the proposed development is in full compliance with the Regional Waste Management Plan.
- Concerns are raised at the lack of a detailed risk assessment with regard to hazardous wastes.
- Detailed concerns regarding the absence of detailed information on hydrogeology and the potential impact on ground and surface waters.
- A lack of information on dust, odour and other emissions.
- It is recommended that if permission is granted that the waste tonnages proposed be significantly reduced in scale.

Heritage officer

- It is argued that the EIAR is substandard with regard to the impacts on biodiversity, cultural heritage, population and human health/tourism.
- It is considered that the direct and indirect impacts on a number of protected structures and recorded ancient monuments has not been addressed in sufficient detail.
- The conclusions of the AA Screening are questioned with specific regard to the issue of hydrological connections to designated habitats.

- It is considered that the survey work attached addresses only the site for disturbance, not the wider area, and as such is limited and undermines confidence in the conclusions.
- It is considered that the direct habitat loss is significant in a countywide context.
- There is an absence of a clear methodology for the terrestrial mammal survey.
- Details of the bat survey are unclear.
- There is no evidence of aquatic surveys.
- There is a lack of clarity on biodiversity mitigation measures.
- There is no mention of Bord Fáilte strategy on 'Irelands Ancient East' proposals and the possible impacts on major sites such as Dún Ailinne.
- It is questioned as to whether the AA addresses adequately the issue of the hydraulic connection between the site and the Ballynafagh Lake SAC. It is also requested that the Board confirm the assertion that there is no evidence that contaminated surface water can react the Barrow SAC, 22km downriver.

A series of recommended items of further information and recommended conditions are set out in the final 4 pages of the report in Appendix 2 of the Chief Executives Report.

Chief Fire Officer

- No objections subject to compliance with the Building Control Act.

Environmental Health Office (HSE)

A report is attached in Appendix 2 of the Chief Executives Report. Key points include:

- A recommendation that a complaints line be set up.
- It is noted that there are no sensitive receptors for odour close to the site but recommends that existing conditions be restated.
- Best practice measures as outlined in BS 5228:2009 be followed.

Many of the above points were restated or elaborated upon in the oral hearing.

4.2. Prescribed Bodies

4.2.1. Transport Infrastructure Ireland

- Notes the traffic analysis undertaken and is satisfied with the scope of the analysis and has no objection to the findings.
- Subject to operations based on the analysis set out in the EIAR, TII has no specific comments.
- It is recommended that any recommendations arising from the traffic section of the EIAR should be included as conditions in any decision to grant permission.

4.2.2. Irish Water

- No current sources of potable water are directly affected by the proposal.
- The proximity of Irish Water assets including water mains and sewer pipes is noted. It is requested that a site investigation be carried out prior to any development to locate underground infrastructure.
- Any proposals to divert existing water services shall be submitted to Irish Water for agreement.

4.2.3. Inland Fisheries Ireland

- It is noted that the site is located in the headwaters of the Cushaling River – there is also a tributary of the Slate River within the site. The Cushaling is a tributary of the Figile, which is a tributary of the Barrow SAC.
- It is stated that the majority of the Cushaling and Figile is potential salmonid habitat, but there are few if any salmon or trout at present.
- The WFD ecological status/potential is ‘poor’ and ‘at risk’, with organic pollution originating apparently from Drehid.
- Refers to section 7.3.5.1 of the EIAR and notes that this concurs with the opinion of IFI that ongoing pollution seems to arise from Drehid.

- IFI questions the assertion in the EIAR that the site setting is 'naturally' affecting water quality. It is argued that ongoing drainage has had a significant impact, compared to the natural condition of a raised bog. It is submitted that the EIAR does not appear to be based on an accurate understanding of sources of pollution for the Cushaling and Slate Rivers.
- The proposed extension of the lifetime of the proposed facility over a period of 25 years and the removal of the time limitation for the composting facility **is considered unacceptable to the IFI** in the context of targets set out for the area under the Water Framework Directive.
- It is noted that in the BnaM Biodiversity Action Plan 2016-2021 '*the main aim of rehabilitation will be to rewet former production areas…*'. It is noted that this does not seem to be the intention for Drehid.
- It is requested that the proposed development should only be considered in sequence with a bog restoration plan for the entire site.
- It is not considered that the issue of elevated ammonia in the waters pumped from beneath the landfill has been addressed in the application, and a full management plan which specifically addresses elevated ammonia is drawn up.
- It is argued that the Integrated Constructed Wetlands (IGW) proposed will not, contrary to the statement in the EIAR, satisfactorily reduce ammonia discharges, in particular during the winter months – it is noted that a similar system in Glaslough, County Monaghan, has had exceedances.
- It is noted that the planting of screening trees for visual purposes will enable the drying out of peat which could exacerbate ammonia run-off.
- It is noted that the clearance of an additional 97 hectares of peatland will act to increase the rate at which water is drawn to the development site and will further dry out surrounding peatlands.
- The pumping of water from beneath landfill cells will increase the drawdown around the development site and exacerbate the drying out of the surrounding peat lands.

- It is argued that the proposed development should be considered in line with a bog restoration plan for the entire 2544 hectare site.

4.2.4. **Eastern-Midlands Waste Region**

- The submission is jointly made with the **Southern** and **Connacht-Ulster Waste Management Planning Regions**.
- **The Regions recognise and support** the need for continued, albeit limited, landfill capacity each region for inert, non-hazardous, and hazardous waste.
- The Board is referred to Chapter 16 of the Waste plan, and policies E1, E2, E8, E9a, E10, E12 and E17 are noted.
- It is considered that the development of a new extended landfill for 250,000 TPA of non-hazardous waste including incinerator bottom ash is considered consistent with plan policy E8. It is recommended that **untreated MSW (Municipal Solid Waste) is specifically excluded from permitted levels** – i.e. only bottom ash and C&D waste and related wastes are permitted.
- **It is requested that it be conditioned** that the applicant be obliged to set aside a proportion of their annual landfill capacity as contingency capacity (about 37,000 Tonnes, or 46,250 cubic metres) in line with Section 37A of the Waste Management Act.
- The Regions **do not support** the granting of permission for the disposal of IBA (Incinerator Bottom Ash) for a period of 25 years as this may prolong the management of this waste treatment by means of disposal, rather than seeking an alternative use. It is recommended that a limit of 5 years be imposed, with the option of extension.
- It is requested that as a condition of permission that **residual IBA be landfilled separately** to other non-hazardous waste streams to allow for future extraction of the material for recovery and beneficial use.
- The four suggested conditions above are summarised and restated.
- It is considered that the on-site pre-treatment of IBA to recover approximately 15,000 TBA of metals is consistent with plan policies E1 and E2.

- The development of **a new landfill footprint to accommodate the landfill of 85,000 TPA of hazardous wastes** is consistent with plan policy E8 and the National Hazardous Waste Management Plan 2014-2020.
- It is noted that a facility of this size with absorb the majority of the estimated national arisings of hazardous waste and would be within range for a single national facility.
- **The proposed on-site treatment of incinerator fly ash and flue gas treatment residues** is consistent with plan policy E8 and the objectives of the National Hazardous Waste Management Plan.
- An increase by 20,000 TPA to the existing compost facility and removal of the lifetime, and the extension of the compost facility, these are **considered consistent** with policy E8 and/or E1 and E2, depending on the feedstock.
- The Regions **favourably view the** proposal to remove the restriction on the lifetime of the existing approved 25,000 TPA, as well as an unrestricted lifetime for the proposed additional 65,000 TPA.

4.3. Observations

The submissions summarised in the following table are those received after the first round of consultations. Many of the points were restated and/or elaborated upon in the oral hearing.

Wild Kildare (c/o/ Paddy Sheridan)	• Objects to the increase in waste capacity. • Notes that the Bord na Móna Strategic Framework Plan for the future they are committed to reinstating 30-40% for biodiversity and amenity use. • Claimed that no meaningful effort has been made to re-establish biodiversity within Kildare on their worked-out bogs • Concerned that the proposal will lead to an industrialised landscape.
Jason Reilly & others, Ballybrack, Carbury	• Objects to the increase in capacity on the site. • Objects to the use of the site for hazardous waste.

This letter is accompanied by a signed list of just over 400 residents of the Carbury/Allenwood area.	• Notes ongoing issues with noise and traffic and odour from the existing facility, especially on calm or cold nights. • Concerns expressed at health impacts • Concerns expressed at the impact of traffic on villages and rural roads. • Argues that house prices will fall in the area.
Protect Caragh Group, C/O Suzanne Malone.	• Outlines that the group was formed following concerns raised by Caragh local residents of the impact of HGV's on local road networks. • Notes that one haul route in S.3.5 of the EIAR routes traffic over a bridge, a National Monument (KD019-012). This was damaged in August 2015. They object strongly to reinstating this bridge for HGV traffic. • Objects to the use following the above road closure of L2030 as an alternative route for Drehid HGV's. • It is argued in detail that the number of existing HGV's has caused damage to the road surface and created safety issues for commuters and others, in particular on the L2030. • It is stated that Drehid HGV's have been using roads despite requests from KCC to desist. • It is argued that the L2030 should never be used and the bridge over the Liffey is unsuitable for any HGV's. • It is noted that communities along the haul route do not benefit from Community Grants previously conditioned. • A number of attachments are submitted including correspondence on the traffic issue, an independent study on behalf of the Group and photos f damage to the bridge.
Des & Yvonne Mulvey of Carbury.	• Expresses concern on the risk to human health from groundwater contamination – the Mulveys depend on a borehole well. • Argues that the screening is inadequate to protect views from their property. • Submitted that the Junction of the R403 and L50222 has inadequate sightlines for the proposed increase in traffic.
Breda Logan of Robertstown	• It is argued that the local road infrastructure is inadequate for the proposed traffic loads. • It is requested that there should be no weekend or bank holiday works to protect amenities.

	• It is submitted that the current compensation is not sufficient to mitigate the effects on the local community.
Killina National School. (St. Oliver Plunketts's).	• It is submitted that there is an existing heavy traffic making it difficult to manage the risk to pedestrians and vehicle users at arrival and departure times at the school. • It is stated that there is an existing hazard with vehicles entering the school from the north – heavy traffic on the road increases the risk. • It is requested that the proposed development, if granted permission, takes account of the needs of the school and possible future improvements to the school entrance.
Kildare Environmental Awareness Group (KEAG), C/o Margaret Logan & Lorraine Quinn of Carbury	• It is submitted that the original proposal was intended as a short term time limited project, but is having increasing long term impacts. • It is argued that it will increase traffic unacceptability. • It is argued that it will increase vermin and the potential for airborne disease. • It is argued that it will increase smells and odours. • Concerns are expressed at the unknown hazards from the new types of waste being used and the potential impact on water. • It is submitted that the distance from sources will increase CO2 emissions from transport. • Concerns are expressed about fire or other major incidents and the potential local impacts. • It is noted that the site drains to surface water features. • It is noted that the application does not take account of the value of bogs as CO2 sinks. • A number of attachments to the submission includes photographs and correspondence.
Firmount Millicent Community Group, c/o Brendan McGlynn of Clane.	• It is argued that there is insufficient information on the application and the applicants have not engaged in any form of consultation. • It is claimed that Bord Na Mona have breached their license requirements. • Concern is expressed at the lack of information on the proposed hazardous waste to be accepted. • It is claimed that ongoing complaints about speeding trucks, noise, vibration, smells, and late night deliveries have all been ignored by the applicants.

	• It is argued that the local road infrastructure is inadequate for the loads. • It is noted that the inadequacy of the local road network was highlighted in previous Inspectors reports. • It is noted that the haul routes pass many homes, schools and other facilities. • There is no mention of risk assessments for the facility. • Concerns are expressed at the long term management of the facility when it finally closes. • It is claimed it will seriously impact on local property values. • It is argued that the damage to the local road system is a burden on local ratepayers. • A number of photographs are attached with regard to heavy vehicles movements and road damage.
Martin & Stephanie Barrett of Coill Dubh, Naas.	• Objects due to ongoing issues with odours from existing facility. • It was always understood that the facility would have a fixed lifespan. • It is argued that the proposed development would have a detrimental impact on their environmental amenities and health and safety.
Allenwood Celtic AFC, C/O Mark Hanlon of Robertstown	• Emphasises that they do not object to the proposal but have concerns about the safety of club members. • They are requesting that a painted island at the entrance to their pitches at Edenderry Road, Allenwood be used to improve safety for access during training and matches. • Aerial photo attached showing the site access.
Brid Smith TD	• It is emphasised that the scale of the proposed development is 'enormous' and Drehid will become the main site in Ireland for hazardous wastes. • It is submitted that the EIA is inadequate having regard to the scale proposed. • It is noted that the EIA does not take account of climate change in its impact on the waste – e.g. for extreme weather effects. • It is argued that the EIA does not adequately address the impact of traffic volumes on local residents. • It is denied that the lack of alternative facilities in the country should be used as a justification for the proposed development.

Frank O'Rourke TD	Supports the concerns raised by local residents about the impact on the environment and the local community with reference to water pollution and the impacts of additional traffic.
Catherine Murphy TD	• Highlights the issues raised in previous decisions (PL09.PC0204) with regard to the wide sourcing of waste and the concentration of traffic in this area. • Argues that the local road network is inadequate for the level of traffic proposed. • Argues that in line with the waste hierarchy, it is inappropriate that waste from such a very large catchment ends up in County Kildare. • Notes apparent lack of strategy for alternatives to Drehid either for municipal or hazardous waste. • Questions the absence of a systematic search for an appropriate site for a hazardous waste facility. • Highlights the alleged failure of the EPA to enforce the unauthorised Kerdiffstown Dump. • Raises the issue of an adequate risk assessment for the long term management of the facility.
Cllr. Pádraig McEvoy.	• Questions the lack of consideration for the protected structures along the haul routes. • Questions the lack of consideration for viable alternative locations for the facilities proposed. • Notes the issue of apparent night time traffic movements and the absence of monitoring for breaches of existing and proposed HGV movements. • Notes the inadequate layout of the road system, in particular the L2002 and L6007. • Requests that the Community Gain element of the existing scheme should, if permission is granted, be expanded to include people along the haul routes and should include all phases of the development, including decommissioning. • Requests a Social and Community Infrastructure audit for the catchment area. • Questions if the cumulative impacts of the industrialisation of the rural landscape in north Kildare have been adequately addressed.

Bernard J Durkan TD	Expresses support for the submissions made by the residents from Timahow West, Coolcarrigan, Killinagh Upper, Killinagh Lower, Drummond, Kilkeaskin, Loughnacush, and Parsonstown.

4.4. Further Correspondence

Following a request for further information and a response to the key submissions issued by the Board (24th April 2018) in response to the first round of submissions, Bord na Mona submitted a response received on the 22nd May 2018, the key points of which I would summarise as follows:

4.4.1. **In response to a Board request to clarify the issue of the long term management and maintenance of the entirety of the raised bog complex** and the associated hydrological and hydrogeological status, the applicants stated:

- The Board is referred to two published documents (attached to the submission), Strategic Framework for the Future use of Peatlands, May 2011) and the Biodiversity Action Plan 2016-2021.
- Board Na Mona has prepared a draft Rehabilitation Plan (subject to final approval by the EPA and other key stakeholders) for the Timahoe South Bog.
- It is stated that the long term ecological and hydrological status will be maintained in accordance with the Bord na Mona IPC Licence (EPA Reg. No. P0503-01).
- It is considered that the proposed Timahoe Solar Farm is at an early stage in discussion – potential cumulative effects would be considered as part of the planning application of the solar farm if applied for.
- It is stated that drainage within the red line boundary will continue to be maintained in accordance with the IED Licence conditions.
- It is stated that the proposed development will not impact on the land use outside the red line boundary.

4.4.2. **In response to the Board request on the baseline information in the EIAR** on the existing and long term hydrogeological status with specific regard to the cumulative impacts on the Cushaling River with regard to the requirements of the

Water Framework Directive. The Board also requested clarification on the issue of complaints about odours.

- It is noted that the 2009 Figile Water Management Unit Action Plan does not identify Drehid as a significant pressure – this plan indicates that agriculture, wastewater and forestry are the main phosphorous contributors.
- It is acknowledged that the April 2018 River Basin Management Plan 2018-2021 identifies peatland areas as a significant pressure, but it is noted that commercial peat extraction is being phased out.
- It is stated that dewatering for the landfill has not resulted in water level drawdown in existing monitoring wells outside the development footprint.
- It is stated that the Emission Limit Values (ELV's) for ammonia from the existing facility are compliant.
- The expectation is that restored boglands will return to a peat forming status over an extended time period – this is the anticipated future for the areas outside the red line boundary of the site.
- It is stated that all leachate generated will be treated and tinkered off-site for final disposal – so there will be minimal direct discharge to the groundwater or surface water environment.
- With regard to odour, it is stated that there is a specific Odour Management Plan which sets out procedures for addressing odour complaints.

4.4.3. **The Board requested clarification on the AA Screening with particular regard to the comments of Kildare County Council**

- It is stated that they are confident that there is no possible impact on the Ballynafagh Lake SAC as this lake is fed from surface water and a number of small springs to the north-east of the lake – the springs are upgradient and likely fed from lands to the west (the opposite direction from Drehid). It is considered that there is no basis for considering that there is hydraulic continuity between the Drehid site and the SAC.
- It is stated that all surface water from the site drains to the Cushaling and the Figile (a sub-catchment of the Barrow). It is argued that the control measures

as implemented under the IED license will ensure there will be no adverse impact on natural water quality.

- It is stated that all traffic will use established regional roads and there is no evidence it would impact on the qualifying impacts of the SAC where the road crosses this designated habitat.

In conclusion it is submitted that the screening was carried out by a fully qualified and experienced team and the consultants stand by the conclusion of the submitted Screening.

4.4.4. **Response to submissions by KCC and others:**

Policy:

- With regard to the KCC submission that the proposal is contrary to a number of policies of the CDP, it is emphasised that the facility will primarily serve the Eastern and Midlands Waste Region but will also provide critical waste management infrastructure of national importance.
- It is noted that the EPA's National Hazardous Waste Management Plan 2014-2020 states that consideration should be given to the co-location of hazardous waste treatment at existing waste facilities or brownfield sites – it is argued that Drehid is ideal for this type of co-location.
- It is argued that the proposal is fully in accordance with EU, national, regional and local plans policies and regulations.
- It is noted that the site is within the region where most incinerator ash arises.

Assessment of alternatives:

- It is submitted that the proposal was subject to a detailed series of comparisons, broken down according to the individual processes. It is argued in some detail that the logistics of transport and pre-treatment of waste and the co-location of the processes leads to the conclusion that this is the best available site.

Traffic and Transportation

- It is noted (refers to Section 10.3.9 of the EIAR that comprehensive surveys were carried out on the existing and proposed haul routes.
- All surveys were carried out in accordance with TII guidelines. Most roads were rated 'very good'.
- It is submitted that the traffic surveys indicate that there is spare capacity in the existing roads.
- The applicant accepts (as outlined in section 10.5.2 of the EIAR) that specific and exceptional works can be funded through special development contributions – although it is not accepted that the costs proposed by KCC are reasonable or appropriate.

Environmental sustainability

- It is disputed that the waste levels proposed are excessive. It is submitted that with existing growth rates and existing and permitted incinerators in Poolbeg and Carranstown, there is a requirement in the region for the capacity for treatment, disposal and composting of the stated quantum of materials.

Other comments

- With regard to the geophysics report it is stated that it is considered that there are no karstic features underlying the site and that all borehole drilling records indicate the site is over competent rock with low to moderate permeability. The deep over burden channel identified is not considered unique or a problem for assessing water flows.
- With regard to the EIAR on air quality and noise from traffic, it is stated that in overall terms the impacts are considered negligible.
- With regard to Ammonia, it is stated that in consultation with the EPA the applicant has been working to address the naturally occurring ammonia run-off from the overall landholdings.

- With regard to the Heritage Officers Report it is submitted that there is sufficient baseline information for the red lined site and that bat and other surveys were carried out according to guidelines. It is submitted that the site is sufficient distance from sensitive receptors that any visual impacts would be negligible.
- With regard to landscape, it is recognised that the bog landscape is constantly changing in character and that the proposals would have a cumulative impact with these changes, but it is emphasised that the proposal is not visible from the majority of residents in the area or from any recognised scenic viewpoints.
- With regard to protected structures and recorded monuments it is stated that a full structural assessment was carried out on the road system and it is not considered that the additional traffic loads would have any impact on historic bridges or other structures.
- With regard to Community Gain it is stated that the applicant will continue to agree and support a local community fund with the identification of appropriate projects to be decided by the planning authority in consultation with the Community Liaison Committee.
- With regard to Seveso (Table 1.2 of the EIAR, it is stated that the HSA was consulted and that the site is sufficient distance from the Irish Industrial Explosives (IIE) site in Clonagh so no further action is required.

4.4.5. **Other submissions:**

Transport Infrastructure Ireland

- It is noted that they have no objection.

Irish Water

- Comments noted – the applicant has existing utility service plans for the landholding.

Inland Fisheries Ireland

- Refers to earlier comments with regard to the management of cutaway.

Traffic Concerns (multiple submissions)

- It is restated that all the haul routes are on national and regional roads which are established HGV routes – refers to the response to KCC.
- The concerns of Allenwood Celtic AFC are noted and the applicant will engage with the club prior to the commencement of any construction works.
- The submission from Killina National School is acknowledged and the applicant welcomes the school's proposals to reconfigure a segregated pedestrian entrance to serve the external drop off area.

Visual impact (multiple submissions)

- It is stated that the berms and vegetation will significantly mitigate views of the site – refers to Section 8.5.3 of the EIAR.
- New lighting will be directed downwards and inwards to minimise light spillage.

Noise and vibration (multiple submissions)

- Refers to previous comments and the noise model in the EIAR.

Odour (multiple submissions)

- It is noted that the number of odour complains has reduced in recent years.
- An Odour Management Plan for the landfill has been developed and will be updated.

Waste Planning Regions

The overall comments are noted. With regard to the suggested four conditions:

- Condition 1: It is noted that it is not proposed to accept MSW waste in the non-hazardous waste landfill.
- Condition 2: It is not considered viable to set aside 10% of capacity for contingency. Based on past experience, it is argued that the phased build out

of future cells will allow for the contingency capacity as recommended by the regions.

- Condition 3: It is considered unlikely that a framework for the designation of end of waste status of residual IBA will be developed. It is suggested that, as per Section 3.3.1 of the IAR, the processing facility is designed to maximise segregation to provide options for future recovery.
- Condition 4. It is stated that it is not viable or practical to dispose of IBA in a dedicated cell, and its removal from a cell could cause damage to the integrity of the landfill lining system.

4.4.6. As requested by the Board, **a schedule of mitigation measures is set out in Appendix 4 of the submitted document**.

4.4.7. **In response** to the Further Information submission by the applicant**, the following submissions were received**:

Transport Infrastructure Ireland	No further comments in relation to the application, the Board is referred to their original submission.
Irish Aviation Authority.	No observations on the matter.
Oliver Plunkett National School	• They repeat their strong opposition to the proposed development. • Noted that the tinkering of leachate off-site may increase traffic movements. • It is denied that the site is 'isolated from public interaction and states that the local community must endure traffic and odours. • It is claimed that the response by the applicant does not address the future higher volume of hazardous waste transport vehicles. • It is argued that the 'average' traffic figures provided to not take full account of peak traffic, or other vehicles associated with the facility.

	• It is argued that it understates the impact of traffic noise on local residents. • It is noted that no analysis has been given of potential waste vehicle accidents. • It is denied that the use of additional haul routes would significantly reduce traffic at key points.
Project Caragh Group	• Strong reservations are expressed about the accuracy and detail of the traffic figures provided. • It is stated that the Group carried out an informal survey on Nov. 9th, 2015 and measured a total of 91 HGV's and 118 lorries on tier road. • It is argued that an independent traffic count should be carried out.
Cllr. Pádraig McEvoy	• Argues that the submission by the applicant does not adequately address the social impacts of bringing so much heavy traffic into local towns and villages. • It is argued that the submission does not address adequately the climate change impact of using such a remote site. • It is stated that the local community has noticed an apparently 'inexplicable drop' in large haulage vehicles on the L2002 and R403, and are concerned that the volumes of Drehid bound vehicles will build up again. • Requests with regard to Community Gain that the Board exams further the remit of the current Community Liaison Committee. It is argued that it should address the impact of communities on the wider haul routes. • Requests that a Special Development Contribution be considered for the issue of alterations to the entrance to Killina National School.
Kildare County Council	Item 1: (4.4.1 above): • Notes the response regarding AA. It is recommended that the Board screen the response for potential impacts on Natura 2000 sites. Item 2: (4.4.2 above))

	• It is confirmed that pre-planning consultation has taken place between KCC and BnaM in relation to a proposed solar farm at Timahoe East. Item 3: (4.4.3 above): • It is noted that should a proposed development include mitigation measures in design, it is a requirement for the application to be accompanied with an NIS. Item 4: (4.4.4 above): • It is considered that only examining BnaM sites in 'Alternatives considered significantly restricts the consideration of any other viable sites across the country. • KCC restates its request for S.48(2) contributions in the amounts set out in Appendix 2 of the Chief Executives Report of 9/3/2018) • It is considered that the Biodiversity chapter of the EIAR lacks a justification for its methodology and lacks information on the scale and magnitude of impact on the surveyed species and habitats. • It is considered that the Cultural Heritage section of the EIAR should have included further details on the impact on all protected structures along the haul routes (sample list provided, Table 1). • It is considered that the EIAR does not provide an adequate assessment on the impact on Failte Irelands promotional proposal 'Irelands Ancient East' and its tourism potential. Opinion should be sought on the potential impact on the proposal for UNESCO World Heritage status for Dun Ailinne. • Four additional conditions are recommended if the Board is minded to grant permission: 1. A detailed lighting plan with specifications which have considered the findings of the Bat Survey. 2. A schedule of all pre-clearance works for habitat surveys.

	3. Specific species to be included in a list of pre-construction surveys: Marsh fritillary, common frog, smooth newt, viviparous lizard. 4. Require a monitoring programme regarding the impact of vermin control measures on the wider ecology.

4.5. Further correspondence (NIS)

The first sitting of the oral hearing, on the 10th September 2018, was adjourned when the applicant stated that following further consideration, they wished to complete and submit a phase 2 AA (Natura Impact Statement) – I prepared an initial report on this request (on file – dated 12th September 2018). On the 20th September 2018 the Board following my recommendation submitted a formal request for an NIS in accordance with section 177T(5) of the 2000 Act, specifically referring to the assessment of cumulative impacts of run-off from the Drehid landholding on the upper reaches of the Cushaling River. The attention of the applicant was drawn to the submission of Inland Fisheries Ireland (dated 15th February 2018). An NIS was subsequently submitted in November 2018, advertised, and circulated to all parties.

The following is a summary of the responses received to the NIS.

Transport Infrastructure Ireland:

- No comment, refers back to original submission on the 14th February 2018.

Department of Communications, Climate Action & Environment (Geological Survey).

- A comprehensive list is submitted of County Geological Sites in the vicinity of the site – the closest being Carbury Castle (exposure of limestone). No comments are submitted on the contents of the NIS.

Kildare Environmental Awareness Group (KEAG)

- Repeats previous objections on a number of grounds, including impacts on ground and surface water and habitats.

- Cites a number of cases with regard to Appropriate Assessment – e.g. C-248/11; C-164/17; C-323/17; C-461/17 with regard to the need to have full regard to habitat impacts.
- Concerns raised about long term management of the waste deposits.

Inland Fisheries Ireland

- Notes the location of the site within the headwaters of the Cushaling River – which is a tributary of the Figile River and the barrow River SAC. The nearby Slate River is also an important salmonid tributary of the Barrow River SAC.
- Notes the importance of the Barrow system as a spring salmon and sea trout fishery, supporting several Annex II species.
- It is considered by IFI that the section of the Cushaling closest to Drehid represents some of the best potential salmonid habitat within the catchment, but is underutilised because of water quality issues, one of which is run-off from the cutaway bog.
- The objective of the Bord na Móna Biodiversity Action Plan 2016-2022 to rehabilitate and re-wet former production areas is noted. It is considered that if this was done it would lead to the restoration of salmon spawning in the Cushaling River and that if this happens it would be an integral part of the SAC, even if not designated as such.
- The Cushaling is currently 'Poor' Status under the Water Framework Directive (WFD) and is considered 'at risk' due to organic pollution from peat extraction.
- It is stated that these have not met their WFD targets due to ongoing peat works in the area, but it is indicated that all commercial peat extraction in the catchment will end by 2028.
- Strong concerns are expressed that the proposed development will postpone addressing nutrient losses from the site and so push potential improvements to 2045 and beyond (i.e. the lifetime of the composting facility). This is considered unacceptable to IFI.
- It is considered that under 'natural' conditions the cutaway peat would be covered with water, which would reduce organic run-off.

- It is argued that the proposed development represents an extension to the current drain/watercourse management scheme which maximizes the drying out of peat thereby maximising potential for nutrient releases.
- It is noted that the operational phase of the proposed development will entail lowering the water table in the vicinity of the cells to facilitate the works. It is stated to be unclear if the water will be subsurface waters that are draining through cut-over peats – it is submitted that the waters, and the indirect drying of the peats, could potentially exacerbate the breakdown of organic matter and nutrient release to waters.
- It is submitted that the issue of elevated ammonia concentrations has not been addressed by the applicant.
- With regard to claims by the applicant in the EIS that the Integrated Constructed Wetlands will provide further treatment to surface/pumped waters, the Board's attention is drawn to the license application for Glaslough Waste Water Treatment plant (2014 annual report). In this facility, it was found that ortho-phosphate levels exceeded the ELV and no possible corrective action had been identified. It is submitted that the proposed treatment facility has not adequately addressed the issue of ammonia pollution of the Cushaling.
- It is noted that older OSI maps show that the upper reaches of the Cushaling rises and previously flowed through the proposed development site, although major modifications have been made to the channels. It is stated that the silt settlement/attenuation pond proposed is not appropriate as this is using a section of the Cushaling River.
- With regard to the statement in the NIS that treated leachate will be transported off-site to an Irish Water WWTP, it is noted that all such WWTP facilities in the area discharge to the upper reaches of the Slate or Cushaling Rivers. It is questioned whether nearby WWTP's have the capacity for additional leachate. It is requested that the issue of the additional hydraulic loading resulting from the leachate could rule out the future connection of local settlements to the Oxberstown network be addressed.

Kevin Logan & Local residents of Ballinakill, Carbury (petition attached signed by c.250 no. individuals)

- Restates objection to the extension of the life of the facility and the location within the area.
- It is argued it would have a negative effect on hydrology, human health and ecology.

Kildare County Council

- It is noted that since the NIS was lodged the following planning/SID applications have been lodged in the area – **18/1534** (12 turbine wind farm north of the subject site); **18/1514**, solar farm on a 200 hectare site on lands north of the subject site: SID for 110kV substation (**ABP-303249-18**) on lands at Timahoe. It is also noted that Irish Water is considering a pipeline which traverses lands to the west of the subject site.
- Kildare County Council expresses concerns regarding potential in-combination effects for those and other proposed projects in the area.
- Requests a map indicating hydrogeological links between the Cushaling, Figile and River Nore having regard to Figure 5 in the NIS.
- Notes lack of documentary evidence that there is no groundwater connection between the Ballynafagh Lake SAC and the site.
- Notes that the NIS does not address in detail likely required upgrade works to the road network.
- In a separate note, the Water Services Section notes the proximity of the proposed Irish Water pipelines and requests a number of conditions. A plan is attached noting the route of the pipeline.

5.0 **Planning History**

The site has an extensive planning history with an existing facility operating under a number of live permissions and an EPA license. The EIAR has a summary of applications on the site in Table 2-1. I summarise the key points in the table below.

Reference	Description	Decision	Conditions/comments
PL09.PC0204.	Pre-app for current application		
PL09.PM0003 (section 146B) 21st June 2013	Request to alter previously permitted landfill.	Granted, subject to 1 alteration.	The extension was for 360,000 TPA, the Board allowed this until the 1/12 2015, from which it would reverted to120,000 tpa.
PL09.PA0027 15th March 2013	A mechanical biological treatment facility with a capacity of 250,000 tpa (principally municipal solid waste) (for 10 years).	Granted, subject to 18 no, conditions.	Permission set for 10 years (condition 3) (March 2013). Condition 15 set restrictions on haul routes as set out in Figure 11.1 of the EIS. A review required after 3 years. Condition 18 sets a S.48(2)(c) contribution for improvements to the Regional Road network. This facility has not been built. It is not clear if it is the intention of the applicant to follow up on the permission.
11/902	Extension (to 383 square metres) to previously permitted composting facility.	Granted.	
11/537	Landfill gas utilisation plant to generate up to 4.99 MW of electricity.	Granted with conditions	This has been built and is now in operation.
10/1172	Extension of duration of operation permitted PL09.212059 for 2 years up to the13th January 2013.		
PL09.RL.2742	Reference case regarding the deposition of materials including asbestos.		Declared (August 2010) that it is development and is not exempted development.
Waste license W0201-01 and W0210-03 (PA 3rd August 2005.		Granted subject to 12 conditions.	The conditions relate to detailed controls of leachate, gas, odours, etc, in addition to monitoring and aftercare of the site.

In March 2010 a Waste License (W0201-03) was issued for activities on the site. This was subsequently amended on the 15th January 2013 and 20th December 2013 and the 15th March 2016.			
PL09.PA0004 31st October 2008	The extension and intensification of the Drehid Waste Management Facility to accommodate an additional 240,000 tpa for disposal for 7 years of non-hazardous residual municipal waste (over and above the permitted disposal of 120,000 tpa of non-hazardous residual waste permitted for a 20 year period) entailing the extension of the landfill footprint by 17.8 hectares, etc.	Granted subject to 13 conditions.	Condition 1 allows for 36,000 TPA until 1/12/2013, thereafter 120 TPA. Condition 9 sets out requirement for review of HGV traffic.
PL09.212059 (04/371) November 2005.	Waste Management Facility consisting of an engineered landfill site and composting facility.	Granted subject to 22 conditions	Limited to 20 years. A special development contribution was set with no figure provided.

I would note that in relation to planning applications in the general area, Appendix 2.2 of Volume 4 of the EIAR comprehensively lists known recent planning applications in the area in addition to Table 2-1 of Volume 2 of the EIAR. In addition, **a proposal which includes the storage of non-hazardous bottom ash (IBA) in Knockharley (ABP-303211-18) is currently with the Board**.

I would further note that **Figure 1.1** provided in the Precis of Evidence by Robert Hunt in the oral hearing a plan indicates the site boundaries of a number of applications and proposals in the vicinity of the proposed development.

6.0 **Policy Context**

6.1. **EU Policy**

Policy Document	Comments
Waste Framework Directive (2008/98/EC)	Sets the overall context within European law and treaties for national and regional waste strategies.
Landfill Directive (1999/31/EC)	Context for the reduction in disposal of untreated waste to landfill
Water Framework Directive (2000/60/EC)	Sets the framework for targets for water quality improvements – relevant to the potential impact on drainage to the Figile and other watercourses.
Environmental Impact Assessment Directive (2014/52/EU)	Provides framework for EIAR.
Habitats Directive 92/43/EEC	Context for SAC's in the area.
Conservation of Wild Birds Directive 2009/147/EC	No specific issue raised in this appeal regarding SPA's, but a number of Annex I species may be present at Drehid.

6.2. National Policy

Policy	Relevant sections	Comments
National Planning Framework – Ireland 20140 – Our Plan.	Policy objective 56	Overall context for major developments, including for waste management. Supports 'circular' economy.
Project Ireland 2040 – National Development Plan 2018-2027		Sets out needs for additional waste treatment/disposal infrastructure.
A Resource Opportunity: Waste Management Policy in Ireland – DoECLG 2012.	Section 5 – guidance in relation to compliance, implementation and enforcement.	Most recent guidance on waste planning.
EPA reports - various		Critical Analysis of the Potential of MBT for Irish Waste Management – EPA 2008 Municipal Solid Waste: Pre Treatment and Residuals Management EPA 2009. National Waste Report 2010 (2012)

6.3. Regional Policy

Regional Planning Guidelines for the Eastern Midlands Area	Section 6.7 – Waste Management	Key regional policy guidance, but defers to WMP's for detailed policy

Eastern-Midlands Regional Waste Management Guidelines 2015-2021	Chapter 16 (policies), especially E8; E9b and E17.	Emphasises waste reduction and 'circular economy'.

6.4. Development Plan

Kildare County Development Plan 2017-2023.

The site does not have a specific zoning designation within the current development plan.

Relevant policy sections:

Chapter 7, Infrastructure (7.6.5: Waste Management: Policies WM1; WM3; WM5; WM12; WM17; WM18)

Economic Development (Chapter 5); Policy: ECD2

Movement and Transport: Policy MT15

Chapter 10 on Rural Development specifically policies BL1-BL7 on boglands.

Chapter 14 on landscape, specifically policies LA1; LL1; LL3; LL4; and LL5.

6.5. Other relevant plans and policies

Bord na Móna Biodiversity Action Plan 2016-2022.

6.6. Natural Heritage Designations

There are no EU designated habitats within the landholding or the immediate vicinity. The lands drain to a tributary of the Barrow River, which for much of its length is an SAC, the River Barrow and River Nore SAC, site code 002162. Sites in the vicinity include Ballynafagh Bog SAC site code 000391; Ballynafagh Lake SAC site code 001387. I would refer the Board to Figure 5.2 in Volume II of the EIAR for a comprehensive plan showing all designated sites within 15 km of the appeal site.

7.0 **Proceedings of the Oral Hearing**

The following is a selective summary of the proceedings of the oral hearing. **A more complete record is attached in Appendix B to this report**. The full recording is also attached to the file. References in this section to documentation are all to the written submissions made by the relevant witnesses, all of which are on file.

The Oral Hearing (OH) into the proposed development was opened on the 11th September 2018 in the Johnstown Estate Hotel in Enfield, County Meath. This hearing was adjourned following a request by the applicant for the Board to request an NIS following a reconsideration of the Appropriate Assessment Screening. The Board subsequently agreed to issue a notice under S.177T(5) of the Act, and a Natura Impact Statement was carried out and advertised by the applicant. The OH was reconvened on the 11th March 2019 at the same venue and lasted three days. I closed the hearing on the afternoon of the 13th March 2019. I was assisted in the hearing by Prof. Paul Johnson of Trinity College Dublin who had been appointed by the Board to assist on engineering and water/geology related issues.

7.1. **11th September 2018**

Rory Mulcahy for the applicant opened to outline the reason for the applicant's decision to carry out an NIS. Mr. Mulcahy noted that following the Further Information request by the Board the applicant re-confirmed its Screening conclusion that AA was not required. But this decision was made without full knowledge of the recent Judgement of the ECJ in People Over Wind vs Coillte Teoranta. Mr. Mulcahy stated that the NIS would be ready for submission 3 weeks from that day's date. He referred to Section 30(7)(f) of the Act, S.177T(5) of the Act with regard to the power of the Board to request further information.

For Kildare County Council, **Deirdre Hughes** welcomed the decision of the applicant to submit an NIS. Ms. Hughes repeated the concern of Kildare County Council that there was insufficient information submitted by the applicant with regard to traffic information and suggested that this is an opportunity for the applicant to address this concern.

Lorraine Quinn (Observer) argued that it is unfair on local objectors that they cannot comment on the main application and NIS concurrently

Robert Falcampe of the Millicent/Firbank Community Group notes that the proposed development will require 300,000 truck movements through its life, with some 35% running through the Millicent/Firbank/Clane, Sallins Area.

Brendan McGlynn, also of the Millicent/Firbank Group outlined detailed concerns about the impact of the proposed development on the local road system.

Donacha Byrne of **Inland Fisheries Ireland** stated that the IFI has no objection to the carrying out of an NIS, but noted that salmonid species scheduled in the Habitats Directive are present in the upper reaches of the Barrow/Nore watershed and requested that the NIS have full regard to potential impact on these species.

Following this, I asked Mr. Mulcahy if the applicant had considered the withdrawal of the application in order to allow for all submitted information to be updated accordingly. He argued that such a withdrawal and resubmission would serve no useful purpose.

I then adjourned the hearing, noting that the Board would have to formally determine if the submission of an NIS at this stage of the application was appropriate.

The Board subsequently, under Section 30(7)(f) of the Act, S.177T(5) of the Act, requested an NIS. This was submitted to ABP on the 20th November 2018, and was subject to a further round of written consultation.

7.2. Second sitting - 11th March 2019

As previously, **Mr. Rory Mulcahy** represented the applicant and **Ms Deirdre Hughes** represented Kildare County Council.

7.3. The applicant's introduction and submission

Mr Mulcahy provided a general overview of the response to Kildare County Councils (KCC) submission, and noted the decision of the High Court in Fitzpatrick vs ABP with regard to cumulative impacts from other projects. He noted that there are a number of windfarm and solar farms proposed in the vicinity, including a water pipeline to the north proposed by Irish Water. He also confirmed that a new license

application from the EPA will be required, and this precludes the Board from imposing conditions relating to emissions.

Mr. Mulcahy introduced **John Payne** of Bord Na Mona to provide an overview of the proposed development. I would refer the board to a number of tables and graphs in this submission, in particular on pages 7 to 9, which give a good summary overview of the proposal, and the slides following which provide a summary overview of projected volumes of the different types of material.

Mr. Mulcahy then introduced **Robert Hunt** from **Tobin Consulting Engineers**, who responded to the specific issues raised in the most recent KCC submission. Mr Hunt outlined the search criteria central to the EIAR conclusion that the site is the environmentally optimal choice with regard to cumulative impacts – this was in response to KCC arguments in their submission. This is submitted as an update to the EIAR and an appendix to the submission (on file). I would draw the Board's attention to the table on **page 17** of this appendix which compares intakes to the proposed Knockharley Landfill (submitted December 2018), which is for an annual intake of 440,000 tonnes of non-hazardous wastes. I would also draw the Board's attention to **Figure 1.1** at the end of this submission, which shows clearly the other local sites subject to applications or proposed applications in the vicinity.

Mr Hunt outlined the impacts of these on the selection criteria and concluded that with regard to known sources of potential waste for Drehid, this site still comes out as superior in comparison to six other potential sites (**see page 7** of the submission).

- With regard to submissions on Community Gain, it is stated that the applicant has no objection to amending the provisions of the existing Community Grant Scheme.
- With regard to claimed traffic infringement it is stated that BnaM maintain a Complaints Register at the Drehid Facility in accordance with the requirements of the Industrial Emissions Licence for the facility.
- Further calculations are submitted with regard to the carbon sink potential of the existing cutaway bog.

Mr. Mulcahy then introduced the evidence of **Joanne Allen-Hamilton** and **Laura Kennedy** with regard to NIS/ecology issues. The first part of their evidence

responded to KCC's submissions on the NIS. With regard to other proposals in the vicinity (ECJ case C-323/17 noted) including the proposed Timahoe solar farm (shown on **Figure 5** of their submission), it was argued in some detail that the protective design and mitigation measures would ensure no significant cumulative impacts with other developments in the area. It was emphasised (with additional information submitted) that there is no hydraulic continuity with other **Balynafagh Lake SAC** and noted that the **Barrow SAC** is 38 km from the site. They summarised the findings of the NIS, in addition to presenting Appendix A of their report, an additional In-combination effects assessment. They concluded that there was no risk of adverse effects.

7.4. **Mr John Dillon** of Tobins made a statement responding to the IFI submission on hydrogeology. I would refer the Board specifically to the useful drawings and figures at the end of this submission indicating the relationship between the Drehid facility and surrounding water catchments, in addition to information on ammonia loads and monitoring stations. I would summarise his points as follows:

- With regard to the issue of impacts salmonids downstream - the Cushaling River may have some appropriate sections but has low flow and is of low quality. Refers to 7.3.5 of the EIAR for further details.
- He states that ongoing issues in the Cushaling are not attributable to Drehid and that the proposed facility will not preclude the improvement of the Cushaling.
- Cushaling is considered of low sensitivity due to absence of sensitive species.
- States that ammonium concentrations continue to decrease since 2012 – also states that the site is not within the Slate catchment (the latter is referred to in the IFI submission.
- He stated that drains will be rehabilitated in accordance with the EPA IPC license for as set out in the Timahoe South Bog Draft Rehabilitation Plan (copy provided in RFI response). He emphasized that the management of the drains was part of license requirements.
- Notes presence of wet heath within the site – an indicator that the site is not drying.
- Notes that the facility is operating fully in line with the IPC license.

- He specifically denies that the proposed works will impact on the lands outside the red line boundary.
- He argues that ammonium concentrations can be elevated in intact bogs (e.g. Clara Bog) and so the observed high ammonia levels would not necessarily be improved by bog restoration.
- Outlines details on the proposed ICW's (Integrated Constructed Wetlands).
- Argues that Glaslough WWTP (as raised by the IFI in response to their concerns about ICW's) is not an appropriate comparison – it is argued that the existing wetland operates effectively.
- Argues that the Cushaling cannot be reinstated given changes in topography and the removal of the settlement lagoons would be contrary to the IPC license requirement.
- With regard to Osberstown WWTP – he states that it is operating within its design capacity.

In response to KCC's submission on the NIS

- He submits that there are no hydrogeological linkages between the site, the Figile and the River Barrow – notes Figure 6 in the submission
- Refers to section 6.3.10 of the EIAR for issue of Ballynafagh Lake with regard to further details.

Mr. Mulcahy introduced **Tom Cannon** of Tobins to present evidence on roads and traffic (Material Assets chapter of EIAR). With respect to submissions from St. Oliver Plunketts National School and the Protect Caragh Group he outlined several clarifications on haul routes and the figures provided. He confirmed that the traffic assessments included in the EIAR do include both light vehicles and HGV's as presented in Appendix 10.3 of the EIAR. **He also confirmed that the R409 and L2030 will not be used as a haul route due to weight restrictions.**

With regard to a KCC submission on Special Development Contributions – they requested a sum of €13,796,673 as outlined in Appendix 2 of the Chief Executive's Report of the 9th February 2018. It is strongly denied that the levels of investment

are required and in Table 1 (page 5 of the submitted documents), a set of alternative figures are provided, coming to €545,900.00.

Mr. Cannon states that BnaM would have no objection to a condition to implement a GPS tracking system for hauliers, but notes that it would take time to implement as it would have to be imposed as a condition in new contracts.

Mr. Cannon then discussed the structural assessment of the haul routes (page 7 of the submission). He outlined the techniques used to assess the impacts and stated that applicant is willing to accept the cost of regular road surveys.

7.5. **Ms. Deirdre Hughes**, representing Kildare County She emphasised the national scale of the proposed facility. Ms. Hughes introduced **Mr. Liam McGree**, Senior Planner, to present the planning perspective of the Council.

Mr. McGree distributed his written evidence. He outlined in some detail the planning background to the proposed development. He argued that it is considered to be non-compliant with a number of policies in the County Development Plan 2017-2023 (set out page 5 of his submission), specifically WM3; WM17; WM18; MT15 and LA2. He argued that:

- No reasonable alternatives to the processes have been assessed and the proximity principle has been ignored.
- The visual impact assessment submitted is not considered adequate.
- It is considered that impacts on protected structures and recorded ancient monuments in the area and along the haul routes has not been adequately assessed.
- It is considered that significant alterations would have to be put in place to address Community Gain.
- The NIS is considered deficient as it has not addressed impacts on the haul routes. Concerns are also expressed regarding the potential for in-combination effects with other large scale proposals in the area such as 18/1534; 18/1514; ABP-303249-18 and the Irish Water supply project.
- It is noted that there is a Seveso site 6.4 km from the site at Clonagh and states that consultation with the HSA should have been carried out.

He outlined four conditions that KCC requests if the Board is minded to grant – set out in page 9 of his submission.

7.6. Ms. Hughes then introduced the evidence of **Mr. Michael Holligan**, Senior Engineer for KCC. Mr. Holligan distributed his written evidence. He argued that the proposed development is contrary to the Easter Midlands Regional Waste Management Plan (EMRWMP), specifically with regard to the strategic vision (Chapter 5, Section 5.2, page 40 of the WMP).

It is noted (section 4 of his submission) that the receptors chosen with regard to air pollution that none of the dwellings were located at junctions or in villages/towns or locations where HGV engines were likely to be stationary and/or running on idle.

It is noted that with the imminent closure of Galway landfills there will be only four left in the state, all in Leinster (Ballynagran in Wicklow, Knockaharley in Meath, Powerstown in Carlow and Drehid. This leads to a concentration contrary to Section 5.5 of the EMRWMP.

He finished raising concerns about the completion of borehole analyses for bedrock permeability (EIAR, Vol. IV, App.6.1), also if it the proposed development would satisfy the requirements of the Water Framework Development, and if a satisfactory risk assessment has been carried out Ape 6.10 of the EIAR).

7.7. Ms. Hughes then introduced **Mr. Anthony Horan**, Associate Director for O'Connor Sutton Cronin Consulting Engineers, who were retained by KCC to analyse the figures submitted in the EIAR and related documentation. Mr Horan submitted both his evidence plus a detailed document entitled Planning Assessment Report for Kildare County Council Project No. K417, dated the 8th March 2019 (this was ancillary to his evidence but was not read into evidence in the oral hearing). I refer the Board in particular to Tables 1 to 5 in the main evidence for a detailed overview of his arguments.

The core of Mr. Horan's submission was that by adjusting assumptions on the weight of each vehicle and assuming additional vehicle loads for construction, the scale of traffic will be substantially greater than that presented in the 'conservative' estimates in the EIAR – summarized in his view in Table 1 on page 8 of his evidence. He also argued that the pavement testing is deficient and does not provide a real assessment of pavement damage caused by existing traffic loads. In his conclusion, **Mr. Horan argued that the proposed development should be refused for four stated reasons**, i.e.:

1. Insufficient pavement testing, with results showing that significant sections of the haul routes will not be capable of withstanding the increased loading.
2. Flawed trip generation calculations flawed to a level that renders the traffic modelling invalid;
3. Overcapacity issues on a number of junctions, most notably in Prosperous and Clane;
4. The non-assessment of the 'do nothing' scenario if no MBT goes ahead – it is argued that this has led to a falsely pessimistic assessment of the existing roads and traffic network.

7.8. Mr. McEntee (replacing Ms. Hughes) for KCC then introduced **Mr. Jonathan Deane**, Senior Executive Engineer for Kildare County Council. He stated that KCC believes that granting permission would have four serious detrimental effects:

1. The increased HCV traffic will endanger public safety.
2. The carriage of hazardous waste may endanger public safety.
3. The development does not comply with the objectives of the CDP to support the improvement of the public realm within the settlements along the haul route.
4. The proposed development would endanger public safety due to the obstruction of road users.

Table 3-1 and Table 3-2 of his submission outlines current costs relating to the works. In summary, he stated that 46% of available resources are devoted to the maintenance of the existing haul route roads, which amount to 9% of the total road length in the area. He clarified a number of specific issues with the road junctions within the settlements of Prosperous, Clane, Allenwood, Derrinturn, Kilshanroe and Johnstown Bridge. He highlighted the Firmount Cross roads as having a particularly challenging geometry.

7.9. **Observers.**

Catherine Murphy TD

Catherine Murphy TD gave an overview of her long-term opposition to the facility and the potential impacts on the local community. Key points she made include:

- She emphasized lack of guidance provided in the site selection process undertaken by either the EPA or the Regional Waste Management Authority - she considers this a major shortcoming of the proposed development.
- She noted how Ballinasloe landfill is winding down – this is resulting in all waste facilities in the State being concentrated in the Leinster region.
- She argued it is not in line with balanced regional development.
- She questioned if Oswardstown wastewater treatment facility is suitable for the leachate.
- Accident rates she highlights the number of fatalities on these roads and associated insurance costs for locals. Existing traffic levels interferes with cycling and walking. Vulnerable road users are made even more vulnerable.

Mr. Bernard Durkin TD

Mr. Durkin TD states that he has long opposed the Drehid facility, he was an objector to the original application, and states that his contention then that it would go out of control. He made the following points in his submission:

- His original objection for the first planning application focused on the impact on roads, on water displacement, plus contamination in a bogland area and displacement of water (flooding issues).
- Strong concerns originally expressed at how the volumes of material would increase (from 150,000 originally).
- Objects to the use of North Kildare as a center for disposal for a much wider area and the concentration of waste disposal in one area of the State – North Kildare.
- He outlined local ongoing concerns at odor, especially after a dry spell.

- He raised concern about safety issues (crashes with trucks with hazardous waste) and submitted that it is too big a risk for local communities to ensure.
- Issue of trucks waiting early morning in order to get in early to the site, resulting in pollution and traffic issues not addressed in the submission documents.
- He raised concerns at an ongoing issue with contractors who will seek alternative routes even if they are not permitted.
- Requests the Board to consider if it is appropriate for the facility to be allowed to continue to expand – both footprint and nature.
- Conclusion – emphasizes long term status as an objector from the first application. Argues that the original grounds of objection have been proven correct (ongoing growth in volumes, etc.).

Councillor Padraig McEvoy

Cllr McEvoy stated that he has been a councilor since 2009 and has sat on Regional Assemblies and has long voiced his objections to the operations of Drehid.

- Notes that the existing road networks dates from the 1780's, and has suffered repeated failures because of its poor foundations.
- He noted KCC evidence that the existing facility requires disproportionate amount of investment to maintain in acceptable state.
- He argues that the proposal may not be viable if it had to pay the true maintenance price for the upkeep of the haul road system.
- Argues that the issue of haul routes is more important than the radial distance analysis.

Mrs. Sheila O'Brien.

Ms. O'Brien introduced herself as a local organic farmer, who has long focused on reducing carbon emissions.

- Argued that the proposed development is a huge burden on North Kildare – major burden of major proposals.

- She questions the distance waste needs to come from – waste from 45km, 60 minutes radius?
- Issue of disease spread from material imported – particularly pig swill brought in from Foynes which is disposed of within the site. Expressed strong concerns over Foot and Mouth disease potential.

Mr. Peter Sweetman (on behalf of the Protect Caragh Group).

- Mr. Sweetman argued that the EIAR is inadequate as it lacks a Construction Management Plan
- He emphasized that the AA/NIS must be made with regard to People over Wind cases and others – he argues that it is impossible for the Board to grant permission in the absence of a failure to adequately address construction issues – he particularly highlights that the actual road crosses the SAC.
- He notes no mitigation measures set out (under the Houlihan decision, they must be precise).
- No construction management plan.
- He argues that in the absence of firm mitigation measures set out within the NIS, the Board is precluded to grant permission.

Lorraine Quinn on behalf of the Kildare Environmental Awareness Group

- The boglands will be destroyed.
- Notes decision 151172 (KCC) – permission granted for solar farm to the north east of Timahoe.
- She argues that the N4 Johnstown Bridge is not an acceptable route.
- She argues that self monitoring of dust/noise/odours not acceptable.
- She noted that no EIS was submitted for the original 2005 application – needs overall assessment.

Brendan McGlynn (represented by Robert Falcolme)

- Submits arguments as a local resident and long time opponent of the existing facility. Raised the issue of the quantity of traffic on Milltown Firmount Road.
- Asks for figures on the 'real' volumes.
- He noted the failure of BnaM to provide figures in the past on the real quantity carried by each vehicle.
- States that accidents are ongoing (even if not connected with BnaM). Notes three accidents recently (but not waste trucks).
- What percentage is incinerated in Poolbeg – argues that the application should not be an SID but should have gone through the normal planning process.
- He noted no information on elevated of Ammonia into local water courses and groundwater.

Kieran Cummins - local resident, introduced himself as having specific experience in the extractive industry:

- Insurance bonds – will they be adequate for reinstatement, etc.?
- He argued the complains register is inadequate. Notes spillage in 2013 at the entrance to the facility – questions if it was on the register.
- He argued that there is no transparency on monitoring.
- Notes the locals tried to carry out a traffic survey– but he claimed that people were challenged by possible BnaM employees.
- Raised issues of asbestos and the integrity of the proposed membrane.
- Questions about Irish Peatlands Council's work on bogs on carbon sinks and in particular the restoration of bogs through blocking drains.
- Irelands Ancient East – need to address heritage.
- Raised the need to look at other solutions instead of landfill.

That completed all submissions.

A key part of the Oral Hearing was the questioning of the applicant by Prof. Paul Johnston. I introduced Prof. Johnson and invited him and **Donnacha Byrne** of **Inland Fisheries Ireland** to engage in a three-way discussion with the applicant on the design issues of the proposed development, in addition to impacts on the ground and surface water. This questioning focused on understanding the conceptual model for the proposed development, with specific regard to the source material, design and locality, and regional aspects. A fuller account of this discussion is on file, with a more detailed technical analysis in Prof. Johnston's report in Appendix A.

Following this, Mr. Mulcahy requested that they be allowed present a response to KCC's points regarding protected structures and recorded monuments along the haul route. This was presented by **Mr. Martin Fitzpatrick** of Through Time Limited consultancy. He identified all these by name (see lists provided pages 5 to 10 of the document). He discussed these in some detail, stating that in all the cases of archaeological sites and protected structures along the routes there was no identified impacts as there are no proposed works or alterations to the road that could impact. He noted that any traffic over bridges that are protected would be in accorded with accepted load limits. With regard to KCC's points about 'Ireland's Ancient East' and in particular the tourist potential of the tentative world heritage site of Dun Ailinne, he stated that as the facility is 4.5 metres from the R403 and is well screened there would be no impact. He stated that while there is no dispute about the significance of Dun Ailinne, the site is some 25 km from the site, this distance ensuring there would be no impact.

The final day was reserved for cross-questioning and final statements. Most of the cross questioning focused on the projections for truck movements and the impact both on local communities. A key element was a number of concessions made by KCC over their submission on traffic movements, most notably that they were not correct to state that BnM had failed to account for the importation of construction material.

7.10. **Kildare County Council final statement.**

The Council have strong concerns in relation to the development. It is of a very significant national level scale. There are ongoing compliance issues and issues with compatibility with the development plan and the waste management plan. Particular concern was expressed at the information submitted on traffic and the ambiguities in the applicant's details. Insufficient analysis of the impact of the proposed development on the haul routes. A focus on *lacunae* in the traffic generation analysis. Focus on working days and loads of the vehicles – insists that it is not a genuinely 'conservative' or 'worst case' analysis. Argues that the haul roads cannot bear the additional traffic.

Emphasizes that 47% of the available funds for the entire county has been expended on the haul routes.

Development Contributions – KCC would like to make it clear that S.48 is very clear about when works must commence and be completed (within 5 years), the requested Special Contribution is for additional works – this will not provide for the reconstruction of the roads that is required. States that it will be a challenge for the authority to spend the word and to upgrade as required – serious consideration should be given to where the monies will come from for the long term maintenance and construction of these roads.

7.11. **Mr. Mulcahy for the applicant (final statement):**

- Notes the purpose of the hearing is to provide clarification, especially on hydrology and design -they state that the required impermeability levels for the can be provided.
- The three main questions – in accordance with the proper planning and sustainable development. Notes that the waste management authorities are supportive. Emphasizes that not all waste disposal/treatment facilities are in the East Region – Ringaskiddy is now available. Emphasizes that much of the proposed waste has nowhere else to go.

- Second part of the task – EIAR – submits that adequate information has been submitted. Main environmental information (apart from water) relates to traffic. Argues that Mr. Horan's submission for KCC was based on incorrect assumptions.
- **Special Contributions** – argues that while a fair contribution should be made – argues that the Council is seeking funding for all road improvements to a 20 year standard. It is argued that this is inappropriate, submits that much of the works are already provided for in the S.48 Contribution.
- Jurisdiction Issue – AA and the NIS – ABP has statutory obligation to assess this, submitted that there is no contrary evidence that the conclusions are incorrect.

Following the final statement by the applicant, I thanked all parties on behalf of the Board and closed the hearing.

8.0 **Planning Assessment**

Having inspected the site and reviewed the file documentation, I consider that the key planning issues raised by the proposed development can be assessed under the following general outline.

- Introduction and overview
- Clarification and elaboration on the nature and scale of the proposed development
- Principle of development and planning issues
    - *EU and National Policy*
    - *Regional waste policy*
    - *Development Plan policy*
    - *Other policies, plans and guidance*
    - *Discussion and conclusions*
- Traffic impacts
    - *Overview*
    - *Proposed mitigation and conditions*
    - *Conclusions.*
- Community and Financial Contributions.
- Other planning issues
- Report of Professor Paul Johnston, TCD

8.1. **Introduction and overview**

The proposed development is for an expansion and alterations to an existing licensed waste management facility. It is one of just four non-inert landfills still operating in the State, all of which are in Leinster. If permitted, it would be the only landfill in the State with permission for the disposal of hazardous waste. I would note that there is some overlap with another SID application currently with the Board – **ABP-303211-18**, Knockharley in County Meath – this application is for the disposal and storage of similar waste materials (Incinerator Bottom Ash).

The submissions by the county council and observers reflect what appears to be a strong view of local residents and the Council that the existing facility is inappropriate and has caused significant issues for the area, particularly by way of heavy vehicle traffic. The submissions and the hearing revealed numerous anecdotal accounts of issues with the operation of the facility, most of which were denied by the applicant, or were argued to be unconnected with the operations.

Many issues were raised, but I would consider that the **core issues** in this appeal are similar to those in the previous application – the suitability of the site for the disposal of waste, in particular with regard to the impact on ground and surface waters and the impact of traffic on the road system south of Enfield and north of Naas. I would note that the impacts are complex and are reflected in my interpretation of the planning aspects, and the statutory requirements for the Board to have regard to for EIAR and under the Habitats Directive. So while I will address the issues as required under the specific headings for EIAR and AA, I will try to summarise my conclusions separately in the final section below. I would note in particular that traffic impacts are both a specific planning issue which I will address separately, but also impacts on a number of EIA topics in addition to an assessment of the general scope of the AA.

8.2. **Clarification and elaboration on the nature and scale of the proposed development**

The site notice and associated plans and technical information provides a full description of the proposed development and the EIA provides further elaboration and description. For clarity, I would like to provide this overview of what I consider to be the key functional elements of relevance for a planning application of the existing and proposed development, in addition to the physical expansion of the extent of the facility which can be seen clearly in the attached plans such as Figures 3.1 and 3.2 of the EIAR.

Existing facility	**Proposed development**	**Materials involved**	**Key elements**
Engineered landfill for non-hazardous waste – 120,000 TPA	Expansion of this element to 250,000 TPA (20.9 hectares additional area), along with additional pre-treatment facilities for bottom ash treatment.	Includes construction and demolition waste, incinerator bottom ash and stabilised biowaste.	Engineered landfill including: • Bentonite, woven textile and HDPE baselayer • Leachate management drainage system. • Landfill gas collection and impermeable cap. • Natural recolonization of the cap when each cell completed.

			For proposed bottom ash treatment key elements include: • Maturation area where the material is stored to allow natural drying and reduction of pH. • Materials screened out to remove oversized materials. • Extraction of ferrous material (overhead magnet). • Non ferrous metal extraction using eddy current technique. • Material screened out
MBT facility 250,000 TPA (not constructed)		Mixed municipal waste	Permitted but not yet constructed.
Composting facility with 25,000 TPA capacity	Expansion of the facility 45,000 TPA with no restriction on operating life.	Source separated household, commercial or industrial waste of an organic or putrescible character.	Pre-treatment by way of a low speed shredder in enclosed area. 2-phase composing (both within sealed composting tunnels). Final 1-week maturation period.
None	**Hazardous waste landfill** – 10.8 hectares. 85,000 TPA	• Flue gas treatment Residues • Fly Ash • Other hazardous wastes including asbestos.	25 year operational period – landfill divided into 10 distinct phases. Engineered bentonite, woven textiles and HDPE liner at base with leachate collection system. Landfill gas collection and sealed cap. Leachate collected and stored and then reused in the solidification process. Excess goes to the Leachate Treatment Facility to be then tankered off-site. Natural recolonization of the cap when each cell completed.
None	Pre-treatment facility for	Fly ash and residues from flue gas treatment.	Enclosed structure of 613 square metres, with ancillary waste handling and storage buildings and open areas.

	incinerator fly ash and flue gas.		Flue gas mixed with a binder (cement, slag or similar) and water in enclosed installation)
Leachate currently tankered off.	Leachate treatment facility		Consists of holding tanks – some aerobic biological treatment (i.e. bacteria added) and filtering membranes. See Section 3.7 of EIAR for details.
	Additional 7 no surface water attenuation lagoons and 4 no. additional integrated constructed wetlands.		These discharge to the existing surface water drainage system of the bog, all waters enter the Cushaling River system.
Landfill gas power plant – 5MW			No change to existing facility.
None	Borrow pits for construction	For base construction and final capping	
	Restoration proposals		Figure 8.3 of the EIAR

8.3. Principle of development and planning issues

The site has an established and permitted/licensed use for waste treatment and disposal. If granted permission, the proposed additional uses would also require a new license, or extension/alteration of the existing license from the EPA. Although consulted in this application, the EPA has not commented in any detail on the proposed development and did not make a submission to the oral hearing. As such, the issue of emission controls is within the regulatory control of the EPA, although with a site of this scale and complexity, it is not straightforward in every issue as to where the boundary between planning and emission control lies. I will therefore address all issues within the scope of planning, EIA and AA.

I would consider the two key planning issues in this appeal to be the following:

- The appropriateness of extending the scale and life-span of the Drehid site with regard to the impact on local infrastructure (particularly the road network), existing EU, national, regional and local planning contexts,
- The suitability of the site for the most significant 'new' aspect of the facility – its use for the disposal of hazardous waste.

8.3.1. **EU and National Policy**

The key relevant EU level policies are set out in the **Waste Framework Directive** (2008/98/EC**); Landfill Directive** (1999/31/EC); **Water Framework Directive** (2000/60/EC); **Environmental Impact Assessment Directive** (2014/52/EU); **Habitats Directive** 92/43/EEC; and the **Conservation of Wild Birds Directive** 2009/147/EC. The first two set out the broad framework for waste management within the EU. They broadly set out a requirement to reduce dependency on landfill, specifically of untreated wastes and to move up the 'waste' hierarchy, with an emphasis on the reduction of waste and recycling over treatment/disposal. It is in this context that the number of landfills for untreated waste in the State are being systematically reduced, with most municipal waste now going for incineration. There are no permitted disposal sites in the State for bottom or flue ash at present although there is one active application with the Board (Knockharley **ABP-303211-18**). I would further note the presence of a Seveso site (Irish Industrial Explosives in Clonagh), with regard to the Seveso Directive and related Irish legislation (EU (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2006.

The National Planning Framework – Ireland 2040 – Our Plan (February 2018) emphasises the needs for a 'circular economy' with a focus on waste reduction in aid of managing the transition to a low-carbon economy (section 9.2). National Policy objective 56 states an objective is to:

> *Sustainably manage waste generation, invest in different types of waste treatment and support circular economy principles, prioritising prevention, reuse, recycling and recovery, to support a healthy environment, economy and society.*

In this regard the supporting text states:

> *Ireland has actively improved its waste management systems, but we remain heavily reliant on export markets for the treatment of residual waste, recyclable wastes and hazardous waste. A population increase of around one million people, alongside economic growth to 2040, will increase pressure on waste management capacity, as consumption is still a key driver of waste generation.*
>
> *While the ultimate aim is to decouple, as much as possible, consumption from waste generation over time, additional investment in waste management infrastructure, and in particular different types of waste treatment, will be required.*
>
> *In managing our waste needs, the NPF supports circular economy principles that minimise waste going to landfill and maximise waste as a resource.*
>
> *This means that prevention, preparation for reuse, recycling and recovery are prioritised in that order, over the disposal of waste.*

The three waste regions are identified as the main policy drivers behind waste policy and land use.

Project Ireland 2040: National Development Plan P Strategy 2018-2040, February 2018.

P.85 states:

> *Investment in waste management infrastructure is critical to our environmental and economic well-being for a growing population and to achieving circular economy and climate objectives.*
>
> *Capacity will continue to be built in waste facilities, including anaerobic digestion, hazardous waste treatment, plastics processing, recycling, waste to energy, and landfill and landfill remediation, to meet future waste objectives.*
>
> *The infrastructure to deliver waste management policy has been, to date, largely delivered through private investment with some public sector investment. Significant infrastructure capacity development will be required to separate and process various waste streams at municipal and national levels*

to achieve new EU legally-binding targets and the additional investment may include a potential role for public investment.

A Resource Opportunity: Waste Management Policy in Ireland, DoECLG, July 2012 is the main national policy on waste management. This notes the various targets set by EU Directives for Ireland to meet on recycling and recovery (Section 11.2). There are no specific targets set out for the type of hazardous waste proposed in this application. This document provides no guidance for the location of facilities.

The EPA **Landfill Site Design Manual** dates from 2000. Section 6.2.2 addresses hazardous waste landfills setting out design criteria – it does not provide specific site characteristic guidelines. I would refer the Board to Prof. Johnston's report, specifically section 3.1 for his comments on the relationship between the design and the requirements of the Manual.

8.3.2. **Regional waste policy**

Regional planning policy is set out in the **Regional Planning Guidelines for the Greater Dublin Area 2010-2022**. This area includes Kildare and Meath. Section 6.7 on Waste Management – this states that the direction of waste policy needs to be continually reviewed through the regional waste management plans. Policy PIR40 states:

Waste management facilities should be appropriately managed and monitored according to best practice to maximise efficiencies and to protect human health and the natural environment.

The **Eastern-Midland Region Waste Management Plan 2015-2021** sets out policy for the east and midlands of the country for waste management, treatment and disposal. This policy sets out the overall statutory framework with policy nationally and regionally. A key strategic objective (C): is that:

The region will encourage the transition from a waste management economy to a green circular economy to enhance employment and increase the value recovery and recirculation of resources.

Key relevant policies for the proposed development are set out in Chapter 16. Of these, I consider the most important to be E8:

The waste plan supports the development of disposal capacity for the treatment of hazardous and non-hazardous wastes at existing landfill facilities in the region subject to the appropriate statutory approvals being granted in line with the appropriate environmental criteria.

And E9b:

The waste plan supports the need for on-going disposal capacity to be developed for on-site generated non-hazardous/hazardous industrial waste over the plan period.

With regard to the composting element, policy E17 states:

The waste plan supports the development of at least 75,000 tonnes of additional biological treatment capacity in the region for the treatment of bio-wastes (food waste and green waste) primarily from the region to ensure there is adequate active and competitive treatment on the market. The development of such treatment facilities needs to comply with the relevant environmental protection criteria in the plan.

Policy E19 states:

The waste plan supports the development of indigenous reprocessing and recycling capacity for the treatment of non-hazardous and hazardous wastes

where technically, economically and environmentally practicable. The relevant environmental protection criteria for the planning and development of such activities need to be applied.

The WMR does not give specific guidance on the disposal of incinerator ash, nor does it give guidance on appropriate locations.

8.3.3. **Development Plan policy**

The operational development plan for the area is the **Kildare County Development Plan 2017-2023**. The Drehid site does not have any specific zoning designations or specific policy directives, but a significant number of policies are relevant, including: Waste, Chapter 7 on Infrastructure (7.6.5: Waste Management), with related WM1; WM3; WM5; WM12; WM17; WM18. WM18 states that it is an objective to:

Facilitate the ongoing operation of the Drehid waste facility in so far as operations at the facility relate to the waste management needs of the county and the Eastern and Midlands Waste Region and subject to the protection of the environment, landscape character, road network and the amenities of the area.

Chapter 5: Economic Development, specifically Policy ECD2.

Support and facilitate the economic development of the county in accordance with the economic development strategy of the County Development Plan, across a range of sectors. There will be a general presumption against development that would prejudice the achievement of the Economic Development Strategy.

Chapter 6: Movement and Transport, Policy MT15:

(i) Seek to channel HGV traffic associated with landfill and extractive sites onto the regional and national road networks insofar as possible.

(ii) Seek appropriate and proportionate contributions towards the cost of road improvements which benefit the development, in accordance with Sections 48 or 49 of the Planning and Development Act 2000 (as amended).

Chapter 10 on Rural Development, specifically policies BL1-BL7 on boglands.

Chapter 14 Landscape, – policies LA1; LL1; LL3; LL4; and LL5.

8.3.4. **Other policies, plans and guidance**

There are a number of other non-statutory guidance documents which have been referred to in the oral hearing and elsewhere, in particular those produced by Bord na Mona for the management of cutaway bogs. I will refer to them below where appropriate.

8.3.5. **Discussion and conclusions**

The Drehid site is within cutaway bog and the existing facility is permitted and licensed. A permitted MBT facility has not been constructed, but the permission is still 'live'. The key policy issue with regard to the proposed development relates to the appropriateness or otherwise of permitting its expansion (in scale and length of operation), and the appropriateness of the use of the site for hazardous material and the bottom ash.

The overall EU and national contexts emphasise the need for a circular economy, with a prioritising of waste minimisation, recycling, energy recovery and composting over disposal. EU Directives set out quantitative targets for the reduction in untreated materials in landfill and for the recovery of specific products.

The background to the primary element of the proposed development is a reduction in residual waste going to landfill, but a substantial quantity of bottom ash and flue gas ash from the existing and permitted incinerators (Ringsend in Dublin, Carranstown in Meath, Ringaskiddy in Cork) requiring reuse or disposal. I note that bottom ash may be characterised as hazardous or non-hazardous depending on its precise constituents, while flue gas ash is always considered hazardous and requires treatment and stabilisation before it is landfilled. In addition, there is an acknowledged lack of a hazardous waste disposal facility in the State – in the case of this proposal, it would be for generally non-liquid hazardous wastes such as those

arising from demolition and construction, not clinical or liquid industrial wastes. Most of these wastes are currently exported.

By far the majority of the material in terms of weight and volume is **incinerator bottom ash (IBA**). This material is widely used as construction fill or an aggregate replacement in block manufacture in other countries, but from the discussion at the oral hearing it appears there appears to be minimal demand for this within Ireland, possibly because of the low cost and wide availability of virgin quarried materials. The Regional Waste Authorities in their submission have made it clear that for the most part they are supportive of the proposed development (with caveats, see my summary of their submission in section 4.3 above). They did not explain why the disposal of this material is considered appropriate, having regard to the stated strategic objective to encourage a more circular economy. It is, however, not clear as to what policy instruments the authorities have to ensure this material is used where appropriate, but it is unclear to me if permitting its disposal would be consistent with the government's strategic objectives.

With flue gas ash and the other materials, it is quite clear that this material must be landfilled as there is no realistic alternative use – Kildare County Council in their submission referred to the use of flue gas ash in salt mine restoration in Germany, but I would consider this to be a form of disposal – salt mines are particularly impermeable so the use of hazardous materials as fill is not as potentially polluting as it would be within almost all Irish geology.

I would note that the reality and pattern of waste treatment and disposal policy in both the region and nationally is that a focus on closing down municipal waste landfills in favour of incineration is leading to an unavoidable concentration of facilities due to economies of scale. In particular, the 'solution' of incineration is generating a very large quantity of problematic waste in the form of bottom and fly ash, and yet the WMP is conspicuously vague about the consequences of this series of policies.

I note that the regional waste plans (and other supporting plans) provide almost no guidance on the most appropriate location and/or site for such ash disposal facilities – the only indication within policy is that existing waste facilities are preferred. So, while I accept that the regional waste management authorities consider the principle of such a disposal site to be in accordance with policy, there is nothing within the

policy to indicate that Drehid, or any other particular site, should be preferred. It seems to be considered to be in accordance with policy simply because it is the only one proposed.

I will address this in the 'alternatives' section in the EIAR assessment below, but I would consider that in general planning terms an appropriate site for the disposal of such wastes would have the following characteristics:

1. Appropriate geology for long term storage/disposal, or the capacity to be engineered for such.
2. Located as close as possible to the prime sources of the material.
3. Located on or near a suitable railway connection or a national primary or secondary road
4. Be complementary to a waste or associated use such as extraction or heavy industry.
5. Have sufficient distance from sensitive receptors such as settlement areas or designated habitats.

With regard to point '1' above, I will address this further in the relevant sections within the EIAR below, but I would state there that while the site is suitable in some respects, it is hardly optimal given the high water table and heterogenous subsurface geology. With regard to point '2' above, the planning authority and a number of observers noted the ongoing focus of waste disposal in the Leinster area, and north Kildare in particular, especially with regard to the proximity principle. I would comment that a site in north Kildare is relatively 'central' to the country, noting that most waste arises in the Greater Dublin area, although I would consider that an optimal site in this regard would be closer to the main source of waste in the country, Dublin city.

With regards to '3', this is a clear weakness of the site. While located conveniently for haul routes between the M4 and M7, the local regional road network must be considered substandard – I will address this in more detail in the 'traffic' section below. I also note the lost opportunity to place the main waste treatment/disposal sites in the State on the railway network, but as the main incinerators in the State

are not served by railheads, then there is no longer a justification for the disposal site to be convenient to one.

With regard to criteria '4' and '5' above, I will address this in more detail below, but I would note the existing use and the site's separation distance from any dwellings, something very difficult to find in almost any rural area in the country.

The planning authority argued that the proposed development is contrary to the Kildare county development plan, quoting a range of policy regarding cut-out bogs, heritage, nature conservation, tourism and traffic. I will address the specific impacts in more detail below, but I would observe that the proposal is not directly contrary to any clearly stated policy objectives, but is arguably contrary to a number of more general objectives, and to an extent it is a subjective judgement whether these can be addressed through appropriate mitigation/condition, or whether the cumulative impact of these impacts makes the proposed development contrary to the overall objectives of the development plan.

In conclusion I would state that the vagueness of the statutory plans with regard to waste - in particular the absence of clear guidance on location and siting in the Regional Waste Management Plan, makes it difficult to come to any firm conclusion as to whether the proposed development, most specifically the hazardous waste disposal cell, is in accordance, or contrary to, local, regional, or national policy**.**

With regard to the treatment and disposal of the IBA material I would conclude that there is a strong policy preference to promote and facilitate the re-use/recycling of bottom ash (IBA) and to only permit its disposal as a last resort. **There are no meaningful proposals within the application to support this policy objective.**

The expansion of the composting facility is clearly supported by a range of stated policies. There is also a clear policy requirement to identify and facilitate facilities for the disposal of those hazardous wastes that are not appropriate for further re-use or stabilisation. I would not, however, consider that there are any policies pointing to Drehid as the most appropriate location for such a facility, and as such **I would conclude that this specific aspect should be considered on its own merits**.

With regard to the technical aspects of the design and the requirements of the Landfill Manual, I note Prof. Johnston's criticisms in Section 3.5 of his report (Appendix A of this report) on the substandard nature of the containment system

design. I would consider this a crucial shortcoming in the proposal with regard to the suitability of the site for such a disposal facility.

In summary therefore, I would conclude that the proposal as submitted is not wholly in accordance with overall policy on waste, in particular with regard to IBA, but this element could be addressed by way of condition along the lines suggested by the Regional Waste Authority.

8.4. Traffic impacts

8.4.1. Overview

Drehid waste facility is located in the heart of the former raised bog, accessed via a single specially constructed private road nearly 5 km long stretching north from near Allenwood on the R403. This private road is wide, well maintained and has a good junction with the main road with a small layby next to the entrance. Most existing waste, and probably most future waste if permission is granted, will be coming from the Dublin direction, either via the M7 or M4. The haul roads to the site is a via a series of regional roads from Enfield south to Naas, the R402, R403, R407 and R409. These roads run through or very close to a number of settlements including Carbury, Derrinturn, Prosperous and Clane. **Figure 10.1** of the EIAR shows these routes. Although there are a few improved sections, such as the Carbury bypass, nearly all these roads are single lane country roads with only intermittent and narrow hard shoulders and only footpaths within the villages. These roads are for the most part in quite poor condition, reflecting in part difficult foundations over bog or wet ground. The combination of the narrowness of these roads and relatively high speeds makes them for the most part very hostile environments for pedestrians or cyclists. I note that there are particular congestion issues within the villages, in particular in the turn south from the site at the main junction within Clane.

In the submissions and hearings there was significant disagreement between the applicant and the planning authority (and local residents) about the impact of the existing facility and the likely projected traffic flows. The key issues of contention were:

1. The suitability of the existing road network for the existing and projected traffic flows, and in particular the impact of existing and projected traffic flows on key sections through villages in the area, especially at junctions.
2. The physical impacts of heavy traffic loads on road surfaces and on historic bridge structures.
3. Safety issues.
4. Future monitoring of HGV traffic
5. The special development contribution requested by Kildare County Council in the event of permission being granted.

There was significant variation in the projections and numbers provided by the applicant and Kildare County Council in the discussions and submissions relating to the issue of traffic – and these are built upon discussions in previous applications relating to the site and disputes between the Council and applicant**. I would note that there was no consensus reached in the oral hearing on the accuracy of the projections provided by the applicant, and Kildare County Council submitted very different projections, the differences often based on alternative assumptions about the nature of the works, the number of working days, loading factors and type of vehicles used.**

As a worst-case scenario, the Council submitted that the real traffic generation could, in a worst case, be 180% of the trips suggested in the EIAR (paragraph 4.7 of the evidence of Mr. Horan). In order to assess the most realistic scenarios, I would recommend that the Board read my assessment and conclusion along with a number of key tables provided by the parties – in particular Tables 10-9 and 10-10 of the EIAR and table 3 in the submission of Kildare CC at the oral hearing. I will refer to relevant tables and paragraphs in more detail in my assessment below.

In summary, to give a general broad overview of the projected difference between existing HGV traffic flows, the EIAR states (Table 10.5, page 408) that the estimated existing daily HGV flow up to 1st December 2017 (existing facility with landfill accepting 360,000 TPA) is **117 HGV** one way movements. This is projected to increase to an **average of 127 one way per day** up to 2028.

The figures submitted foresee a number of increases in HGV traffic according to the three scenarios set out (scenario 0 = existing and permitted MTB facility; scenario 1 = existing, permitted, and proposed facility; scenario 2 = existing plus proposed facility). I note that no clear, unambiguous figures were provided for the current number of HGV movements and the figures provided by the applicant based on a series of traffic surveys were disputed by the Council and some observers on the basis that the surveys were carried out during lower than normal traffic times.

The counter figures provided by Kildare Council (evidence of Anthony Horan) projected a possible maximum of **up to 424** (2-way) HGV movements per day (it was conceded at the Hearing that this was excessive as it assumed the movement of construction waste and capping material that will be re-used or generated on site). One scenario presented by the County Council for the existing, permitted and proposed development at peak was **310 two-way trips a day**, a figure I would consider a more realistic worst-case scenario.

Due to the uncertainties outlined above, it is not possible to provide a definitive 'before and after' assessment of the potential impact of the proposed development in terms of raw numbers, either at the site entrance, or at key vulnerable points along the regional road haul routes, but I would conclude the following:

In a 'best case' scenario, assuming the permitted MTB is built, the proposed development would result in an average per week number of movements within the overall margin of error of the figures provided, which would come to in excess of 200 heavy vehicles per day moving along the haul routes. This would be within normal operating capacity of the road network (although there are significant congestion issues at a number of junctions within villages). Under this best-case scenario therefore, averaged out over several years of operation, there would be a generally minor increase in overall HGV movements.

Notwithstanding this, I find the 'real world' scenario submitted by Kildare County Council be a more realistic assessment of likely movements, with in excess of 300 HGV movements a day (two way) quite likely – in effect, a possible 50% increase of heavy vehicle movements over existing and permitted levels at peak years of operation. I consider this to be a reasonable 'worst case' scenario for assessment.

8.4.2. ***The suitability of the existing road network for the existing and projected traffic flows.***

There was no consensus on the existing level of traffic generated from the facility or on the accuracy of the projections. The applicant has supplied detailed information in Section 10 of the EIAR (clarified slightly in a letter of the 3rd December 2018 regarding minor errors), and I would refer the Board to Tables 10-9 and 10.10 of the EIAR which provide combined construction and operational traffic flow projections (Table 10.3 and Table 10.4 show the total volumes), comparing scenarios with the existing facility & MBT (i.e. if the permitted MBT is built and operational), with the scenario of the existing facility, proposed development and MBT. The Council noted that there was no clear comparison between the existing (i.e. with no MBT) flows and if all three elements are built.

In contrast, Kildare CC submitted an assessment report by O'Connor Sutton Cronin (OCSC) Engineers at the Oral Hearing. This report is on file, and I would particularly refer the Board to the evidence submitted by Mr. Horan and Table 1 (this is Table 3, page 8, in the report), in addition to his conclusion (Section 4, in particular paragraph 4.5) that the true number of movements per day of the proposed development would amount to an average 424 HCV movements per day.

The evidence of Mr. Horan was not accepted by the applicant and during cross questioning a number of concessions were made by the planning authority indicating that they accept that the final figure in this report is somewhat excessive. In particular, it was assumed that the capping material for the proposed landfill and other works would be imported – in reality most or all will likely arise from a borrow pit within the site. It was also submitted that many vehicles exceed 20 tonne loads which implies fewer numbers than that in Mr. Horan's submission.

Notwithstanding this, I would consider that many of the points made in this evidence are convincing – i.e. that the figures presented by the applicant, while not necessarily inaccurate, do not represent a genuinely 'conservative' approach and there could potentially be significantly more traffic on these local roads than would appear from the projections provided, in particular if the MBT facility is to come into operation. It was very clear from the submitted evidence that the existing level of traffic represents a significant effect on the road network, on communities on the

route, and on the physical road network, and this will increase if the permitted MBT facility is constructed.

The Council also submitted evidence on the series of junction improvements they consider necessary to facilitate the proposed increase (details are provided in the CSC report presented by Mr. Horan in the oral hearing). The applicants argue that the proposed increase is not significant in the context of the overall traffic flows in the area and are thus, while desirable, not the result of Drehid traffic, either existing or proposed. Whether or not this is the case, from my observations of these junctions, it is clear that they are substandard for use by large quantities of commercial traffic.

There is - when judging whether a minor older road, has the 'capacity' for further traffic - a subjective element, as a road may still maintain flows most times of the day while creating a traffic situation which is considered unacceptable by the residents of the villages they run through and other settlements who have to use them every day. The unavoidable reality is that the Regional road network south of Carbury and north of Naas is a series of upgraded turnpikes and bog roads which were never intended for this level of traffic. As I noted in the section on policy above, the Drehid facility is becoming incrementally a *de facto* national scale waste treatment and disposal centre without any such identification in the plans – specifically the Waste Regional Plans – which are supposed to identify and guide the location of such facilities. Whatever the merits of the site itself, I would consider that the road system as it is at present is sub-optimal for the potential loads if the proposed development is granted at the scale submitted. I would consider this a reason for refusal in the absence of a firm identification in the Regional Waste Management Plan that such a scale of development was necessary in the national interest, and as such possibly result in a reprioritisation of these roads for investment. In the absence of such strategic guidance, I consider the road network to be inadequate for the permitted and proposed traffic loads.

I note that the planning authority in their evidence submitted by Mr. McGree (appendix 2 of his report) and the OCSC submission, a full set of upgrades is outlined with costings to facilitate the proposed development if it goes ahead. The costings of these amount to several million euro for most individual haul routes and sections. The applicant has strongly indicated that these costs and estimates are

not acceptable, so while it could be possible to set them by way of a special development contribution, in the circumstances I would not recommend this approach.

8.4.3. ***The physical impacts of heavy traffic loads on road surfaces and on historic bridge structures.***

An ongoing issue of contention between the applicant and the planning authority – one which predates this application – is the impact of the heavy goods traffic on the physical condition of the road system, mostly the surface but also bridges – many of which are historic protected structures dating from the 18th Century.

The Regional road network in the area is, with the exception of the bypass around Carbury, mostly on the original historic alignments of either upgraded local roads or 18th century commercial turnpikes. The local geology, of bog or deep wet till subsurface soils, is less than ideal for the construction of roads, and many of the roads visibly suffer from subsidence and surface cracking. The applicant, however, has made the very reasonable point that the 5km access road to Drehid is in excellent condition and as such indicates that the condition of the local road network is not due to waste vehicles, or at least these are only a minor contributor to the visible problems (there is a visual survey in the CSC evidence indicating many of the problems).

This issue is related to that in section 8.4.2 above, is that the Council are requesting a much more substantial special development contribution than normal to address these impacts. I will deal with the costings issue further below, but in general principle it seems to me to be the unavoidable conclusion that existing vehicular movements are the cause of some (if not all) the visible problems of the local road network. The OCSC submission (section 7) highlighted a number of deficiencies in the applicant's pavement testing analysis which I find convincing (notwithstanding the somewhat exaggerated figures for potential traffic presented in this report). I further note the evidence submitted by Mr. Deane from Kildare Roads Engineering (Table 3-1 and Table 3-2 of his submission) which outlines current costs relating to the works. That 46% of available resources are devoted to the maintenance of the existing haul route roads, which amount to 9% of the total road length in the area speaks volumes about the problems with this particular set of roads, and it is difficult

to avoid the conclusion that existing traffic from Drehid is a major component of the problem.

8.4.4. ***Safety issues.***

Several observers highlighted concerns about safety on the roads, both general ones, but also specific issues at certain points, most notably at the entrance to Allenwood Celtic football club. The overall road network is narrow for the level of existing traffic and in very large sections represents a very hostile environment for pedestrians and cyclists. There is similarly a problem within the settlements as footpaths or the very occasional cycle paths are often not particularly well designed or laid out, and there is the usual problem in such areas of scattered rural housing with no footpath or street lighting provision ensuring the residents are almost entirely car dependent.

The EIAR provides significant detail on accidents, and it would seem there is little evidence that the existing or permitted HGV loads would represent an unacceptable risk, although I would note in this regard that the roads may have relatively low numbers of accidents because they are such an unpleasant environment for pedestrians and cyclists that they don't use it unless they have to. Most of the roads are relatively straight alignments so vehicle to vehicle accidents are relatively low.

Strong concerns were also raised about the safety of transporting hazardous waste to the site, although I am satisfied that the nature of this waste is such that it does not represent any significantly greater hazard than a conventional waste vehicle. The problem is kinetic energy, not what is carried by the vehicle. I would consider that the issue of safety can be addressed with appropriate conditions with regard to improvements at known hazard areas along the haul routes.

8.4.5. ***Future monitoring of HGV traffic***

It is very clear from the submissions with the application and the oral hearing that it is the firm belief of the local community that waste vehicles are being poorly controlled, with the resulting traffic and amenity impacts. Kildare confirmed at the hearing that there was an unauthorised vehicular park established (not within Bord na Mona's control) where heavy vehicles were parking overnight in order to enter

the facility as it opened – this has now been shut down. There were also complaints of vehicles using unauthorised haul routes.

I am aware of other sites where GPS tracking is used (set by condition) in order to provide a public record of vehicle movements to ensure conditions or other regulations are being followed. At the hearing the applicant confirmed that they would be willing to accept such a condition but noted that they would be unable to impose this on third party vehicles until the next round of contracts.

I would consider that such tracking is both practical and essential to ensure full monitoring of vehicles using the facility. I would recommend that the Board if it is minded to grant permission sets such a condition, but on the proviso that the applicant can impose it over a number of years.

8.4.6. ***The special development contribution requested by Kildare County Council in the event of permission being granted***

Kildare have argued in some detail that it would require a special development contribution in excess of €13 million to facilitate the proposed development (appendix in Mr. Deanes submission, a further breakdown summary in part 8 of the OCSC submission in the oral hearing). OCSC, in Section 8, came in with even higher estimates (also section 8 of their report).

The applicant has insisted that there is no evidence that the vehicle load, either existing, permitted, or applied for, is having a significant impact on the road network, either by way of pavement wear or a requirement for junction improvements. In support of this argument, they have argued that the overall number of vehicles associated with the proposed development does not represent more than a few percentage increase on background existing traffic. The Council have argued in turn that they don't accept the vehicle figures and note that heavily laden vehicles do a disproportionate amount of damage (it was confirmed at the hearing that in 2018 the average vehicle load entering was over 20 tonnes).

I consider that the applicant has some justification for arguing that much of the works indicated as necessary by the Council cannot be attributed solely to the Drehid facility. I would therefore concur that there is appears to be some exaggeration in the figures provided. Notwithstanding this it is quite clear to me that

the level of proposed traffic will cause very significant wear and tear to the network and a special development contribution is necessary if permission is granted. I note that in the last decision by the Board, for the MBT, a special development condition was attached but no figure was given.

On the basis of the information available, I do not consider that there is sufficient information to calculate precisely a reasonable special development contribution, although I would accept that this figure is likely to go into the multiple of millions of euro and be closer to the OCSC figure than the minimal figure the applicant suggests. I would consider that the only reasonable way a condition on this is set is that the condition should specify the requirement for an independent engineering consultancy should assess the road and attribute a reasonable sum that would match the real damage caused by the applicant, separate from normal wear and tear.

If the Board is minded to set a figure for a special contribution, I am mindful that it can only be claimed if the works are carried out. In their original submission (not the later one by OCSC), the Council estimated the works at €13,796,673, while the applicants argued that the required works only come to €545,900.00. As stated above, I consider that the arguments are more strongly weighted on the Councils side. Given that the permission equates to around 450,000 TPA per annum of waste per annum on the road, I would consider that a contribution coming to just under around €2.50 per tonne over five years would be reasonable. Allowing for inflation, this comes to a round figure of €10,000,000, which I would recommend as a special contribution if the Board wishes to set a figure.

8.4.7. ***Conclusions.***

Having regard to the existing and permitted level of traffic associated with the Drehid facility (i.e. the not yet operational MBT), and in particular the absence of any WMP led approach identifying this site as optimal in planning terms to become one of the main disposal sites in the country at a national level, I conclude that the local road network is inadequate to cater for the worst case scenario projected increased traffic load.

If the Board is minded to grant permission, I would recommend a condition such that an independent consultant is appointed at the expense of the applicant to assess

the necessary upgrades to the haul road system and allocate fairly the costs of pavement repair and other works associated with the facility that are not covered by the S.48 development contribution scheme. The extra costs would then be set by way of a special development contribution.

8.5. Community and Financial Contributions.

The proposed development would be subject to a normal S.48 contribution under the adopted Scheme, and there is an existing Community Contribution Scheme managed by a local steering committee, providing funding for local clubs and other projects. The applicant indicated that they had no objection extending this scheme on the existing basis for the proposed development, so I would recommend a condition to this end.

8.6. Other planning issues

I do not consider that there are any other significant planning issues raised in this appeal. The observers in the oral hearing raised concerns about unauthorised works related to the proposed development, including a lorry park, but this has been addressed by Kildare County Council and was not in any event under the control of the applicant. It was also noted at the OH that the site is just over 6 km from a Seveso site, but I do not consider that there is any potential impact on the hazard zones associated with this site.

8.7. Report of Professor Paul Johnston, TCD

The Board appointed Prof. Johnston to advise on the hydrological and hydrogeological implications of the proposed development. Prof. Johnston had access to all the submission documents and was present for the second part of the oral hearing and questioned the applicant's technical experts in some detail.

Prof Johnston's subsequent report is attached as an appendix to this report and addresses design issues, in particular of the propose hazardous waste facilities, the issue of characterising incoming waste, and the suitability or otherwise of the underlying geology for a site of this nature. He also addressed the issue of ground and surface water contamination and its consequences for ecology, including Natura

2000 sites. I note that his comments are relevant to the planning issues, in addition to both the assessment of the EIAR and the NIS and I will refer to it regularly in the sections below. I also note that any alterations to the proposal to address issues raised (such as redesigning the lining of the proposed waste cells) could well have implications for traffic projections. I strongly recommend that it is read in its entirely, but I would briefly summarise his findings and recommendations as follows:

- The application in many respects assumes that Incinerator Bottom Ash (IBA) and other elements of the proposed waste input is non-hazardous. There is insufficient information in the application to indicate how the material will be tested and the implications for significant quantities to be characterised as hazardous (paragraph 3.1.5)
- The borehole testing for hydrogeology (section 3.4) does not provide a comprehensive assessment of the underlying geology and groundwater movements and does not address the apparent relatively high permeability of some aspects of the geology. It is questioned as to whether the permeability assumptions in the design are backed up by the submitted information.
- The proposed liner for the hazardous waste cell is considered substandard and not in accordance with the Landfill Manual (3.5.1).
- There is insufficient information to demonstrate that emissions of sediment and organic matter during construction would not result in discharges to the Cushaling River (3.6.1).
- The hydrological effect of the proposed borrow pit has not been adequately addressed.
- There is sufficient information within the EIAR to conclude that the existing landfill *may* be causing elevated ammonia levels in surrounding watercourses (3.7.1).
- The proposed development lacks a convincing long term management plan to address long term emissions of ammonia to watercourses, both in itself and in the context of other proposed or possible developments on the bog or in the vicinity (3.7.2).

Prof. Johnston recommends a refusal of permission on the basis (I paraphrase) that it has not been demonstrated that the site is suitable for such a facility by way of its

relatively permeable subsurface geology, the evidence of potential ongoing ammonia contamination of ground and surface waters, the substandard nature of the design of the hazardous waste cell and the procedures for characterising incoming waste, and the absence of an overall plan for the entire landholding to ensure long term reductions in ammonia run-off to surface watercourses.

I note in this regard that Prof. Johnston's recommendations were provided solely in the context of the technical matters raised by the application. His analysis has implications for the planning, EIA and AA and I have had full regard to his report in all three of my assessments and the final conclusions.

9.0 **EIA Assessment**

- EIA Overview
    - ***Scoping***
    - ***Baseline***
    - ***Consideration of alternatives***
    - ***Population and human health***
        - *EIAR summary*
        - *Proposed mitigation*
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        - *Discussion and conclusions*
    - ***Biodiversity***
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    - ***Lands and soils (including geology and hydrogeology)***
        - *EIAR summary*
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    - ***Water (ground and surface)***
        - *EIAR summary*
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        - *EIAR summary*
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        - *Submissions*
        - *Discussion and conclusions*
    - ***Climate (including climate change)***
        - *EIAR summary*
        - *Proposed mitigation*
        - *Submissions*
        - *Discussion and conclusions*
    - ***Material Assets***
        - *EIAR summary*
        - *Proposed mitigation*
        - *Submissions*

        - *Discussion and conclusions*
    - ***Cultural Heritage***
        - *EIAR summary*
        - *Proposed mitigation*
        - *Submissions*
        - *Discussion and conclusions*
    - ***Landscape***
        - *EIAR summary*
        - *Proposed mitigation*
        - *Submissions*
        - *Discussion and conclusions*
    - ***Interactions***
        - *EIAR summary*
        - *Proposed mitigation*
        - *Submissions*
        - *Discussion and conclusions*
    - ***Reasoned Conclusions***

9.1. EIA Overview

I have carried out an examination of the information presented by the applicant, including the EIAR, and the submissions made during the course of the application and the oral hearing. A summary of the results of the submissions made by the planning authority, prescribed bodies, appellants and observers, including submissions made at the oral hearing, is set out in Sections 4 and 7 of this report. The main issues raised specific to EIA can be summarised as follows:

- The impact of the proposed development, in associated with other permitted and proposed works, on run-off from the lands to ground and surface waters, with particular reference to the upper reaches of the Barrow River.
- The impact of additional traffic on the health and safety of people in the vicinity and along the designated haulage routes.

These issues are addressed below under the relevant headings, and as appropriate in the reasoned conclusion and recommendation.

I am satisfied that the EIAR has been prepared by competent experts to ensure its completeness and quality, and that the information contained in the EIAR and supplementary information provided by the developer adequately identifies and

describes the direct, indirect and cumulative effects of the proposed development on the environment and complies with article 94 of the Planning and Development Regulations 2000, as amended.

The Board will note that a schedule of proposed mitigation was submitted separately from the main document – it is in Appendix 4 of the response to the Boards further information request (22nd May 2018). My assessment follows the general layout guidelines in the Draft EPA Guidelines on the Information to be contained in EIAR (August 2017) (Section 4.1), so the layout is somewhat different from the EIAR submitted.

While I have concerns about some aspects of information in the EIAR, I will address these in detail in the relevant sections below. Notwithstanding these concerns, I am satisfied that the information contained in the EIAR complies with article 94 of the Planning and Development Regulations 2000, as amended, and the provisions of Article 5 of the EIA Directive 2014.

The EIA outlines the competent experts who compiled each section of the report and these are also identified in the relevant evidence presented at the oral hearing. I am satisfied that all the named experts have relevant competencies.

9.1.1. **Baseline**

The proposed development occupies an existing permitted and licensed waste management facility which includes municipal waste disposal cells and a composting facility in addition to lagoons for wastewater treatment. The EIA includes a detailed description of these facilities and a discussion of ongoing issues with management, in particular of traffic generation. The overall environment is dynamic as the landholding is excavated raised bog, with ongoing drainage, while much of the cut area is rapidly regenerating with dry heath characteristics, scrub and woodland. A key issue in the appeal is an ongoing issue with ammonia levels in nearby watercourses, the source of which is not clear – it is most likely the result of drying peat in addition to possible additions from the waste management facility and lagoon. Most community concern is related to heavy vehicle traffic from the existing facility.

9.1.2. **Consideration of alternatives**

Summary

The EIAR sets out its 'description of reasonable alternative's in Chapter 4. It addresses alternative sites (4.2.1), alternative layouts (4.3.1) and alternative technologies (4.5). For the former, a search was done for a site of at least 65 hectares (regarded as required), based on an assumption of most arisings from Dublin. All the alternative sites identified are Bord na Mona sites. The Drehid site was considered to be the optimal site. The applicant elaborated on the details of their initial assessment in a submission in the oral hearing. They did not alter their conclusion.

With regard to layouts, it is considered that the proposed layout takes best account of the existing facility and layout in order to minimise the impacts on dwellings, archaeological sites and ecologically protected areas.

The EIAR also discusses a variety of different technological approaches to the treatment and disposal of each individual waste type. The main alternative for flue gas residues would be thermal treatment, which would be significantly more energy intensive. For IBA, recovery and utilisation are an alternative for which it is stated there is no existing market. There are a wide variety of alternative composting systems used. It is noted that the technologies chosen were selected having regard to the requirements set out in the EPA waste licenses for the facility.

Discussion

There were few issues raised about the assessment of alternative in the submissions and the oral hearing, but a frequent complaint was that north Kildare, and Drehid in particular, was becoming the main area for national waste disposal – it was noted that all four active landfills in the State are now in the eastern region. If the proposed development is permitted, Drehid would become the primary, if not the sole destination for ash arising from incinerators that are now coming to capacity to process all residual waste arisings in the State. This has occurred in the absence of any clear national or regional level guidance – it is, in effect, the result of a policy of focusing on incineration combined with a concentration effect coming about from

economies of scale and cheaper road transport as the primary road network has been completed.

The main alternatives addressed by the EIAR are other BnaM cut bogs, and these all share the same basic advantages and disadvantages for waste disposal – i.e. they are the few remaining examples of landholdings absent scattered housing, while their hydrogeological characteristics are usually sub-optimal, and they are usually only accessible via the regional or minor road network.

I am satisfied that the site, having particular regard to its planning history, is a reasonable choice compared to the alternatives chosen, but as I have discussed in the policy section above I am unconvinced that it is the best site for the only hazardous waste landfill and ash depository in the State in the absence of any clear guidance in the statutory waste plan system, either in terms of site identification, or in terms of clear guidance in assessing alternatives. In particular, I am very concerned at the lack of any real analysis of the viability of using the bottom ash as a construction material, either by the applicant or indeed, the regional waste authorities. I also have very strong concerns about the suitability of the sub-surface geology for the proposed hazardous waste cell – in this I refer the Board to the details in sections 3.5 and 3.6 of Prof. Johnston's report.

9.1.3. Population and human health

EIAR summary

Population:

The impact on population and human health is set out in Chapter 15 of the EIAR. The analysis is primarily based on a desktop study. Planning Drawing No. 8181-2000 shows the site in relation to adjacent population centres, the closest being Derrinturn which is approximately 2.6 km to the west. Figure 15.1 shows all buildings in proximity to the site. Section 15.2.2.2 sets out the population statistics for the area, with further information provided on leisure and commercial users in the general vicinity.

It is stated that it is considered that the construction period will result in the employment of up to 80 construction staff in addition to the existing 20 people employed in construction work on the site. There would be 17 people employed full

time on operational support jobs. It is anticipated that peak employment within the site would be around 100 people (15.2.5.3).

It is stated that the site would be sufficient distance from any tourism sites that there would be no effects, positive or negative (15.2.5.4).

The existing Community Gain arrangements are set out in section 15.2.6. This is overseen by a Community Liaison Committee. It is stated that the applicant will agree to the establishment of a community development fund in respect of the proposals.

Human Health

The human health assessment is based on the possible impacts identified in Chapter 7 (Water), Chapter 11 (Air Quality) and Chapter 12 (Noise and Vibration). The methodology is based on USEPA Guidelines and current draft EPA guidelines (15.3.2). A summary of the literature on the potential health impacts of landfill and waste treatment is set out in 15.3.4.1, with more detailed assessment of reviews on the literature provided in 15.3.4.2 to 15.3.4.4.

It is noted that the receiving environment Is rural in nature, with residential properties located around all boundaries at varying distances from the site.

With regard to noise, it is considered that the impact of both operational and construction noise will be from 'minor to moderate' to negligible (15.3.7.2). It is considered that there would be no effects from water pollution. The overall conclusion (15.3.7.4) is that the impact on human health is assessed as imperceptible.

Proposed mitigation

Proposed mitigation measures are set out in points 11.1 to 11.4 of the Schedule of Mitigation Measures. These are standard dust, air, odour noise control measures, in addition to the continuation of the Community Development Fund.

Submissions

There were relatively few submissions on this issue. The main complaints from local observers are of regular odour emissions from the existing operation. It is unclear from the evidence submitted as to how frequently these occur (a number of

complaints are logged) and if they are due to the existing MSW landfilling or from the composting. I would note that there are other potential sources of odour in the area, including a mushroom farm (not on BnaM lands). One observer highlighted strong concerns about the impact on local farming from the importation and disposal of swill to the landfill – this is presently disposed of within the site. She expressed strong concerns about the possibility of foot and mouth or other diseases being released. I would consider this to be a matter for the licensing authority and not specifically relevant to this planning application.

Discussion and conclusions

Many of the issues related to population and health are dealt with in more detail in other sections below. I conclude that this element of the proposed development is generally satisfactory, and I do not recommend any conditions over and beyond those set out in the Schedule of Mitigation Measures, save that the Community Contribution should be raised in accordance with the greater scale of the proposed development.

9.1.4. **Biodiversity**

EIAR summary

The Biodiversity assessment included consultation with the Bord na Mona ecology team, desk studies and field studies (the latter carried out in June and August 2016). A single static bat detection unit (Figure 5.1) was also used. It is noted that there are no designated conservation areas within the immediate vicinity of the site, but there are a number of SAC/SPA's and NHA's within 15 km (listed in Table 5.2 and shown on Figure 5.2). These are mostly bogs, fens or watercourses/waterbodies.

Flora

It is indicated that no protected or rare flora species were identified. The site itself is typical of worked bogland with habitats such as drainage ditches, wet and dry heath, bog woodland, scrub, bare ground and spoil and artificial lakes and ponds. These are shown in map form in Figure 5.3.

Birds

It is stated that '*no confirmed breeding bird species listed on Annex I of the Birds Directive were recorded within the proposed development site boundary or in the wider environs of the site during site visits*' (i.e. in June 2016). It is further stated that no red listed species were observed within the site, although Meadow pipit (red listed) was observed south of the site within the landholding – but there are historic records of one red listed species (the Whinchat) breeding there. Several amber listed (moderate conservation status) birds were observed flying, but no confirmed nesting areas were noted. It is considered likely that common (green listed) birds such as the wren and song thrush breed on the site. It is noted that previous winter studies indicated that species such as Mute Swan and teal wintered on the site.

Bats

Four bat species were identified by the static monitor as being present on the site. No potential roost sites were identified. It is considered that the lack of standing water or tree lines makes it a low priority habitat for bats.

Mammals

Badgers, fox and Irish hare indicators were noted, but no badger setts were discovered.

Other fauna

Frogs are widespread on the site and although none were identified, the site is considered suitable for smooth newt and viviparous lizard. A number of invertebrates including the speckled wood butterfly, dragonflies and damselflies were identified.

The EIAR concludes that in the context of the overall Bord na Mona landholding the cumulative impacts are considered to be minor adverse as it will result in the removal of 97 hectares of the overall 2,544 hectares former bog. It is considered that no sites of conservation interest will be impacted upon. It is concluded that indirect impacts will be minor as flora and fauna on the site will already be habituated to ongoing traffic movements and other sources of disturbance.

The applicant has also prepared a draft plan on the rehabilitation of South Timahoe Bog dated 2017. This is attached in Appendix 3 of the response to the further information request by the Board. This report states that the main habitat likely to

develop over most of the site is birch woodland, with the long term potential for oak colonisation. There would also be some dry heath, fen and scrub, along with smaller areas of wetlands and embryonic bog communities. It states that the remnant high bog is likely to remain as peatland although parts are likely to continue to dry out and become more heath-like in the future. The plan is essentially management by natural colonisation with minimal interference, although it says nothing about how the drainage regime of the bog will be maintained.

Proposed mitigation

Proposed mitigation measures are set out in Section 5.5 of the EIAR and 1.19 of the Schedule of Mitigation Measures (Appendix 4 of the applicant's response to the FI). These are largely standard mitigation measures, with the exception of 1.14 and 1.15 which relate to frogs and lizards. I note that none of the suggested mitigations measures involve any compensatory habitat creation.

Submissions

Most of the submissions regarding ecology issues were in the context of the AA/NIS, and I will discuss them in more detail below. The most detailed submission was from Inland Fisheries Ireland which has argued in significant detail that ammonia and suspended solids run-off from Timahoe Bog is having a major deleterious effect on the Cushaling/Figile Rivers. Prof. Johnstons report in Appendix A to this report (section 3.7) confirms many of the concerns of the IFI, in particular with regard to the potential impact of ammonia emissions on the Cushaling/Figile rivers.

Discussion and conclusions

Assessing the impact on biodiversity and ecology is particularly difficult as while the direct land take impact is relatively minor – the loss would be of rapidly regenerating scrubland/woodland on cut-off bog – the primary impact that were subject to most comments during oral hearing and consultation period are related to the management of the cutaway bog within the applicant's ownership. The ongoing – issue with the biodiversity of this river appears to be inextricably linked to the bog drainage. There is also the possibility – raised in the OH and addressed in Prof.

Johnsons report attached – that there is some ammonia pollution arising from groundwater contamination from the landfill, and also from the treatment lagoons. This issue is deal with in more detail in the sections on water and geology below.

I would further note that since the surveys carried out as part of the EIAR the natural revegetation of the worked peat has advanced considerably, and much is now essentially dense woodland. There is little visible evidence of any animal grazing to keep the dense vegetation in check. There is no evidence as yet of any protected species or species of general interest repopulating the area, although this would most likely be only a matter of time if the area is left untouched.

I would conclude that the direct impacts of the proposed works would have relatively minimal impact on biodiversity – but the overall cumulative impacts of works on and around the bog (discussed in more detail in the NIS section below) which require a high degree of drainage are quite significant.

But in terms of direct impacts I would consider that the mitigation measures as set out in this section are acceptable, I would not recommend further conditions above the mitigation measures proposed.

Notwithstanding this I would note in this regard that the above assessment does not include the issue of salmonids downstream – I will address this in more detail in the **Appropriate Assessment** (Section 10). But with regard to the EIAR I would note that additional conditions would be required to address the impact of ammonia emissions to downstream watercourses. It is not clear from the information provided as to whether a sufficient control of ammonia is possible to prevent further degradation of salmonid habitat downstream of the bog, but if the Board is minded to grant permission I would recommend conditions specifying a schedule of long term monitoring of ammonia from the site and additional requirements for the eventual remediation of the site. I would note the overlap in this regard with licensing requirements from the EPA for the operation of the facility.

9.1.5. **Lands and Soils (including geology and hydrogeology)**

EIAR summary

Chapters 6 deals with Geology and Hydrogeology, and Chapter 9 addresses Land. It is noted that most data for this section is from earlier investigations and publicly

available sources. Figures 6.1 to 6.3 maps out known data on soils and bedrock. The overall site is on cut peats (c. 0.2 to 2.3 metres thick) overlying quaternary till deposits (with one identified lens of more gravelly silt/clay material) that varies from around 9 to more than 25 metres thickness over Carboniferous – the EIAR text states between 17 to 35 metres. It is noted that little information is available on the structural geology of the limestones in the area. Most information is from a series of trial holes and boreholes undertaken in 2002 and 2006 (Figure 6.5).

It is noted (p.258) that a 'valley feature' was identified through deep borehole drillings between 115-128 metres. It is stated that this feature is not considered karstic in nature in discussion it is stated to be possibly consistent with other anomalies known of tectonic or volcanic origin, most likely a Tertiary fluvial feature, now filled with clay (p.260). The rock is considered competent, with no karst and low to moderate permeability. Minor dolomitization (which can lead to greater porosity) was encountered.

The underlying groundwater is indicated as of low to moderate vulnerability on the GSI maps (Figure 6.6). The aquifer is LI (i.e. locally important). It is stated that there is no well within 1 km of the landfill footprint and no water protection area within 4km. A well pumping test indicated relatively low transmissivity of the bedrock aquifer, with a cone of depression induced by pumping extending approximately 20 metres (i.e. lateral flow through the bedrock is quite low).

Section 6.3.9 of the EIAR discusses public water abstractions within County Kildare. It is noted that there are two groundwater well fields proposed to augment the current network – one is 8km northeast of the landfill near Johnstown Bridge, one is 6.5 km southeast, near Robertstown. It is concluded that there would be no impact on quality or quantity of water abstracted during the operation of the proposed scheme. It is stated that there are no drinking water abstractions downgradient of the landfill (i.e. between the site and the River Cushaling tributary. Inferred groundwater contours, indicating a flow westward- south-westward, is shown on Figure 6.6. It is noted that the watershed between the Barrow and Boyne catchments is to the north.

Section 6.3.11 addresses groundwater chemistry. It is noted (p.289), that concentrations of orthophosphate rose significantly since the development of the

existing facility. Trace metal concentrations are generally low, with some elevated concentrations of Nickel detected.

It is indicated in its assessment of impacts (section 6.4) that the greatest potential impact on groundwater is the potential discharge of hazardous substances to the bedrock aquifer. With regard to these risks, a Hydrogeological Risk Assessment (HRA) is attached in Appendix 6.8 of the EIAR.

It is concluded that the regional hydro geological setting of the site, in terms of aquifer potential and groundwater vulnerability, does not preclude the development of a non-hazardous landfill and a hazardous landfill at the site. (page 302). It is concluded (section 6.7) that the residual effects outside the site (i.e. the overall bog) will be minor. It is considered that there would be no significant residual effect on the geological environment.

With regard to land-use (Chapter 9), it is noted that the lands are in either existing waste disposal/treatment use or are regenerating cutaway bog. There are no other uses on the site and as such there would be no specific losses or effects, although the changes would be permanent.

Proposed mitigation

Mitigation measures are set out in section 6.5 and 9.4, this includes for the construction and operational periods. These are in addition to the design features (landfill lining, drainage, etc), which are summarised in the previous section and the plans submitted. The applicant submitted 22 no. suggested mitigation measures for geology and hydrogeology in the mitigation schedule (Appendix 4 of the FI response), numbered 2.1-2.21 of that document (although 2.21 appears to have been added in error), with 5.1 to 5.6 addressing land. Most are standard methods for landfill, measure 2.20 being the only quite specific one, applying to run-off from the lagoons to the Cushaling River.

Submissions

Relatively few submissions focused on this topic, with some concerns expressed by observers about the indirect impacts on farming (for example, through the importation of materials with Foot & Mouth). The EPA has not commented on the

design features of the landfill – I refer the Board to Prof. Johnson's detailed analysis on this in Appendix A. I would however summarise his conclusions with regard to hydrogeology as follows:

- There has been insufficient hydrological monitoring and analysis of the site-specific issues to demonstrate that the site is suitable for the proposed wastes.
- It has not been demonstrated that the subsoils and underlying geology of the site are suitable for the type of containment system proposed.
- There is sufficient evidence that there is an ongoing issue with ammonia arising from both drying bog and the existing landfill cells contaminating groundwater and flowing directly into the Cushaling/Figile, and this is interfering with the potential of these rivers for improving water quality and their potential as salmonid waters.
- There is insufficient information on both construction works and post closure plans to accurately predict impacts on ground and surface waters in the area

Discussion and conclusions

The existing site consists of deep irregular layers of till over dolomitized limestone rock – the data indicates significant groundwater movements hydraulic connections between the groundwater and the Cushaling/Figile Rivers, which drain to the Barrow catchment. There are elevated ammonia levels in groundwater detected within and around the site. It is unclear as to whether this is entirely due to drying of the peatlands surrounding the appeal site, but I consider that there are indications that some may arise from the existing waste cells, and possibly also from the existing lagoon. I consider that it is highly probable on the basis of the submitted information and Prof Johnston's analysis that there are strong hydrogeological links between the Cushaling River and the till and dolomitic limestone beneath the site.

It is clear from the analysis in Prof. Johnston's report that there are strong reasons to be concerned at the implications of the proposed development for the quality of ground and surface waters due to both the existing operation of the site, and the proposed development. I would note that altering the proposed IBA cell design in

line with the Landfill Directive would potentially require the importation (either from a borrow pit or from outside the site) of additional materials, and this could also have implications for groundwater as the proposed borrow pit appears to go below the groundwater level.

While I would not rule out the principle of a development such as this on the site as many of the problems could potentially be 'engineered out', I am not satisfied that the assessment is adequate either in terms of an analysis of existing problems with the site, projections of future issues if the works are permitted, or of long term implications for the management of the bog as a whole, particularly taken within the context of the Habitats and Water Framework Directives.

I would conclude that there is insufficient information within the EIAR and associated documents to demonstrate that the site is suitable for a hazardous waste disposal/treatment facility and that the proposed design does not adequately address the existing situation, either regarding the existing operation or the natural interactions between ground and surface waters and the bog itself.

I conclude that to grant permission for this proposed development would require the submission of a more comprehensive analysis of the permeability of the subsurface geology, and more detailed assessment of the interrelations between the Cushaling catchment, the cutaway bogland, and the existing facility. It would also require a significant redesign of the proposed disposal cell and possibly the lagoon system. I also consider that a comprehensive plan for the future of the entire bog is required to ensure that the hydrogeological balance of the landholding is managed to ensure a long term improvement in the water quality of the Cushaling catchment, in particular with regard to ammonia levels.

9.1.6. **Water (ground and surface)**

EIAR summary

Section 7.1 of the EIAR addressees water impacts – Figures 7-1 -17-3 provide a visual overview of the surface drainage pattern of the area. I note that the site is almost entirely within the Cushaling (a tributary of the Barrow) catchment, but is on the boundary of the 'Fear English River' catchment to the north (a tributary of the Boyne). The applicant also submitted hydrogeology and geology figures and

pumping Test Data in Appendix 5 of the response to further information. It is noted that the site is now intersected with numerous drainage channels, while the 19th Century OS maps show that there were no natural water channels crossing the raised bog which formerly occupied the site – the only natural channels were at the bog edge. It is noted (7.3.1) that natural raised bogs have a very different natural discharge pattern due to high absorption during dry periods, with rapid run-off when the bog is 'full' to an optimal level. The existing bog has been subject to industrial peat extraction for some 50 years and now has a largely artificial drainage pattern.

All flows from the site discharge to the existing attention lagoon, prior to discharge to the Cushaling River (a tributary of the Figile) at the western margins of the bog. The access road passes the sub-catchment of the Abbeylough River, also a tributary of the Figile. The Slate River sub-catchment encroaches on the southern portion of the landholding – it is not considered that any activities associated with the proposed development are located within this sub-catchment.

It is noted (7.3.2) that research indicates that 80% of rainfall in the winter will discharge to receiving waters from a drained bog, compared to less than 20% from an intact bog. It is considered that due to regeneration of the surface of the bog that water run-off is significantly lower than when the bog was being worked.

It is noted (7.3.4) that there are no records of pluvial flooding indicated on the OPW Preliminary Flood Risk website for the development site. Small areas of pluvial flooding occur to the northwest and west of the proposed non-hazardous landfill.

Surface water quality (7.3.5) - Table 7.5 provides historical records for downstream sampling of water quality. The closest monitoring stations indicate waters that have historically been seriously polluted, but have improved since peat extraction ceased. It is concluded that 'the monitoring results of surface water discharge from the overall Bord na Mona landholding are: '*generally in compliance with the appropriate surface water discharge standards specified in the IED licence (W0202-03 for the existing Drehid Waste Management facility' (page 324)*.

With regard to the requirements under the Water Framework Directive (Section 7.4) it is noted that the Cushaling River was identified as at risk of failing to meet the objectives of the WFD by 2021. It is concluded that in the 'do nothing' scenario there will be no significant change to the existing surface water management of the site.

The assessment of potential impacts addressed the construction and operational impacts separately (construction phases are assumed to cover the landfill lifetime). It is noted that there is very slow run-off from the existing drainage system as there is significant storage capacity – it is stated that the existing Timahoe Bog drainage infrastructure will reduce off-site impacts. There will be some re-routing of drains to facilitate the construction works. It is noted (with reference to Section 6.3 on Soils and Geology) and to Appendix 6.8 of the Hydrogeological Risk Assessment) that the site is underlain by natural low to moderate permeable subsoil. Standard procedures to reduce run-off impacts during soil stripping and the establishment of the landfill cells will be used. It is considered that phasing the works over time will reduce point impacts. The water management system (the lagoons and constructed wetland system) will be phased in three stages. The attenuation lagoons have been sized to cater for a 1 in 100 year rainfall event when it is at full capacity (see Engineering Services Report in Appendix 3.1. It is noted that leachate will be contained within the landfill body.

Operational phase (7.5.2) – Fuel will be stored in tanks and all surface water run-off will pass through oil interceptors prior to reaching the surface water attenuation lagoons and the integrated constructed wetlands. Leachate will be used in the ash solidification process prior to landfilling. Any surplus will be transferred to the on-site leachate treatment facility before tinkering to an appropriately licensed waste water treatment plant. It is stated that the composting facility will not generate leachate. It is noted that all potable water is tankered into the site – it is stated in the mitigation schedule (3.18) that any water required for fire or dust control will be extracted from the lagoons.

It is considered that as there is no history of flooding at the site, the potential flooding impacts are considered to be low/negligible.

It is concluded that there is a minor potential impact on the water environment.

Proposed mitigation measures are set out in Section 7.6 of the EIAR. It states that residual effects are considered to have no impact on the water environment. The final conclusions (7.8) are that the use of the mitigation measures and BAT and the overall design will ensure no significant adverse impact on the surface water or groundwater environment.

Proposed mitigation

Construction mitigation is set out in Section 7.6 of the EIAR and summarised in Appendix 4 of the response to the Boards request for further information – paragraphs 3.1 to 3.18. These are all standard water protection procedures for construction sites and active waste disposal/management sites and if the Board is minded to grant permission I would recommend that these 19 points be confirmed by condition.

Submissions

The most substantive submissions on surface and groundwater issues were made by Inland Fisheries Ireland and Kildare County Council. These points were made in their original submissions, their following responses, and elaborated upon in the oral hearing. With regard to surface water issues, I consider the most important issue is the overall impact of proposals on the landholding (and this includes interactions with other ongoing or proposed works at Timahoe Bog) on the Cushaling/Figile River catchment, with particular regard to ammonia emissions.

The Board will note that Prof. Johnston's report in Appendix A to this report critically addresses this particular aspect of the submitted application in considerable detail and I would recommend that it be read along with my discussion below.

Discussion and conclusions

Because of the clear interactions between geology and ground and surface water in the context of cutaway bog, much of my comments on the 'Lands and Geology/Hydrogeology' section above apply to my assessment of water quality.

The site is within a very extensive complex of worked peat bog. The site is within the catchment of the Barrow system, although the watershed is at the north-east corner of the site. Older OS plans indicate part of the Cushaling River running across the site, although this appears to have been a constructed drain. The site now drains in a series of deep ditches into the Cushaling and Figile via a semi-natural series of watercourses. Although the landscape is very flat, drainage out of the bog is natural – there is no active pumping. Groundwater levels are high and there seems to be significant hydraulic interactions between ground and surface waters in the area.

This is significant, as it raises the possibility of contaminated water entering the Cushaling via groundwater, bypassing the lagoon system. There is no proof this is occurring now, but it is one possible explanation for the elevated ammonia levels in the Cushaling. As discussed in the ecology section, the elevated ammonia levels are likely to be the primary reason that salmonid species are not spawning in this river, despite it being otherwise suitable habitat. Ammonia can arise either as part of the drying out process of peat, but can also be generated within untreated waste within a landfill.

I would note in this regard that the Water Framework Directive, in addition to the requirements of the Habitats Directive place a statutory duty on competent authorities with regard to the protection and enhancement of such watercourses, both in terms of objective measurements of quality and their importance to species and habitats identified in the latter Directive.

The proposed development involves the removal of a significant area of residual peat as part of the construction works, increase the area of hardstanding for run-off, and increase the potential for ground and surface water contamination by way of the development of additional disposal areas. The lagoon system is the primary mitigation measure proposed to protect watercourses. I would, however, note the extreme difficulty involved in establishing from the applicant the degree to which the proposed development requires the maintenance of the existing drainage system, which is undoubtedly responsible for at least a proportion of the ammonia problem. It seems reasonable to assume that it would be problematic for the Drehid operation if the drains were blocked and the area flooded entirely, but it is unclear to what extent its operation would be compatible with a gradual controlled wetting of the peat to reduce ammonia production over time. In this regard, I can only assume the applicants understandable wish to keep its options open regarding future uses of other parts of Timahoe Bog for solar/wind or other developments is a key to understanding the technical requirements for drainage.

In Appendix A to this report, Prof. Johnston highlights a number of strong concerns – these include the high water table in the area for the hazardous waste landfill, the relatively sparse data on the subsoil characteristics, and the apparent overdependence by the applicant on a lagoon system that appears not to be satisfactorily achieving its design objective of removing ammonia from residual

drainage water from the site. I would concur with his conclusions that it has not been established by the applicant that the geology is optimal for a hazardous waste disposal site, and I share his concerns regarding the apparent failure of the lagoon system to adequately treat the drainage water from the site.

I note of course that the EPA license required for the site would address detailed design issues, but for the purpose of this application I would consider the issues discussed above to be fundamental to the siting and overall design of the site, and cannot be treated solely as matters for the EPA. A fundamental planning question is whether this site is suitable for the type of development proposed within the overall statutory context. I would conclude from the evidence submitted that there is significant doubt that this is the case and that the technical issues are fundamental enough that they cannot be addressed by way of condition.

As I concluded in the section on Lands and Geology above, I do not consider that the EIAR contains sufficient information to be satisfied that the proposed development adequately addresses the issue of ground and surface waters, in particular with regard to the hydrological connections between groundwater, the cutaway bog, and the Cushaling/Figile rivers.

9.1.7. **Air**

EIAR summary

The assessment focuses on air and odour emissions and was conducted using the methodology in Advice Note AG4 (2010) from the EPA. The AERMOD dispersal model was used, a model developed by the USEPA – this was used for analysis of odour and air quality emissions.

The primary source of odour is considered to be the municipal solid waste (including that already landfilled) and composting, while it is predicted that the gas utilisation plant and C&D waste and the incinerator ash will have negligible odour. The main sources with predicted intensities are set out in Tables 11.3 and 11.4 of the EIAR.

With regard to air quality, the regulatory standards based on EU Council Directive 2008/50/EC are set out in Table 11.6. It is noted that not all licensed elements have been built, but these are included in the cumulative impact assessment. It is noted

that existing gas flaring levels are under licensed limits. The main sources of air emissions are set out in Table 11.7.

Traffic air quality assessment utilises DEFRA guidance. The UK DMRB air dispersion model is used.

With regard to odour, it is predicted (11.4.1) that while there is the potential for a number of emissions during the operational phase, the existing odour control systems along with the significant distance to sensitive receptors will ensure any potential effect will be minimised.

It concludes that the greatest potential effect for air quality and climate is during construction activities, specifically CO2 and N2O emissions.

Proposed mitigation

Proposed mitigation measures are set out in section 11.5 of the EIAR and in items 7.1 to 7.16 of the Schedule of Mitigation Measures in Appendix 4 of the response to FI. All these 16 are standard operational or construction control measures.

On odour, the focus is on the internal abatement measures in the composting and MBT facility. For air quality, the focus is on reducing traffic derived pollutants and traffic management controls. Standard dust control measures are proposed for the construction phase. For traffic emissions, it is stated that the residual impacts of increased traffic levels will not result in breaches along the haul routes and it is anticipated that the magnitude in changes will be negligible for all receptors.

The EIAR conclusion is that

'*In summary, all emissions from the facility under the proposed development at Drehid Waste Management Facility, including the permitted MBT, will be in compliance with the ambient air quality standards and will lead to a direct, not significant and long term effect of non-compliance or odour nuisance. There is a direct, local, not significant and long term effect predicted due to increased vehicle emissions during the operational phase*' (page 532).

Submissions

The focus on submissions by observers on air impacts was on claims of repeated breaches of odour controls, and claims that there are regular occurrences when this

is an issue for local dwellings. Other submissions relate to dust and odours from vehicles on the public road system.

Discussion and conclusions

The control of odour and dust is mostly a matter for the EPA under license conditions for the operations. There are ongoing complaints about the facility, but it is unclear as to whether the source of problems is the landfill or the composting facility or another aspect. The ongoing issue of apparent beaches is a matter for the existing enforcement authorities – I am satisfied that if adequately controlled the proposed facility would not significantly increase air emissions, subject to the mitigation measures set out in the EIAR (and Appendix 4 of the Schedule of Mitigation Measures). I do not consider that additional conditions are required.

9.1.8. **Climate (including climate change)**

EIAR summary

This is addressed in the EIAR in the 'Air" chapter 11 and in Chapter 14 – the latter focuses on more localised climatic impacts. No predictive models are used. It is stated that ongoing national programs to reduce fuel use in vehicles will lead to decreased CO2 emissions (page 511 and section 11.6.4-5 of the EIAR). It concludes that the '*likely overall magnitude of the changes on climate in the operational stage is imperceptible, national and long term*' (page 530). It is also concluded that climate change will have no impact on flooding of the site. Section 14.3 identifies the loss of peatland as a CO2 sink as important but notes that the site is on bog which is not intact. It therefore states that the proposed development '*would not significantly effect the environment by draining peatland'*. It is noted that landfill gas is collected from the site, but this is not quantified. It is also noted that the composting facility would allow Ireland to reach targets under the Landfill Directive for reducing the landfilling of biodegradable waste.

Proposed mitigation

Mitigation measures proposed are essentially the use of BAT in energy using processes. Three mitigation measures are set out in the Schedule of Mitigation Measures in Appendix 4 of the response to FI, measures 10.1 to 10.3.

Submissions

There were comparatively few submissions on this topic, but a number questioned the assumptions in the EIAR and the applicant responded with further details at the oral hearing (Appendix 2 of the evidence of Robert Hunt on the 11th March).

Discussion and conclusions

It is very difficult to provide an adequate assessment of the CO2 emissions from the proposed development due to the many variables and indirect impacts. The applicant has assessed it on the basis of the removal of residual peat (estimated at 199 tonnes of CO2), although arguably there are many other both positive and negative impacts, not least by way of indirect impacts if the drying out of Timahoe Bog is considered an integral part of the proposal. I would also note that there are implications for the chosen forms of treatment/disposal on the site, which are difficult to assess. An expansion of composting capacity is clearly a plus in comparison to landfill or incineration of organic material. But it can also be argued that the use of bottom ash as a component of construction concrete would potentially very significantly reduce CO2 emissions, but it is not clear if any substantial diversion of the material to such use would occur if the proposal is not granted.

So I would conclude that a relatively narrow definition of what constitutes a climate impact is quite reasonable in this regard as the wider question of carbon dioxide emissions from waste policy is beyond the scope of this one application.

9.1.9. **Material Assets**

EIAR summary

Chapter 10 of the EIAR on Material Assets focuses on roads and traffic. The methodology is based on NRA/TII guidance, UK DMRB on assessing traffic flow ranges for rural roads, and various Kildare guidance and policy documents. Traffic

flow information is derived from a series of traffic surveys and automated traffic counters as set out in 10.2.1. Figure 10.1 shows the proposed haul routes (with traffic count locations). This route is primarily the R402 from the M4 at Enfield, The R403 from Carbury to Clane (which passes Drehid), and the R407 from Clane to Naas, along with a temporarily closed route through Carragh. The latter is previously approved, along with the link between the Carragh Road and Drehid – the remainder of the haul route is additional to previous permissions. In addition to the above main routes, there are shorter new links, including the R418 around Enfield, and the roads around Naas.

The existing entrance to Drehid Waste Management Facility is located within an 80kph zone with a ghost island. There are no proposals to alter this.

There are a number of road improvements planned, as set out in the Kildare County Development Plan 2017-2023, the relevant ones are summarised in Tables 10.1 and 10.2 of the EIAR.

Tables 10.3 and 10.4 compare existing and proposed waste loads from the various wastes accepted or exported (in the case of leachate) from the facility. This includes permitted traffic loads from the permitted (but not yet constructed) MBT facility (this is set out in three scenarios, as described in section 10.3.1). they key figures for flows are set out in Tables 10-7 and 10-8. These figures do not include construction traffic, which is set out in Table 10-9. Combined flows are shown in Table 10-10. I would highlight to the Board the comments on page 420 of the EIAR, showing the daily background traffic increase in 'Scenario 1' (the worst-case scenario) – 272 HGV's and 736 cars. This figure declines as the construction period is completed.

Following TII recommendations, the EIAR analyses stress tests, concluding that PICADY, ARCADY and OSCADY tools be used for junction analysis. A separate analysis was carried out for link capacity (10.3.8). The stress tests for various options indicate that most roads would be within capacity, but a number are identified that would exceed capacity (tables 10.23 to 10.27).

Further studies (10.3.9) were carried out on pavement strength capacity along the key roads. This concluded that all the roads were rated as 'very good' for most of the haul routes. In addition, available data was used to analyse accident rates on all the road.

Section 10.3.13 assesses pedestrian and cyclists – it is concluded that no specific provision be made to accommodate either at the facility due to the distances involved. It is noted that there is no regular public transport service to the facility. An additional 35 parking spaces is proposed.

Proposed mitigation

Section 10.4 sets out mitigation measures. The Schedule of Mitigation Measures in Appendix 4 of the applicant's response to FI sets these out in 6.1-6.11 – all generally standard mitigation measures for traffic.

Submissions

There were many submissions on the issue of impact on the road network, which I have summarised and addressed in more detail in the separate section on 'traffic' in Section 8 of this report. It was strongly argued by both Kildare County Council and most of the Observers that the existing facility is having a very significant impact on local traffic levels and resulting in a degradation of the road surface and related structures such as bridges.

Discussion and conclusions

Note with regard to material assets, I have assessed in more detail the impact of traffic on the local road network in Section 8 (Planning Issues) above.

As I have outlined in section 8.4, I would question the conclusion of the EIAR that the figures provided are 'conservative worst case' – while I do not accept the much higher traffic projections given by Kildare County Council I would consider it not unreasonable to conclude that there is significant potential for more heavy traffic than projected in the figures, and that the consequent impacts are greater. I am satisfied from the evidence that existing traffic loads are causing significant damage to the regional road network south of Carbury and north of Naas on the permitted haul roads, and the proposed development would increase the level of damage. I also conclude that the road network is inadequate without significant junction upgrades to cope with the traffic levels safely. I would note, however, that there is

no evidence to support the arguments submitted by some observers that historic bridges are under specific threat from vehicle loading.

I would therefore conclude that the mitigation measures set out in the EIAR and related documentation are inadequate and additional measures set out by condition would be required to ensure the safety and capacity of the existing road network.

9.1.10. **Cultural Heritage**

EIAR summary

The assessment is based primarily on a desk top study, a site walkover, and a report on the drain cuttings following a recommendation from the DoCHG. It is noted that due to heavy vegetation growth the walk over study was necessarily limited in extent.

Section 13.3.2 notes that the anaerobic environment of bogs and wetlands creates unique circumstances for the preservation of remains. Previously, *toghers* (timber tracks) were identified to the north of the site within the bog – these have been tentatively dated as dating from the Middle Bronze Age (following archaeological study, these seem to have been destroyed). This section also outlines the known history of the bog and the general area. There is one recorded monument (KE008:038) on the site – this is recorded as an unclassified roadway, of which now apparently nothing survives. It is also noted that there is one recorded national monument on the haul route, the bridge over the Liffey in Carragh, north west of Naas. This bridge may date back to as early as 1450 and is currently closed to HGV traffic.

The closest protected structures are Coolcarrigan House and Church, located some 1.6 km east of the site.

The detailed survey of the existing drains in the area, which consisted the monitoring of the cleaning down of a section face of an existing drain was carried out in September-October 2016. These indicated that in general there is less than a metre of peat deposit remaining above the subsoil. No archaeological features or artefacts were identified.

Section 13.4 addresses the potential effects. It is stated that there is no evidence of remains in the peat bog to be stripped, but there may be sub-surface features that

would be removed or damaged. The effects are defined as low, imperceptible, medium adverse. It is stated that the proposed haul route will impact on National Monument KD019-012, the bridge north west of Naas. It is stated that this is closed to HGV traffic and should not be used by heavy goods vehicles during construction. Indirect effects are identified as imperceptible, and negligible (construction phase) and moderate or small, with regard to the operational phase.

Proposed mitigation

Mitigation measures are set out in section 13.5 of the EIAR, and measures 9.1 to 9.3 of the Schedule of Mitigation Measures in Appendix 4 of the applicant's response to the FI request. These include most notably the monitoring of all ground disturbance by an archaeologist, with the notification of the National Monuments Service in the event of remains of significance being found. It is stated that mitigation measures are generally embedded in the overall design of the proposal. No mitigation measures are proposed for off-site features.

Submissions

The planning authority submitted detailed queries and criticisms of this element of the proposed development, with particular emphasis on the absence of detail on impacts on protected structures and recorded monuments along the haul routes. It also noted the absence of assessment or discussion of impacts on longer distance views and important monuments in the wider area, most notably Dun Ailinne, a very important ritual site on Knockaulin Hill, near Kilcullen. This is the ancient ceremonial site for inaugurating the kings of Leinster. It is noted that this site, in addition to others, is part of Bord Fáiltes 'Ancient East' tourism and heritage promotion.

Discussion and conclusions

Bogs are well known to be excellent for preserving archaeological remains, but as the area to be disturbed has been largely mined out so there is no significant likelihood of there being further remains to be identified. As this was a raised (as opposed to an upland blanket bog), subsurface archaeological remains are unlikely. In this respect, I conclude that the mitigation measures set out with regard to the

expansion of the site are reasonable and would address the issue of any direct impacts within the site.

It is more difficult to address the wider archaeological landscape. Kildare County Council has highlighted the impact on the views and settings of the historic hill-top sites at Dun Ailinne and other historic summits, such as Carbury Hill and the Hill of Allen. Due to the nature of the Midlands landscape – generally very flat, resulting in the relatively small hills in the area becoming very prominent – the site will inevitably be very visible from those points (as indeed, all these hills are very prominent on the skyline when viewed from on top of the existing finished landfill cells). While very distant from all these sites, I accept that the Drehid works will be visible, and in some circumstances and views, would be somewhat intrusive. But with regard to the application, it is one further cell in an already permitted development – the finished landfills will eventually be vegetated and will in turn become prominent small hills on the landscape. I do not consider that the proposed works will represent a significant increase in impact over and above that already permitted. I would note in this regard that an accumulation of other related projects, including solar and wind farms, will significantly alter the local landscape when viewed from elevated sites and this is certainly justification for a more strategic overview of the cut boglands and how they can be developed productively in a non-intrusive manner.

With regard to the many recorded ancient monuments and protected structures along the haul routes, I accept the argument submitted at the oral hearing (in response to submissions) that there is no evidence that the increased traffic will significantly impact upon them, although it could certainly be argued that a loss of amenity within historic villages such as Carbury could make the upkeep and preservation of protected structures less viable. But this would be a minor component relative to existing traffic and permitted increases associated with Drehid.

With regard to historic bridges, the haul routes use a number of 18th Century and older stone arch bridges over the Liffey, the Grand Canal, and other smaller watercourses. These bridges are an important and attractive part of local heritage and have significant tourism potential, especially on the canal – and I note in this regard proposals to upgrade the Grand Canal as a greenway. But in tribute of the

skills and foresight of those bridge builders it must be acknowledged they are structurally more than capable of withstanding modern heavy vehicles. Any damage caused is to the modern surface, not the underlying structure. As such I do not consider that there would be significant impacts on these historic structures.

I would conclude therefore that while there are potential minor and residual impacts on the overall cultural heritage of north Kildare, having regard to the existing level of permitted works within Drehid I would consider the proposed mitigation measures to be adequate.

9.1.11. **Landscape**

EIAR summary

The Landscape and Visual assessment (Chapter 8 of the EIAR) is based on EPA and departmental guidelines. The study was primarily desktop based with some fieldwork carried out on the 21st April 2016 and 1st June 2016. Photomontages are attached in Appendix 8.1 of the EIAR (this is a separate volume of the EIAR comprising a series of A1 sheets). Figure 8.1 of the EIAR shows photomontage locations, scenic viewpoints, scenic routes, and other relevant locations.

The study identifies a radius of 5 km around the site for its study, while acknowledging that it may be visible from specific viewpoints from a wider area, for example from Carbury Hill.

Almost the entire area within the 5 km zone is indicated as 'Western Boglands' landscape character area (Figure 8.2). These are considered landscapes of 'High Sensitivity' due to their openness. It is also noted that the area has been significantly altered due to past cutting works and the existing facility.

Two scenic routes as identified in the Kildare County Development Plan 2017 (Appendix 4) are noted in the area. The North Kildare Touring Route is also signposted in the area. Three scenic viewpoints listed in the CDP are also within the area. One demesne land is identified – Newberry Hall, at the foot of Carbury Hill. One *Sli na Slainte* Walk runs through Derrinturn, and the Grand Canal Way and Barrow Way are located within the study area.

It is noted that the landfill mounds will have a proposed height of approximately 31 metres, with the tallest structures at 22 metres (silos) and the Ash Solidification

Facility (14 metres). The landfill mounds will be developed over a significant amount of time. It is noted that the proposed landfill mounds are significantly higher than those permitted.

It is noted with regard to the 'do nothing' scenario, that the site will remain as an area of regenerating cutaway bog, with increasing vegetation cover.

The discussion of effects (section 8.4.1) concludes that the development site itself has low sensitivity and represents a degraded landscape. The significance of the change is considered to be 'moderate adverse' from within the landholding due to the loss of regenerating cutaway.

From outside the landholding it is considered that recognisable changes to the landscape character will be limited and localised due to the flat nature of the terrain and the significant intervening vegetation. 'Moderate adverse' and 'significant indirect effects' will be localised. There will be low indirect effects on the setting of Newberry Demesne. There will also be adverse effects on views from Carbury Hill. A summary of Landscape and visual effects is set out in Tables 8-16 and 8-17 of the EIAR.

The EIAR discusses in some detail the viewpoint/photomontages (including those from scenic routes and viewpoints), generally concluding that impacts will be low and of generally minor significance. It is also considered that the site will be visible from a very small number of residences and the impacts will be Moderate-Minor.

The EIAR also discusses cumulative (in combination) and indirect effects with other developments, including the permitted MBT facility and the possible windfarm at Maighne. It is not considered that these impacts will be very significant. It is considered that the impact of additional sight lighting will also be generally minor or negligible.

It is noted that in the long term, the new mounds will become landscape features in their own right - significant hills in a generally flat landscape. It is considered (8.6.2) that in the long term this will be a 'Minor Adverse' impact and not significant. In overall terms the residual landscape change is concluded to be 'Minor adverse' and not significant, and the impact on visual effects are not considered significant. The cumulative impacts are considered to be of low or minor-moderate adverse effect.

Proposed mitigation

Mitigation measures and mediation measures include minimising earthworks, retaining perimeter planting where possible, the use of berms and landscaping, and the use of low key colour schemes. The mitigation measures are set out in points 4.1 to 4.8 of the Schedule of Mitigation Measures, in Appendix 4 of the response to FI. These are all generally standard landscape and visual measures and relate both to the construction and operational phase.

Submissions

The submissions on visual impacts focused primarily on views from dwellings close to Timahoe Bog and from high points such as Carbury Hill. A number of submissions questioned the accuracy of the photomontages submitted by the applicant.

Discussion and conclusions

The site is in a very wide open and flat landscape and is only clearly visible from some distant high points. While I note that these highpoints, such as Carbury Hill and the Hill of Allen are of historic importance, they are not easily accessible to the public at present. I could not identify any public areas outside the BnaM landholding from which the site is clearly visible, although it seems to be visible from a number of dwellings and other private grounds. I also note that the cutaway bog is rapidly turning from scrub to woodland, further restricting views. The main entrance is a prominent feature on the main road.

The existing site has high prominent flat topped 'hills' resulting from the permitted landfill cells. It is unclear as to whether long term settlement within the waste will substantially lower the current and permitted heights of these mounds. The proposed development will increase the overall footprint of the site, and add to what from various viewpoints will be (when completed) a small cluster of regular, quite obviously artificial high points. During the operational period they would be exposed and unsightly. Notwithstanding this, they would be an addition to an already permitted and operating site, and I would not consider the additional impact on the overall landscape, either during or after the operational phase, to be particularly

serious, especially as both planted bunds and landscaping and the natural regeneration of the bog around the site matures.

I do not consider that there are any mitigation measures required beyond those set out in the submitted schedule.

9.2. Interactions and cumulative impacts

Chapter 16 of the EIAR gives a brief overview of identified interactions, with Table 16-1 providing a tabular form, with Table 16.2 providing explanatory notes.

It is concluded that the cumulative interactions do not result in significant environmental effects, and no specific mitigation measures are proposed to address interactions.

I would note that there was significant discussion in the hearing and in the written submissions on the issue of cumulative impacts. The submitted information focused on cumulative impacts with the existing waste facility and those developments functionally related to the facility, such as the lagoons. There is significant uncertainty surrounding the proposals for the BnaM landholding as a whole, including possible applications for wind or solar developments, which could have an impact on run off from the bog, in addition to impacting upon traffic levels. I have confined my assessment to those known developments that are directly related to the application site, although in some regards it is necessary to make reasonable assumptions on possible future developments on the boglands within the control of the applicant.

Submissions

As was highlighted at the oral hearing, there was considerable dispute and ambiguity about other possible developments in the area, and their relevance to assessing impacts by way of interactions. The focus on submissions here was primarily with regard to interactions with existing and proposed developments on the Appropriate Assessment, although there is an obvious overlap. Several submissions focused on the cumulative impact of past and possible future developments on the bog, with frequent references made to past impacts on watercourses in the area caused by works by the applicants to the bog, not

necessarily associated with the waste facility. There were also strong concerns expressed about the cumulative impact of works on traffic and the general amenities of residents and communities in the wider area.

Assessment

I have also considered the interrelationships between factors and whether these factors might as a whole affect the environment, even though the effects may be acceptable when considered on an individual basis. In particular, the potential arises– as highlighted in the section on Appropriate Assessment below –for potential impact of the proposed development along with other permitted and proposed developments within the bog complex on local watercourses, in particular the impact on the upper reaches of the Barrow catchment by way of both direct and indirect raising of ammonia levels (and potentially other contaminants) on the upper reaches of the drainage system. There is an ongoing problem with ammonia and suspended solids in the upper reaches of the river arising it appears from the drying out of remaining peat in Timahoe Bog – and there is the possibility that some of the ammonia is originating from the landfill and is bypassing the lagoon treatment system via groundwater (as discussed above and in Prof. Johnson's report in Appendix A and in my AA assessment below). The potential impact of the proposed development on existing elevated levels, either by way of its impact on the future use of the bog, proposals for re-watering, additional loading of the existing lagoons, and possible direct contamination of groundwater by waste disposal, cannot in my opinion be ruled out.

In its original Further Information request sent by the Board prior to the first oral hearing, it was requested that the applicant provide further information on proposals for Timahoe Bog in order to facilitate an assessment of cumulative and other related impacts. The applicant provided an existing strategy document setting out general policy for BnaM cut bogs, which includes natural regeneration and leisure developments for a number of bogs (not including Timahoe), but leaving open the possibility of further developments on the landholding including possible wind, solar and agricultural developments. There are no permissions granted as yet for any such development, but with regard to assessing cumulative impacts I would note that there are a wide range of possible scenarios involving the proposed

development interacting with possible developments on the landholding. All the likely proposals would involve significant construction works (with associated traffic generation) but would not generate operational traffic loads that would be significant relative to those existing and permitted. Proposals for renewable energy on the landholding would have very significant visual impacts, that would far exceed those anticipated for the proposed development. It is reasonable to assume that any such developments on the landholding would have to address drainage and run-off such that it did not interfere with the permitted and proposed lagoons and emissions to the environment of ammonia.

I also further note with regard to cumulative impacts that the overall assessment submitted has had full regard to alternative scenarios involving permitted developments on the site, most notably the permitted, but not constructed, MBT facility.

I would conclude in this matter that the EIA is somewhat deficient in its discussion on this issue, in particular with regard to the impact of other developments in the area on the drainage of the residual bog network. I would note in this regard that the legal options for tightening up monitoring and mitigation of impacts under the EIA Regulations is significantly different than that for AA. With regard to the issues here I would conclude that there is a potential problem with contaminants from the proposed development and that if the Board is minded to grant permission, a redesign of the treatment lagoon would be needed (in line with the conclusions in Prof. Johnston's report), and further details would be required on the long term management of the bog – in short, a commitment to re-watering the bog would be an essential component of further works here and other related developments on the landholding. But more fundamentally, it seems clear from the evidence that the underlying geology is sub-optimal for the design of the proposed waste cell and associated lagoon, with potential adverse interactions with ground and surface water and the ecology of the Cushaling/Figile rivers, along with the Barrow River.

9.3. **Reasoned Conclusion**

Having regard to the examination of environmental information contained above, and in particular to the EIAR and supplementary information provided by the developer, and the submission from the planning authority, prescribed bodies and

observers in the course of the application, including submissions made to the oral hearing, I would consider that the main significant direct and indirect effects of the proposed development on the environment are as follows:

- **Significant negative impacts** on local ecology, specifically ammonia run-off from the site and landholding into local watercourses. It is not considered that the mitigation submitted is sufficient to prevent direct and indirect impacts on the ecology of the upper reaches of tributaries of the River Barrow.
- Significant **negative impacts** on **material assets** as a result of additional traffic loading on public haul roads. Notwithstanding the mitigation measures proposed, the residual impacts could still be significant.
- There is a **significant potential for impacts** on ground and surface waters by way of ammonia emissions from cutaway bog and the disposal activities, with consequent impact on downstream habitats.
- There is potential for a number of slight or short and very localised negative impacts to **biodiversity**. The loss of scrub and woodland habitat on the cutaway bog would reduce the extent of habitat for a range of local species.

It is my opinion that these impacts cannot be avoided, mitigated or otherwise addressed by way of the mitigation measures set out in the EIAR or be otherwise avoided, mitigated, or otherwise addressed by means of condition.

10.0 **Appropriate Assessment**

10.1. **Overview**

The applicants initially submitted an AA Screening which concluded that there would be no significant effects on any designated EU Habitat. In its request for further information, the Board requested clarification on a number of issues with regard to this screening, highlighting disagreements with the conclusions by the Kildare County Council in addition to querying the potential for impacts on the Barrow SAC by way of the overall management of run-off from Timahoe/Drehid Bog. The Council highlighted concerns about the issue of hydraulic continuity between groundwater bodies within the appeal site and nearby SAC's, in addition to cumulative impacts and the impact of the haul routes – one of which crosses an SAC. The applicant in response restated the conclusions of the screening that '*no likely significant adverse effects arising from the proposed development to any European site, whether direct, indirect, or in-combinations, to the conservation objectives of the habitats or species for which it was designated, either alone or in-combination with other plans or projects'*.

In late August 2018, just prior to the opening of the oral hearing, the applicant indicated that it had changed its opinion, and requested a ruling from the Board to allow it to submit an NIS. In the oral hearing on the 10th September this was discussed, and the hearing was adjourned so the Board could make a ruling, which it subsequently did on the 20th September (**Direction BD-001137-17**), noting in particular the comments of **Inland Fisheries Ireland** concerning cumulative impacts of the drainage of Timahoe Bog on the Cushaling River – this was on the basis of my report to the Board dated 12th September 2018. **Following this screening process**, a full NIS was prepared by the applicant and submitted in November 2018.

For the purposes of clarity, I will repeat the screening process below.

10.2. **Screening**

The proposed development is located within 10 km of three designated European sites - **Ballynafagh Bog SAC** (site code 000391) and **Ballynafagh Lake SAC** (site code 001387), designated for bog and fen habitat and the presence of Desmoulins Whore Snail and the Marsh Fritillary butterfly, and the **Long Derries SAC** (site code

000925) designated for its semi natural dry grasslands and scrubland. There are four other European sites 10-20 km distant – **Moulds Bog SAC** (002331), designated for active raised bogs, **Pollardstown Fen SAC** (000396) designated for fen habitats with three species of whorl snail; the **River Boyne and River Blackwater SAC** (0002299) designated for fens, alluvial forest and three species of vertebrate (Lamprey, Salmon and Otter); the **River Boyne and River Blackwater SPA** (004232) for the kingfisher. Although not within 20 km of the site, the site and landholding are within the hydraulic catchment of the **River Barrow and Nore SAC** (002162). This SAC is designated for a wide variety of habitats and species generally consistent with flowing freshwater – this includes the salmon, Lamprey and otter.

For the following sites:

Ballynafagh Bog SAC (site code 000391)

Ballnafagh Lake SAC (site code 001387)

Moulds Bog SAC (site code 002331)

Pollardstown Fen SAC (000396)

River Boyne and River Blackwater SAC (0002299)

River Boyne and River Blackwater SPA (004232)

All these sites are designated for their freshwater aquatic species and related habitats. There is a significant physical separation distance between these sites and the proposed development and no pathway for pollution (such as hydraulic continuity) or other impacts between the site, the BnaM landholding, and related lands have been identified. The site is within the catchment of the Barrow River and there is no surface water connection between the site and the above designated habitats and no continuity of habitat.

Several submissions for the original application and in the oral hearing raised concerns that there would be connection via groundwater. Significant information was provided in the original application, particularly in the relevant sections of the EIS on hydrogeology, and these were discussed in further detail in the oral hearing. Based on these submissions, I am satisfied that there is no groundwater connection between the site and the above mentioned designated European sites. I am

therefore satisfied that there is no hydraulic continuity between the site and these sites designated for their importance for aquatic flora and fauna and related habitats.

Long Derries SAC (site code 000925) designated for its semi natural dry grasslands and scrubland is of sufficient distance from the site, with no direct or indirect connection or pathway for pollution or other impacts, such that I am satisfied that there would be no impacts from the proposed development, including with regard to cumulative impacts from other proposals.

In the submissions, concerns were raised with regard to indirect effects, such as from accidents on the haul routes on a number of these sites. Based on submissions made before and during the oral hearing I am satisfied that in the light of the best available scientific knowledge, there would be no direct or indirect likely or significant effects.

Although not within 20 km of the site, the site and Timahoe Bog are part of the **River Barrow and Nore SAC (002162)**, an extensive designated habitat extending over several counties. The qualifying interests include the following species:

1016 Desmoulin's whorl snail *Vertigo moulinsiana*
1029 Freshwater pearl mussel *Margaritifera margaritifera*
1092 White-clawed crayfish *Austropotamobius pallipes*
1095 Sea lamprey *Petromyzon marinus*
1096 Brook lamprey *Lampetra planeri*
1099 River lamprey *Lampetra fluviatilis*
1103 Twaite shad *Alosa fallax*
1106 Atlantic salmon (*Salmo salar*) (only in fresh water)
1130 Estuaries
1140 Mudflats and sandflats not covered by seawater at low tide
1310 *Salicornia* and other annuals colonizing mud and sand
1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
1355 Otter *Lutra lutra*
1410 Mediterranean salt meadows (*Juncetalia maritimi*)
1421 Killarney fern *Trichomanes speciosum*
1990 Nore freshwater pearl mussel *Margaritifera durrovensis*
3260 Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation
4030 European dry heaths
6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels
7220 * Petrifying springs with tufa formation (*Cratoneurion*)
91A0 Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles
91E0 * Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*)

I would highlight the Atlantic salmon (*salmo salar*) above, whereby there is the stated conservation interest:

> '*To restore the favourable conservation condition of Salmon in the River Barrow and River Nore SAC*…'.

As is discussed elsewhere in this report, in particular with regard to the information submitted with the EIS and the accompanying report by Professor Johnston, the site drains to the upper reaches of this catchment and there is evidence of ammonia contamination of the upper reaches, which is, on the basis of evidence submitted by Inland Waterways Ireland, reducing the capacity of this waterway for the spawning of salmonid species. While there is a significant attenuation distance between the site and the designated parts of the River Barrow, I would consider that the potential for these upper reaches for enhancement for salmonid spawning is integral to the overall habitat. I further note that while there is no definitive proof that the ammonia is arising from the existing landfilling operations, or if this would worsen in the event of the application being permitted, there is sufficient scientific doubt that I would conclude that there are potential likely significant direct and indirect effects on the conservation objectives for SAC site code 002162.

On this basis, in my previous report dated 12th September 2018, I recommended that the Board could refuse on this basis or issue a notice under Section 177T(5) of the Act to request a Natura Impact Statement. The Board decided on the latter action and following this screening, attached the following:

> *The applicant is advised that this NIS should include sufficient information for the assessment of the cumulative impacts of run-off from the Drehid landholding on the upper reaches of the Cushaling River, with specific regard to salmonid species listed in Annex II of the Habitats Directive. The applicants notice is drawn to the submission of Inland Fisheries Ireland (dated 15 February 2018); the NIS should have full regard to the relevant issues raised concerning the implications of the proposed development on the lands within the applicant's control and consequent impacts on the overall River Barrow/Nore SAC catchment.*

On this basis, the screening of the application concluded than an NIS was required. This was subsequently submitted by the applicant on the 8th November 2018.

10.3. Appropriate Assessment

10.3.1. The NIS

The NIS (Table 2.5) identifies three European sites within 10 km of the site – **Ballynafagh Bog SAC** (site code 000391) and **Ballynafagh Lake SAC** (site code 001387, designated for bog and fen habitat and the presence of Desmoulins Whore Snail and the Marsh Fritillary butterfly, and the **Long Derries SAC** (site code 000925) designated for its semi natural dry grasslands and scrubland.

There are four other European sites 10-20 km distant – **Moulds Bog SAC** (002331), designated for active raised bogs, **Pollardstown Fen SAC** (000396) designated for fen habitats with three species of whorl snail; the **River Boyne and River Blackwater SAC** (0002299) designated for fens, alluvial forest and three species of vertebrate (Lamprey, Salmon and Otter); the **River Boyne and River Blackwater SPA** (004232) for the kingfisher.

The eighth potentially significant European Site identified is the **River Barrow and Nore SAC** (002162), which is just over 22 km from the site, but is stated to be the only one in hydraulic continuity with Timahoe Bog. This SAC is designated for a wide variety of habitats and species generally consistent with flowing freshwater – this includes the salmon, Lamprey and otter.

The NIS sets out protective measures proposed during both the construction and operational phase of the works to control run-off (section 3.5). These are largely standard controls as set out in EPA technical guidance and related documents, with the exception of the requirement to tanker wastewater off-site (3.5.2.4). For in-combination effects (3.6), the NIS assesses the potential impact with the permitted MBT facility and a proposed and a permitted solar farm in the vicinity. It notes that discharges of ammonia, a toxic compound that can adversely affect fish health, are within permitted levels set by the Salmonid Waters regulation and that these are controlled under the EPA license for the facility.

The NIS concludes that there would be no effect on seven of the eight identified European sites as there is no hydraulic continuity with those sites, while the proposed control measures and attenuation will ensure no adverse effect on the Barrow/Nore SAC. The AA/NIS concludes that there would be no adverse effects on any European Site.

10.3.2. Key objections

In the response to the NIS and in the oral hearing a number of points were raised by Kildare County Council, the IFI, and observers, questioning the conclusions of the NIS. I would summarise them as follows:

1. It is argued that the NIS did not fully take account of ammonia levels resulting from the drying out of peat associated with both the propose development and other associated developments on the cutaway bog. In addition, it is argued that salmonids can potentially establish themselves in the Cushaling, with consequent impacts on the conservation status of the Barrow/Nore SAC.
2. Doubts were cast on the stated conclusion that there is no hydrological connection with other SACs, particular Ballynafagh Lake SAC and the Ballynafagh Bog SAC.
3. It is argued that the absence of a construction management plan in the submission/EIAR fatally flaws the process.
4. It is argued that the in-combination effects assessment is incomplete as it does not address other nearby proposed developments such as application ref. **18/1534** (12 turbine wind farm north of the subject site); **18/1514**, solar farm on a 200 hectare site on lands north of the subject site; a SID application for 110kV substation (**ABP-303249-18**) on lands at Timahoe and the proposed Irish Water pipeline which traverses the north of Timahoe Bog, in addition to the impacts of road upgrades necessary to facilitate the works and the possible impact on other WWTPs in the area when leachate is tankered out.
5. It is argued that the NIS did not take full account of the potential for an accident, in particular where the haul road crosses a spur for Ballynafagh Lake SAC.

10.3.3. Analysis

Taking the points in section 10.3.2 above raised in order:

With regard to point (1) (**Barrow/Nore SAC**), I would concur with the submissions made by a number of parties that the NIS did not have regard to a number of relevant proposals in the area. In the oral hearing submission, the applicant addressed a number of these, including those identified by the planning authority, and also submitted that it did not change the conclusion of the NIS. I would consider this topic to be relevant in particular to point (4) also, as the key common factor in all these developments, in particular the solar and wind farms, is that they may alter the drainage and hydrology of Timahoe Bog, and so aggravate the ongoing issue of raised ammonia levels in the Cushaling, which is a tributary of the Barrow/Nore SAC. Ammonia is toxic to vertebrates and in the opinion of Inland Fisheries Ireland is the main reason salmonids have been unable to re-establish themselves in the Cushaling, despite other habitat variables being favourable. I note of course that the Atlantic Salmon (*salmo salar*) is an Annex II species in the Habitats Directive and is one of the qualifying interests for the Barrow/Nore SAC. The designated part of the channel is well downstream (approximately 22km). The applicant has argued that this provides sufficient attenuation to ensure no adverse effects can occur, in addition to arguing that ammonia levels will not be raised by the proposed development.

The problem with this aspect of the NIS, as I've discussed in section 8.7 of my planning assessment and is addressed in more detail in Prof. Johnston's report (Appendix A), is that the downstream impacts depend significantly upon the ongoing and long term management of the cutaway bog – something the applicant argues is addressed through the EPA license and is in any event independent of the proposed works within the red-lined area of the application. IFI have argued strongly in submissions that the degradation of the Cushaling and Figile and related watercourses will continue until the cutaway bog is allowed to naturally re-wet – in other words, drains are either blocked or allowed to naturally vegetate, and natural watercourses in the area are allowed to re-wild. This is also related to the issue of the effectiveness of the proposed lagoons, which is addressed in other sections above and in Prof. Johnsons report.

I find the submissions of Inland Fisheries Ireland compelling in their detail regarding existing impacts on ammonia emissions from the bog on the spawning potential of the watercourses in the vicinity of the site, even if there is no scientific certainty that the emissions are directly associated with the existing landfill. Significant progress has apparently been made in upgrading the quality of the upper reaches of the Barrow Nore, but ongoing drainage of the bogs and associated works within the former raised bogs is highly likely to be impeding the improvements of these natural and semi-natural drains into suitable habitat for salmonids and related species. Professor Johnston's report is quite clear on the hydrogeological implications of the existing and proposed waste related works at Drehid and the effectiveness of the lagoons for providing further improvements to water quality

This is a difficult issue to address as it seems most likely to me that whatever combination of works takes place on Timahoe Bog and the related cut bogs, there is probably sufficient distance between the bogs and the designated SAC to ensure that ammonia and suspended solids from normal operations would not directly affect the designated stretches of water. However, any salmon trying to spawn on the upper reaches of the catchment in the Figile or Cushaling will be part of the overall habitat of the Barrow and Nore and the protection of salmonids is listed as one of the conservation objectives of the SAC**.** Any negative impact on upstream spawning will inevitably impact upon the overall health of the salmon population in the river. As is outlined in considerable detail in Prof. Johnston's report, ammonia seems to be arising from both degrading peat and possibly from the existing landfill and lagoon via groundwater. Prof. Johnston's conclusions show that additional ammonia emissions to groundwater cannot be ruled out if the proposed development goes ahead. **I therefore find it difficult to see how it can be definitively ruled out that the proposed development, in itself and cumulatively with other such works, will not result in continued degradation of salmonid habitat which is hydrologically and ecologically connected with the designated European site**.

With regard to issue (2) (**Ballynafagh Bog and Lake SAC's**), I am satisfied on the basis of the information provided that there is no ground or surface water continuity between the site and Ballynafagh Lake or the other European Sites identified in the NIS (apart from the Barrow/Nore). I therefore concur with the conclusion of the NIS

that there are no potential pathways for pollution via ground or surface water connections to those designated habitats.

With regard to issue (3) (**absence of a Construction Management Plan**), the applicant argued in the oral hearing that the nature of a waste disposal site makes the distinction between 'construction' and 'operational' aspects somewhat moot, so within the EIAR and associated documents the management processes for both aspects are not always distinguished as in practical terms there is no distinction. I concur with this general point (although I note that Prof. Johnston had some reservations – see 3.6 of his report), and I would consider that there is sufficient information on file to be able to identify all aspects of the proposed works (construction and operational) that would have the potential to adversely affect the integrity of a European Site.

With regard to point (4) (cumulative and indirect impacts), I consider that this issue directly overlaps with the above discussed impacts on the Barrow/Nore SAC.

Related to this is point (5) (**possible accidents on the haul road**), where it was argued that an accident or works on the haul road could impact on the Ballnafagh Lake SAC where a small section of the designated habitat runs in a former canal bed under one haul road. I am satisfied that the risk of a truck associated with the proposed operations crashing at exactly this point and giving rise to such adverse consequences is not a likely or significant event.

10.3.4. Conclusion

A very high hurdle of proof required is under the Directive (and of course the recent associated High Court and Supreme Court decisions in this regard) to permit a conclusion that proposals do not adversely affect the conservation objectives of a designated EU Habitat. On the basis of the submissions made, I do not consider in the absence of an overall plan for Timahoe Bog which includes, as far as possible, proposals to steadily reduce ammonia and suspended solids run-off to the Cushaling, that it can be definitively concluded that the proposed development, along with other proposed or permitted developments on those bog lands, would not have a significant adverse affect on the Atlantic Salmon in the Barrow / Nore catchment.

On the basis of the information provided with the application and appeal, including the Natura Impact Statement, and in light of the assessment carried out above, I am not satisfied that the proposed development individually, or in combination with other plans or projects would not adversely affect the integrity of European site No. 002162, in view of the site's Conservation Objectives. In such circumstances the Board is precluded from granting permission.

11.0 **Overall Conclusions**

Due to the nature of the site and the application, the issues raised in this application have implications for planning policy and requirements under EIAR and AA and these in turn frequently overlap. But I would conclude that the three core issues are:

1. the suitability of the site with regard to national and regional policy objectives for waste treatment/disposal,
2. the impact of heavy vehicle traffic on local communities and the local road network, and,
3. the hydrogeological suitability of the site for further treatment/storage and disposal of waste materials

While the application is detailed and complex, I would conclude that the decision facing the Board can be distilled down to quite a straightforward question – whether, in the context of existing policy the proposed expansion in scale and temporal use of the Drehid facility should be permitted.

The proposed development is, in physical terms as described on the site notice, but its true nature and significance can only be addressed in terms of the overall trend of waste management provision over the past two to three decades. A combination of European led policy on shutting down landfilling for untreated waste, an incremental policy pursued by local and regional authorities of permitting large scale incineration as a 'solution' to waste, with the construction of the national motorway network has led to increasing centralisation of waste treatment and disposal at a national scale. The result of this has been the shutting down of most of the States waste disposal facilities and an increasing dependence on a small number of large 'national' scale facilities, often in incremental steps without any clear planning guidance. Drehid is one of the largest of these facilities, and if the proposed development is granted, it will become the final destination for a very high percentage of the States waste arisings. In particular, it would be the only (so far) permitted destination for all fly ash and probably most bottom ash from incinerators already under operation. The proposed development would therefore, along with the permitted MTB facility, become probably the main waste treatment/disposal site in the State if no others are

proposed or granted permission. There is, it should be noted, no specific mention of a requirement for such a centralised facility anywhere in national or regional guidance, although neither is it specifically prohibited.

The question, therefore, arises as to whether a facility at this scale is appropriate in terms of European, national, regional and local policy, and whether, in planning terms, the site is optimal or, at least in accordance with the principles of proper planning and sustainable development.

The first and most fundamental question is whether it is appropriate to landfill the waste – in this regard, the bottom ash is by far the most significant component. It is quite clear from the overall waste context, as set by EU Directives and confirmed through national, regional, and local policy, that priority should be given to the appropriate re-use of this material. Incineration bottom ash (IBA) is certainly a problematic material in many respects, not helped by its generally heterogenous and variable nature – but it is used successfully as a construction material in many countries, in particular those where virgin aggregate is relatively expensive and hard to locate. I would note that its use is considered important in some analyses for reducing the carbon dioxide emissions from the concrete industry. But there are few precedents in Ireland for its use (similarly with ash from coal plants or other industrial sources), so there appears to be a reluctance by the industry to use it. Of course, permitting its final disposal would not rule out alternative uses, but it would, by creating an alternative destination, make industry perhaps less inclined to invest in facilities to reuse it, opting for virgin materials instead. It is not clear to me, therefore, that permitting its disposal without definitively demonstrating that it cannot be usefully reused is in accordance with all levels of waste policy.

I would note that the other materials for disposal – fly ash and construction hazardous waste – undoubtedly require safe and appropriate landfilling as a final destination as there is no convincing evidence they can be safely reused or recycled.

The next key question is, if it is accepted that this quantum and nature of material requires final disposal, whether the Drehid facility is appropriate in terms of policy and the application of good planning principles. As I set out above, there is no guidance whatever provided in the WMP's as to how to address this, save stating that existing facilities are most appropriate. As I outlined above in section 8.3.5,

some basic principles to apply in assessing any such proposal would, in my opinion include:

1. Appropriate geology for long term storage/disposal, or the capacity to be engineered for such.
2. Located as close as possible to the prime sources of the material.
3. Located on or near a suitable railway connection or a national primary or secondary road.
4. Be complementary to an existing waste or associated use such as extraction or heavy industry.
5. Have sufficient separation distance from sensitive receptors such as settlement areas or designated habitats.

These of course have to be addressed within the context of policy, and increasingly this means non-waste policy, such as those arising from the Habitats Directive, the EIAR Directive and the Water Framework Directive.

In this regard, I would consider that the Drehid site is appropriate in planning and environmental terms with regard to (2), (4) and (5) above (with a qualification to (5), as noted in my AA assessment above). But I conclude that the proposed development falls very short with regard to its geology and its distance from the main road network. These are, in my opinion, fundamental to the siting of such a large scale and nationally important facility. In the absence of a clear demonstration that:

1. The overall geology and hydrogeology of the site is optimum, or at least highly suitable.
2. There are not more suitable sites with direct links to N roads or at least fully upgraded dual carriageway Regional roads.

I would conclude that the proposed development is not in accordance with the policy hierarchy for waste or with related policy objectives for the protection of designated habitats and ground/surface waters.

12.0 **Recommendation**

I would therefore recommend that the Board refuse permission for the proposed development for the following reasons and considerations.

1. On the basis of the information provided with the application and appeal, including the Natura Impact Statement, and in the light of the potential for the proposed development, in combination with other developments in the area, to continue the ongoing degradation of remaining peat within Timahoe Bog resulting in an excess of ammonia and suspended solids in the Cushaling and Figile Rivers, with a consequent impact in preventing these rivers, part of the Barrow Nore catchment, to develop into suitable habitat for salmonid species, the Board is not satisfied that the proposed development individually, or in combination with other plans or projects would not adversely affect the integrity of European site No. 002162, in view of the site's Conservation Objectives. In such circumstances the Board is precluded from granting permission.

2. Having regard to the complex hydrological and hydrogeological conditions obtaining on-site, to the limited investigation carried out of those conditions and hence to the potentially inadequate mitigation impacts associated with the proposed development, it is considered that the development site is unsuitable for a development of the nature and scale proposed, having regard to ongoing excess ammonia concentrations in groundwater and in local watercourses, which include watercourses with potential for salmonid habitat which flow into the River Barrow SAC site code 002162, a designated Special Area of Conservation. The proposed development would, therefore, have a significant adverse effect on the conservation and protection of the Barrow River Special Area of Conservation, and would therefore be contrary to the proper planning and sustainable development of the area.

3. The Board is not satisfied, on the with the application documentation and further information, that the subsurface geology of the site is suitable for the

proposed hazardous waste cell. It is considered given the site's high groundwater levels and the uncertainly regarding the nature of the subsurface, that the applicant has not demonstrated that the site can be used for the safe disposal of this material. The proposed development would, therefore, be a hazard to public health and thus contrary to the proper planning and sustainable development of the area.

4. Having regard to the Drehid facility being accessed solely via a substandard network of Regional Roads which run through a series of villages before connecting with the National Road Network it is considered that the proposed development would generate a significant volume of traffic, including a high number of movements by heavy goods vehicles, which the road network in the vicinity of the site is not capable of accommodating safely due to the restricted width and capacity of the R402, R403, R407 and R409 in the vicinity of the site. The proposed development would, therefore, give rise to traffic congestion and would endanger public safety by reason of traffic hazard.

13.0 **Reasons and Considerations (Draft Order)**

In coming to its decision, the Board had regard to the following:

European Legislation, including of particular relevance:

- Directive 2014/52/EU amending Directive 2011/92/EU (EIA Directive) on the assessment of the effects of certain public and private projects on the environment.
- Directive 92/43/EEC (Habitats Directive) and Directive 79/409/EEC as amended by 2009/147/EC (Birds Directives) which set the requirements for Conservation of Natural Habitats and of Wild Fauna and Flora throughout the European Union.
- Directive 2000/60/EC for establishing a framework for Community action in the field of water policy.
- Directive 2006/118/EC concerning groundwater.

National legislation, including of particular relevance:

- The European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended
- The European Communities Environmental Objectives (Groundwater) Regulations 2010, as amended.

National and regional planning and related policy, including:

- The National Planning Framework – Ireland 2040, which contains objectives to increase waste treatment and management capacity and a standardised approach to managing waste.
- The National Development Plan – Ireland 2040, which identifies the need to increase capacity in waste management infrastructure to meet existing and future waste management objectives.
- The Regional Policy Guidelines for the Greater Dublin Area 2010-2022.
- The Eastern-Midlands Region Waste Management Plan 2015–2021.

Local planning policy including:

The provisions of the Kildare County Development Plan 2017-2023, specifically Policy Objectives WM1; WM3; WM5; WM12/ WM17; and WM18, in addition to Transport Policy MT15 and Polices BL1-BL8 for boglands.

The following matters:

(a) the evidence provided with regard to the European, national and regional requirements for the treatment and disposal of wastes, including bottom ash, hazardous waste, and biological waste.

(b) the nature, scale and design of the proposed development including the new landfill cells and associated infrastructure.

(c) the evidence submitted with regard to the operation of the existing facility, including traffic impacts and the impact on water quality in the Cushaling catchment.

(d) the design, layout, and landscaping of the proposed facility.

(e) the range of proposed mitigation measures set out in the submitted in the documentation lodged including the Environmental Impact Assessment Report and Natura Impact Statement incorporating appropriate assessment screening.

(f) the submissions made in relation to the application including those submitted at the Oral Hearing and the report and recommendation of the Inspector and the additional report provided to the Board by Professor Paul Johnson.

Appropriate Assessment: Stage 1

The Board noted that the proposed development is not directly connected with or necessary to the management of a European Site.

In completing the screening for Appropriate Assessment, the Board accepted and adopted the screening assessment and conclusion carried out in the Inspector's report dated 12th September 2018 in respect of the identification of the European sites which could potentially be affected, and the identification and assessment of the potential likely significant effects of the proposed development, either individually or in combination with other plans or projects, on these European sites in view of the site's Conservation Objectives. The Board, in its Direction dated 20/9/2018

reference BD-001137-18 requested an Appropriate Assessment in accordance with s.177T(5) of the Planning and development Act 2000 (as amended).

Appropriate Assessment: Stage 2:

The Board considered the Natura Impact Statement and all other relevant submissions and carried out an Appropriate Assessment of the implications of the proposed development for nearby European Sites in view of the site's Conservation Objectives (River Barrow and Nore SAC site code 002162). The Board considered that the information before it was adequate to allow the carrying out of an Appropriate Assessment.

In completing the Appropriate Assessment, the Board considered, in particular, the following:

(a) the uncertainty regarding the potential impact of suspended solids and ammonia runoff from the proposed disposal site and/or from drainage works associated with the works and their potential impact on actual or potential salmonid breeding grounds in the tributaries of the Barrow River.

(b) the mitigation measures, which are included as part of the current proposal, and

(c) the conservation objectives for the European site, objective to restore the favourable conservation condition of Salmon in the River Barrow and River Nore SAC.

In completing the appropriate assessment, the Board accepted and adopted the appropriate assessment carried out in the Inspector's report in respect of the potential effects of the proposed on the aforementioned European site, having regard to the sites' conservation status. It is a conservation objective of the aforementioned SAC to restore the favourable conservation condition of salmon and the protection and improvement of water quality in potential and existing spawning

beds in the upper reaches of the catchment are considered to be significant to this objective.

Having regard to:

i. The mitigation measures proposed,
ii. The scientific information set out in the NIS in respect to water quality and habitat status in the upper reaches of the catchment,
iii. The impact of ammonia arisings from the site resulting from the proposed operation and the management of Timahoe Bog,

The Board concluded that the proposed development would adversely affect the favourable conservation status of Salmon because of the potential for raised ammonia levels in the upper reaches of the catchment.

In overall conclusion, the Board was not satisfied that the proposed development, by itself or in combination with other plans or projects, would not adversely affect the integrity of the European Site, in view of the site's conservation objectives.

Environmental Impact Assessment:

The Board completed an environmental impact assessment of the proposed development, taking into account:

(a) The nature, scale and extent of the proposed development.

(b) The Environmental Impact Assessment Report and associated documentation submitted in support of the application.

(c) The submissions from the planning authorities, the observers and prescribed bodies in the course of the application and the submissions of the applicant, planning authority, observers and prescribed bodies during the oral hearing,

(d) The Inspector's report and consultants report.

The Board agreed with the summary of the results of consultations and information gathered in the course of the EIA, and the examination of the information contained in the Environmental Impact Assessment Report and the associated documentation submitted by the applicant and the submissions made in the course of the application as set out in the Inspector's report. The Board is satisfied that the Inspector's report sets out how these various environmental issues were addressed in the examination and recommendation and are incorporated into the Board's decision.

Reasoned Conclusions on the Significant Effects:

The Board considered that the Environmental Impact Assessment Report, supported by the documentation submitted by the applicant, provided information which is reasonable and sufficient to allow the Board to reach a reasoned conclusion on the significant effects of the proposed development on the environment, taking into account current knowledge and methods of assessment. The Board is satisfied that the information contained in the Environmental Impact Assessment Report is up to date and complies with the provisions of EU Directive 2014/52/EU amending Directive 2011/92/EU. The Board considered that the main significant direct and indirect effects of the proposed development on the environment are those arising from the impacts listed below.

The main significant effects, both positive and negative are:

Significant negative impacts on local ecology, specifically ammonia run-off from the site and landholding into local watercourses. It is not considered that the mitigation submitted is sufficient to prevent direct and indirect impacts on the ecology of the upper reaches of tributaries of the River Barrow.

Significant **negative impacts** on **material assets** as a result of additional traffic loading on public haul roads. Notwithstanding the mitigation measures proposed, the residual impacts could still be significant.

There is a **significant potential for impacts** on ground and surface waters by way of ammonia emissions from cutaway bog and the disposal activities, with consequent impact on downstream habitats.

There is potential for a number of slight or short and very localised negative impacts to **biodiversity**. The loss of scrub and woodland habitat on the cutaway bog would reduce the extent of habitat for a range of local species.

The Board completed an environmental impact assessment in relation to the proposed development and concluded that, having regard to the potential downstream effects on the environment of ammonia emissions the proposed development, by itself and in combination with other development in the vicinity, would not be acceptable. In doing so, the Board adopted the report and conclusions set out in the Inspector's report.

Overall Conclusion

The proposed development will give rise to impacts which are significantly negative. Environmental impact assessment and appropriate assessment have been considered as set out in the sections above. It therefore can be concluded that the proposed development would not be in accordance with the proper planning and sustainable development of the area.

Reasons for refusal

1. On the basis of the information provided with the application and appeal, including the Natura Impact Statement, and in the light of the potential for the proposed development, in combination with other developments in the area, to continue the ongoing degradation of remaining peat within Timahoe Bog resulting in an excess of ammonia and suspended solids in the Cushaling and Figile Rivers, with a consequent impact in preventing these rivers, part of the Barrow Nore catchment, to develop into suitable habitat for salmonid species, the Board is not satisfied that the proposed development individually, or in combination with other plans or projects would not adversely affect the integrity of European site No. 002162, in view of the site's Conservation Objectives. In such circumstances the Board is precluded from granting permission.

2. Having regard to the complex hydrological and hydrogeological conditions obtaining on-site, to the limited investigation carried out of those conditions and hence to the potentially inadequate mitigation impacts associated with the proposed development, it is considered that the development site is unsuitable for a development of the nature and scale proposed, having regard to ongoing excess ammonia concentrations in groundwater and in local watercourses, which include watercourses with potential for salmonid habitat which flow into the River Barrow SAC site code 002162, a designated Special Area of Conservation. The proposed development would, therefore, have a significant adverse effect on the conservation and protection of the Barrow River Special Area of Conservation, and would therefore be contrary to the proper planning and sustainable development of the area.

3. The Board is not satisfied, on the with the application documentation and further information, that the subsurface geology of the site is suitable for the proposed hazardous waste cell. It is considered that given the site's high groundwater levels and the uncertainly regarding the nature of the subsurface, that the applicant has not demonstrated that the site can be used

for the safe disposal of this material. The proposed development would, therefore, be a hazard to public health and thus contrary to the proper planning and sustainable development of the area.

4. Having regard to the Drehid facility being accessed solely via a substandard network of Regional Roads which run through a series of villages before connecting with the National Road Network it is considered that the proposed development would generate a significant volume of traffic, including a high number of movements by heavy goods vehicles, which the road network in the vicinity of the site is not capable of accommodating safely due to the restricted width and capacity of the R402, R403, R407 and R409 in the vicinity of the site. The proposed development would, therefore, give rise to traffic congestion and would endanger public safety by reason of traffic hazard.

Philip Davis
Planning Inspector

14th April 2020

APPENDIX A:

Report of Professor Paul Johnston, TCD.

DREHID LANDFILL
STRATEGIC INFRASTRUCTURE APPLICATION
AN BORD PLEANALA REF. PL09. 300506
REVIEW OF ENVIRONENTAL ASPECTS OF THE PLANNING APPLICATION
and at
AN BORD PLEANALA ORAL HEARING 11 March 2019
Johnstown Estate Hotel, Enfield, Co. Kildare

1.0 INTRODUCTION:

This review and analysis is based on the submissions relevant to the environmental aspects of the planning application made at the oral hearing in March 2019 followed by a corresponding review of the Environmental Impact Assessment Report upon which the developer also made a submission.

2.0 ORAL HEARING :

2.1 Proposers and Appellants :

The basis for the planning application as enunciated by Mr Ruari Mulcahy, Barrister, was the overall pressing need for the waste facility coupled with a site which had 'no significant environmental impact' and for which a waste licence, which already existed for the current landfill on the site, would be sought from the EPA.

The principal concerns of observers and objectors related to the impact of increased traffic on the dwellings and minor roads in the area. However, concern was also expressed on aspects relating to the sources and character of the waste to be deposited, the hydrology and potential pollution of the area and the criteria employed in the design of the proposed waste facility.

2.2 Observers :

Ms Catherine Murphy T.D. stated that no national site selection had been conducted in relation to this project. As there are only four operational landfills nationally, there appears to be 'no balanced regional management'. Concern was expressed in relation to the source of the capping material, traffic densities and, in general, the 'impact on quality of life' in the area. These concerns were also echoed by a local councillor.

Ms Sheila O'Brien, a farmer in north Kildare was particularly concerned about the likelihood of waste imported from foreign ports and the potential risks of causing such diseases as 'foot & mouth' on farms and the need, therefore, for appropriate waste testing. She surmised that,

as planning permission was such a lengthy process, that this was likely to be the sole landfill for hazardous waste.

Mr Peter Sweetman stated that the Natura Impact Statement (NIS) was inadequate (particulary with respect to birds) and that Kildare County Council agreed. He further stated that there was a clear need for a management plan during the construction phase and no specific 'concise' mitigation measures had been identified.

Ms Lorraine Quinn (Environmental Awareness Group) observed that the forecast rate of deposition of waste in the original landfill starting in 2005 was 120,000 tons per annum over 20 years but that this rate had been steadily increasing. This proposed expansion would result in increasing loss of bogland, notwithstanding that the proposed solar farm to the northeast had also not been included in the EIS. Concern was expressed that the imported capping material was not being tested and that the effect of the apparent 20-year lifespan of the lining 'membrane' had not been assessed. Fear was also raised as to the risk of pollution to the River Blackwater on the west side of the project. Self-monitoring by Bord na Mona was regarded as unacceptable.

Mr Brendan McGlynn, engineer, raised issues with respect to the increased volume of imported capping material which would result from the proposed landfill. The amount of capping material needed would more than double, compared to the existing facility, to 864,000 tons which he estimated would require 57000 truck movements, a significant increase in traffic density. He asked, what percentage of MSW waste collected by Bord na Mona is incinerated ? It was also queried why ammonia levels in surrounding water samples appeared to be rising.

Mr Kieran Cummins, lawyer and horticulturalist, noted that the EIAR was paid for by the developers and therefore, unsurprisingly, there were no contradictions. Following the example of the planning and operation of quarries, he raised the issue of the effectiveness of self-regulation. In this case, was there an insurance bond to cover reinstatement following closure of the landfill? He asked for an effective means of recording and publishing the waste input tonnage rates. Furthermore, a complaints register was required in order to improve local community involvement. Already, the community had to undertake their own traffic counts. Detailed concerns were raised with respect to lack of information on the nature of the hazardous waste (eg asbestos) to be deposited; the likely nuisance from traffic (including accidents/emergency response); air pollution arising from diesel particulates; likely odours and flies arising from the waste; the present location of the water table and its proximity to the waste. Particular concern was raised with respect to the structural stability of the three old masonry bridges over the canal frequently used by articulated trucks going to the site. Perhaps a GPS system could be used to constrain the routes used by trucks. A wider issue was raised as to future landuse policy – the strategy for landuse in the long term given the value of bogs as carbon sinks.

2.3 Developers

John Dillon, Bord na Mona, Engineer

Mr Dillon tabled and went through Chapter 6 of the EIAR relating to the soils, geology and hydrogeology of the site. Only key elements of the EIAR and the oral hearing presentation are reviewed here as the details are already reported in the EIAR.

3.0 PROPOSAL UNDER THE PLANNING APPLICATION

3.1 The Project and Site

The overall landholding on cutaway peatland, in which the proposed landfill is located, near Carbury, Co Kildare, is 2544 ha in area, 799 ha in the north and 1745 ha in the south, divided by a site road. The road terminates at the site for which planning permission is sought. The site within this landholding is 272 ha in area, of which 120ha is already occupied by an operational 'integrated' waste management facility (WMF) comprising a composting facility and a landfill for Municipal Solid Waste (MSW). The remaining 152 ha for the development involves an extension of the composting facility, a non-hazardous waste landfill and a hazardous waste landfill plus ancillary buildings for waste treatment and provision for emission control. Thus the proposal is for a facility for the receipt and treatment of non-hazardous waste, hazardous waste and waste for bioremediation (composting). The nature of these waste streams clearly has a strong influence on the design and construction of an integrated WMF.

The scale of the development is given by the proposed capacities:

Composting facility (new and extended) = 90,000 tonnes per annum (tpa) unrestricted

Non-hazardous waste landfill (MSW and incinerator bottom ash-IBA) 250,000 tpa

= 6.25 million tonnes over 25 years

Hazardous waste landfill 85,000tpa = 2 million tonnes over 25 years

Pre-treatment of IBA will yield an estimated 15000 tpa of metals for recycling. These figures represent approximately double the intake of non-hazardous waste and four times the rate of intake for composting compared to current licences. The existing MSW landfill started operation in 2008 and has permission to 2028.

The proposed non-hazardous waste landfill, of area 20.9ha, is aimed at taking bottom ash (IBA) from existing incinerators (Waste To Energy plants), 'stabilized organic fine fraction of MSW' and fine fractions of 'Construction and Demolition' (C&D) waste, including soil and stone. It is admitted that the C&D waste may include 'sulphate bearing waste' which may require separate containment. Given the current estimates of the arisings of C&D waste from the Dublin area of 250,000 tpa (SLR Consultants) and the estimated arisings of IBA of 150,000tpa from the two existing Waste To Energy (WTE) plants, this proposal will likely

not be able to meet the demand in full. (It should be noted that one other current landfill has developed a facility to take IBA from one WTE plant). Nevertheless, there is likely to be a problem of lack of capacity in the medium term and therefore, there is unlikely to be much capacity for conventional MSW in the new landfill.

There is a presumption that IBA is non-hazardous as listed in the EU waste catalogue although there is doubt about this classification as surveys of WTE bottom ash have shown that some 10% of the waste stream is typically hazardous. Similarly, the high sulphate bearing fraction of C&D waste may also be deemed as hazardous and thus good practice is to allocate separate containment for it in the landfill. In this context, the planning application has not set out any waste acceptance criteria (WAC) for these wastes to be accepted into a non-hazardous site - and how they might be applied. Conventional testing utilizes leaching tests (CEN Standard, 2002) which may only need to be applied periodically if the waste stream is likely to be consistent in its composition. In answer to a query, Mr Dillon indicated reliance was to be placed on the originator of the waste to undertake leaching tests but nothing has been specified to ensure that the WAC are met on site. These tests (CEN,2002 ; ECN, 2017) are requirements for the discrimination and landfilling of hazardous waste or waste that is likely to be hazardous. These WTE wastes, for potential input to Drehid, already exist and their classification will affect the design of the receiving landfill. Note that EU Decision 2014/1955/EU indicates that both fly ash and bottom ash are hazardous if they come from incineration of waste containing hazardous substances – and therefore must be tested.

The proposed hazardous waste landfill has an area of 10.8ha and its primary input will be stabilized 'solidified' fly ash and air pollution control (APC) residues from the WTE plants. These arisings comprise 10,000 tpa (solidified at source) from Indaver in Carranstown, 27,000tpa from the Covanta Poolbeg WTE and a projected 13,500 tpa from the proposed WTE plant in Cork, making a projected total of 50,500tpa. The remaining capacity is to receive other hazardous waste streams including 'asbestos, industrial wastes, sludges and filter cakes, and heavy metal containing wastes'. In answer to a query, it was confirmed that liquid or semi-liquid waste such as coal tar and oils or other hydrocarbons would not be accepted. Where not already done at source, the fly ash is to be pre-treated by a cementitious solidification process in a separate plant on site.

As referenced in the EIAR, leaching tests (CEN, 2002) are standard for testing the efficacy of the solidification process but also to characterize the leachate that must be contained by the landfill. As the Landfill Directive as amended requires, 'the composition, leachability and long term behaviour of the waste must be known' and ' the ecotoxicity of the leachate must be insignificant…' Thus, to comply with these directions, a facility for routinely conducting these tests should be an integral part of the WMF.

3.2 EU Legislation and policy context

Apart from the environmental legislation affecting emissions (such as the EU Water Framework Directive), the relevant Directive for design of the landfill is the Landfill Directive (1991/31/EC) as amended (2018/850/EU). The amended Directive requires that 'member states shall endeavour to ensure that as of 2030, all waste suitable for recycling or other recovery in particular in municipal waste shall not be accepted in a landfill..' As the EIAR re-iterates, there remains some controversy across member states over the recyclability of bottom ash, particularly with respect to its leachability in use in construction (eg of roads, embankments etc). While some countries, such as Denmark, utilize up to 85% of IBA in infrastructure construction, albeit with some pre-treatment and under strict guidelines, Ireland, to date, has no regulation regarding recycling of IBA. In due course, a national policy will have

to be developed, under the above Directives, which could conceivably allow the landfilled IBA to be recovered. Thus, to facilitate this possibility, it is recommended that cells in the non-hazardous landfill be reserved as a monofill for IBA as a planning condition. To a certain extent, this concept has already been endorsed by government policy in their paper on 'Resource Opportunity – Waste Management Policy in Ireland' 2012 and in legislation by SI 148 : 2013 *Regulation of Incineration Plants* which re-iterates the EU Decisions above in the following, in clause 20, regarding WTE residues, including IBA:

20. (1) Residues shall be minimised in their amount and harmfulness. Residues shall be recycled, where appropriate, directly in the plant or outside.

(2) Transport and intermediate storage of dry residues in the form of dust shall take place in such a way as to prevent dispersal of those residues in the environment.

(3) Prior to determining the routes for the disposal or recycling of the residues, appropriate tests shall be carried out to establish the physical and chemical characteristics and the polluting potential of the residues. Those tests shall concern the total soluble fraction and heavy metals soluble fraction.

In short, the need for recycling/re-use should be accommodated in the proposed landfill as well as the characterization of the leachate and its potential eco-toxicity.

The Landfill Directive also sets out very specific criteria for design of the containment for hazardous and non-hazardous waste, discussed below.

3.3 Topography and geology

The 272 ha site lies on relatively flat cutaway bog land on the topographic divide between upland tributaries of the Barrow River system to the south and the Blackwater/Boyne system to the north, generally at an elevation of 80-90m OD although the relief across the site is now about 4m. The basin peat in the area has long been removed (since 1990s) leaving a residual peat layer laced with a network of operational, parallel drains which cut into the underlying mineral soil. The design approach is to remove the residual peat and level the underlying subsoil on which to construct the two landfills, each of which will be some 30m high when complete (ie some 27m above the present ground level).

The design of the landfill has been undertaken using LANDSIM, a software program widely used in the industry, and developed by Golder Associates (environmental engineering consultants). The stated aim here was to design the landfill as a "hydraulic containment landfill" and to estimate the fluxes from it using the software. The 'soil' is peat on limestone till and clayey gravel with depth to bedrock of 10-20 m, except in the north part of the site where depth is 128m, apparently in a deep cleft in the bedrock which is not karstic but probably a structurally controlled Tertiary drainage channel. However, there is a clear northeast-southwest alignment to many features including rivers and the underlying geology. This is reflected in the depth to bedrock on the site gradually increasing westwards as confirmed by the geophysics. Nevertheless there is notable irregularity in the surface of the underlying limestone bedrock, which is also occasionally strongly weathered locally.

Residual peat thickness is 0.4 – 2.3 m and the bedrock is Dinantian pure bedded limestone. 32 trial pits in peat were dug in 2002 and 37 in 2016 along with 32 boreholes drilled. Trial pits (2.1 – 5.5 m deep) were often collapsing but encountered lenses of silt, sand, clays and cobbles. The mineral soil was " stiff grey gravelly SILT/CLAY" across the site, but with a sand and gravel deposit to the northwest. Overall, the subsoils are up to 20% gravel, sometimes over 50% sand & gravel but heterogeneous across the site.

3.4 Hydrogeology

In places, the bedrock is dolomitized, a process which can increase the local permeability of the bedrock (particularly in the region in the northwest where the pumping test was conducted (GW6). A test for permeability (K) at 9m below ground level in subsoil in four boreholes gave a value of 10^{-9} m/s but sand and gravel layer in borehole R9 (southwest corner of non-hazardous landfill) gave a K of 3.5×10^{-7} m/s although a test at a slightly greater depth in the subsoil gave a value of $K = 6 \times 10^{-9}$ m/s. Triaxial laboratory tests of K from 11 trial pits gave values of 10^{-10} m/s. However, only one borehole in each landfill area (R9 in the non-hazardous and R10 in the hazardous landfill area) was utilized for permeability testing.

The bedrock aquifer under the site is rated as Locally Important, productive in local areas with the subsoils providing low to moderate vulnerability. A pump test on borehole GW6, 450 m northwest of the non-hazardous landfill, resulted in measurable drawdown in borehole BH1 (shallow and deep) 35 m away. Although dolomitization was recognized as liable to increase the permeability of the bedrock, this pumping test was the only substantive attempt at assessing the permeability of the bedrock (and, moreover, being some distance north of the proposed landfill). From the pumping test calculations given in the EIAR, an estimate of the permeability of 2×10^{-6} m/s can be made, which is not insignificant in the context of an overlying landfill, although protection is ultimately afforded by the intervening subsoil and/or liner.

The groundwater table on site is close to the ground surface or at less than 1 m depth. However, from the available data, water levels appear to show significant seasonal variation in the range of 1 to 2 m. Across the site, the contours of the elevation of the groundwater table indicate a range of 81 to 83 m OD, the groundwater discharging southwestwards, towards the River Cushaling.

The chemistry of the water as demonstrated in the reported surface water sampling is variable but not untypical of limestone *groundwater*. Groundwater quality was sampled in a selection of the 15 monitoring wells in 2003, 2006 and 2014-16. Only one of these wells is under the footprint of the proposed landfills (to provide pre-construction background assessment of groundwater quality). Although measurements of concentrations of various ions show considerable variation, spatially and over the span of 12 years, there is a notable increase in ammonia values immediately beneath the existing MSW landfill (GW5) and immediately downstream (GW11 and GW12). Nevertheless, it is acknowledged that while the values of ammonia under the existing landfill may be representative, it is difficult to differentiate the origins between waste and natural peat discharges. The surface water monitoring also show a decrease in ammonia levels progressing downstream from the attenuation ponds to the Cushaling River, reflecting both oxidation and dilution, as expected.

While the overall drainage of the site is focused towards the headwaters of the Cushaling River (as shown by the groundwater contours) as is also the surface water runoff, heavily influenced by the artificial peat drainage system, the relative importance of these drainage pathways will reflect the likely routes that any escaping leachate may take from the new landfills. Undoubtedly, the reported measurements of permeability/hydraulic conductivity would suggest a relatively low permeability of the subsoil - but other evidence suggests otherwise at the catchment scale. Measuring permeability in the laboratory, or even at a monitoring borehole, is but a pin prick at the scale of the catchment and usually tends to underestimate the permeability at that scale. An estimate of the water balance (given in the EIAR) when extended retrospectively to estimate the subsoil permeability yields a value some two orders of magnitude higher than the borehole measurements. Moreover, the quality of the water in the Cushling River is reflective of groundwater (particularly as the drainage channels have been cut into the mineral subsoil). Calculating permeability from the pattern and spacing of the groundwater table contours (figure

6.8) given the net recharge figures (in the EIAR) also suggest a higher permeability than the 10^{-9} m/s calculated from the borehole measurements. The noisy, but increasing values of ammonia concentrations downgradient of the MSW landfill also indicate a significant permeability. Lastly, the typical fluctuations in the water table in the subsoil cannot all be explained by evapotranspiration coupled with observed vertical gradients in the subsoil (albeit both upwards and downwards). In short, the heterogeneity of the subsoil probably contains sufficient 'macropore' pathways that, on the scale of a landfill, the *overall* permeability cannot be relied upon to meet the requirements for containment as specified in the landfill directive (10^{-9} m/s). Nevertheless, the recharge/leakage pathways are likely to be slow, but containment will need significant engineering, especially for hazardous waste.

Most significant flow in the aquifer is at the base of the subsoil and/or in the weathered zone of the bedrock (if it exists). Modest flows were encountered in the pumping test and in the deeper borehole in the 'cleft'. Thus with the slow recharge through the subsoil above, the aquifer is best described as 'leaky' as acknowledged in the EIAR.

3.5 Containment Liner

The liner scheme proposed for the new landfills is Bentonite Enhanced Soil (BES), a bentonite clay composite 0.5 m thick with a specified permeability less than 5 x 10-10 m/s, together with a geomembrane, deemed sufficient to meet the requirements of the Landfill Directive. Exactly the same design appears to have been proposed for both the non-hazardous and hazardous landfills. This proposal does not directly meet the requirements of the Landfill Directive, especially as the underlying mineral soil is likely to have an overall permeability greater than 10-9 m/s. In particular, the hazardous waste landfill requires a greater level of security than the non-hazardous landfill. Typically this requirement is for more than 5m thickness of mineral soil with K < 10-9 m/s plus a geomembrane, as also indicated in the EPA Landfill manual. An alternative 'artificial mineral layer may be used (eg bentonite enhanced soil – BES) if K<10-10 m/s with a thickness of 1.5m (EPA manual). Some guidelines allow a smaller thickness of >0.5m, as specified in this proposal. However, a BES layer of 0.5m thickness under 30m depth of solidified ash waste in sometimes unstable ground conditions (APEX geophysics report) incurs an unnecessary risk of failure through distortion, fracturing or compression. If this system design has been used in the current MSW landfill, it is not certain that it has been successful.

In short, the containment system needs redesign to take account of the higher risks associated with hazardous waste, in particular, and to install a monitoring system to ensure its ongoing integrity. Because of its position, on the boundary between adjacent catchments, escaping landfill leachate will migrate under gravity towards the headwaters of the nearby streams, slow though it may be – it is that risk that must be adequately mitigated, especially for hazardous waste.

If use is to be made of the underlying mineral subsoil as part of the containment strategy, it will need modification. This approach was taken when designing containment for conventional MSW landfill at Kill, Co Kildare but the clay soil was first excavated and screened to remove the gravel particles before re-emplacement. It has worked well, being closely monitored since 1995, with some 28m of waste above. A nuclear densitometer was used to estimate the permeability of the re-emplaced soil.

Surface water drainage is via Integrated Constructed Wetlands (ICWs) to peat drains and a lagoon which ultimately discharges to the River Cushaling. For similar reasons to the landfills,

ICWs need containment and guidelines suggest that any clay lining needs to meet a standard of $K<10^{-8}$ m/s. In answer to a query, Mr Dillon suggested that the ponds would be lined with clay.

3.6 Construction

Significant excavation of peat and subsoil will be required for establishing the two landfills although most of the material will be recycled as cover for the waste, embankments and landscaping. It is estimated that 1,040,000 m^3 of soil will be excavated from the two landfill footprints including 273,000 m^3 of peat. This equates to an average depth of excavation of 3.3m, albeit further reducing the underlying thickness of mineral subsoil acting as aquifer protection. Moreover, there is likely to be a need for considerable dewatering, given the high water table, during construction, much of this coming from drained peat. It is not clear how the emissions of sediment and organic matter from this construction process will be handled and controlled effectively as the discharge point will ultimately be the Cushaling River.

The already established borrow pit and a new one to the northwest of the site will provide some 147,500 m^3 of subsoil material (EIAR) but the hydrological effect of this excavation has not been assessed, although it is mainly upgradient of the proposed landfills.

The suitability of much of the excavated subsoil for the covering, capping and embankments has not been clearly addressed. The particle size analyses given in the EIAR suggests much of the subsoil material will be heterogeneous with up to 50% sand & gravel which raises questions as to its suitability for effective capping or other purposes.

Landfill construction and operation will require (EIAR) a total of some 2.6 million cubic metres of material to be imported (including materials for lining and capping). Although most of this is manufactured material, it represents a significant traffic flow outside of that for waste itself, albeit spread over a number of years. Moreover, as indicated in the EIAR, the transport of estimated volumes of leachate to the treatment works at Oberstown would appear to need upwards of some 5 tanker loads per day.

3.7 Habitats

Particular concern was expressed by Inland Fisheries Ireland (IFI, Mr D. Byrne) on the impact of the development on the habitat of the headwaters of the Cushaling River, mainly in terms of the impact of perceived increasing ammonia emissions. The developer sought to show that the current and likely levels of ammonia were a result of historical peat extraction rather than from the existing and future landfill operations. IFI also asked that the original course and form of the river's headwaters be restored as the river's course had been considerably altered by the developer. While restoration of the river's course is probably impractical now, given the existing development, the issue of ammonia emissions does need addressing. Undoubtedly, the drainage network in the extracted peatlands (which still exist around the site) has exacerbated the release of ammonia from a 'natural condition' but the interconnection of this drainage network with the runoff from the landfill routed through the same attenuation ponds – makes it difficult to attribute sources for the ammonia. On the other hand, there is *some* evidence from groundwater quality measurements that some ammonia in the river may be emanating from the landfill operations. Thus there is a case to determine the fractions coming from different sources even though the surface water quality measurements in the EIAR indicate an attenuation of ammonia levels along the river. Nevertheless, it is also clear that the subsurface drainage under the site is focused towards the Cushaling River and forms a significant portion of the flow. An investigation is needed to identify the various routes and sources for the ammonia if there is any hope of partial

restoration of the river as an aquatic fish breeding habitat – but also to help in mitigating the risk associated with the proposed landfill.

Although some 97ha of the development site are recognized as semi-natural habitats of local importance, the area is small relative to the whole landholding of 2544ha and although the effects of the development on these habitats are deemed to be 'minor adverse' they will be permanent. The Kildare County Development Plan (2017-2023) records this area of western peat bogs as an 'area of high sensitivity' , the EIAR records that 'cutaway and cutover boglands represent degraded landscapes and/or brownfield sites' robust enough to absorb a variety of development. Although the attraction of the development site lies partly in its relative remoteness and already 'degraded' state, it represents a significant change to the landscape and the height of the finished landfills will represent a significant change in topography, being some 30m above current ground level.
In this context, and in answer to a query, it was indicated that there is currently no plan for the long term management of the site, post-closure. Some conceptualization is necessary if the site is to be sustainable, particularly in the light of other nearby proposed possible development, such as a solar panel farm and the Shannon-Dublin water pipeline. A post-closure plan is an important omission in this planning application.

4.0 CONCLUSIONS :

i. The EIAR and the subsequent presentations by the developer at the oral hearing are inherently comprehensive but contain an ad hoc element in the sense that standard designs for landfills have not been appropriately tied to the site-specific conditions at Drehid. Moreover, the hydrological monitoring is inadequate in support of the design leaving an unacceptable environmental risk as it stands. The proposed hazardous and non-hazardous landfills are principally aimed at the reception of bottom ash and fly ash from WTE plants as well as non-hazardous C&D waste from the construction industry. The conclusions are presented in the light of this understanding.

ii. Notwithstanding the reported measurements of hydraulic conductivity/permeability, the overall site is 'leaky' albeit with long travel times for potential pollutants. Although the LANDSIM software program was used to predict impacts from leachate escape, the results are only as useful as the data used to drive it. Even then, unacceptable levels of certain compounds in groundwater were predicted at the end of the 25 year design life of the landfills – eg very high levels of ammonia, arsenic and lead. Notwithstanding the validity of these results, they should have precipitated a redesign of the containment strategy, particularly for the hazardous landfill which requires a higher level of security relative to non-hazardous waste (as dictated by the legislation and regulation). The proposed use of a 0.5m thick BES layer as the main secondary containment barrier is of doubtful benefit given the load of some 30 m of solidified waste. The principal receptor for any leachate in groundwater is the headwaters of the Cushaling River. While its course has been heavily modified as a result of peat extraction operations, its quality requires to be maintained, or improved, under the Water Framework Directive. Hence, the security of the landfilling operation is fundamental to environmental protection.

iii. Ammonia is the principal contaminant of concern both in peat extraction operations as well as landfill sources. There is a potential risk to aquatic life in the river Cushaling and the planning application has not determined the principal sources of ammonia currently experienced in the river. An investigation is required to determine these sources and to help in mitigating any risk from the proposed new landfills.

iv. The need for Waste Acceptance Criteria on the part of the developer has barely been addressed and how the various waste streams should be accommodated in the landfills. On environmental grounds, there is a need to separate high sulphate bearing waste (C&D), asbestos waste and WTE bottom ash, possibly in different cells. Although the waste streams from the incinerators at Carranstown and Poolbeg already exist, no attempt has been made to ascertain their characterization, eg between hazardous and non-hazardous and, therefore to ascertain the nature of the likely leachate. While it may be the legal responsibility of the producer of the waste to undertake leachability tests for hazardous waste, the landfill operator should maintain facilities to conduct leachability tests on the waste as required by the EU legislation.

v. EU and national policy require as much re-use or recycling of material as possible including residues from WTE plants. While there is no specific regulation in Ireland yet, it would be prudent to recognize that such regulation will come and, therefore, pre-emptive management of waste streams (particularly bottom ash) should take account of that likelihood, eg by maintaining separate repositories.

vi. Site investigation and construction: one borehole in each of the landfill sites is not sufficient for an adequate assessment of hydrogeological parameters such as permeability. Groundwater quality was measured in a variety of boreholes but 3 sets of measurements, one in each of the years 2003, 2006 and 2014-16 is unlikely to give a representative set of results. A large number of trial pits were excavated but their depth mostly represents material to be removed. Some million cubic metres of peat and soil is to be excavated to facilitate construction of the landfills but while most will be recycled, its management is inadequately addressed in terms of emission (sediment/runoff) control. Some 2.5 million tonnes of material is to be imported which will generate significant traffic movements over a period of years, independent of the transport of waste. In short, ther is a lack of an adequate environmental management plan during the construction phase, as pointed ut by an observer at the oral hearing.

vii. No post-closure plan has been developed for the site which is essential for its long term sustainability as it represents a significant impact on the landscape (30 m high mounds when complete). It should form an essential part of planning. Moreover, it has been stated, nationally, by the developer that there is a policy for restoration of the functioning of abandoned peatlands. The area around the development site is abandoned peatland but in answer to a query, no such strategy for restoration appears to have been developed for this area. Future sustainable landscape planning demands an integrated approach to include a post-closure plan for the landfills.

In its present form, the development proposal should be refused planning permission on the grounds of unacceptable risk to the environment both on the site and in the management of the waste - unless and until a more comprehensive design and plan for management is forthcoming.

Paul Johnston
Engineering Hydrologist
November 2019

REFERENCES:

CEN Standard 2002: Characterization of waste –leaching - compliance test Standard EN 12457, parts 1-4

ECN 2017: 'Guidance Document on Hazard Classification on MSWI Bottom Ash' by T. Klymko et al, Document ECN- E-17-024, Netherlands Energy Research Centre, May 2017

European Council : Decision 2003/33/EC Establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Landfill Directive 1999/31/EC
European Union : Landfilling of Waste Directive 1999/31/EC as amended 2018/850/EU

APPENDIX B:

PROCEEDINGS OF THE ORAL HEARING (extended summary)

An Oral Hearing (OH) into the proposed development was opened on the 11th September 2018 in the Johnstown Estate Hotel in Enfield, County Meath. This hearing was adjourned following a request by the applicant for the Board to request an NIS following a reconsideration of the Appropriate Assessment Screening. The Board subsequently agreed to issue a notice under S.177 of the Act, and an NIS was carried out and advertised by the applicant.

The OH was reconvened on the 11th March 2019 at the same venue and lasted three days. I closed the hearing on the afternoon of the 13th March 2019. The following is a summary of the OH. The full recording of the OH is on file. I was assisted in the hearing by Prof. Paul Johnson of Trinity College Dublin who had been appointed by the Board to assist on engineering and water/geology related issues.

I would summarise the key issues raised and discussed in the second part of the hearing as follows:

Many members of the local community, in particular residents along the haul route from Carbury to Derrinturn and Prosperous strongly expressed their opposition to the proposed expansion and complained repeatedly of claimed breaches of the existing permission, excess traffic, vehicles accessing the site during unauthorised hours, odours and other impacts. It was repeatedly stated that communications and good faith had been broken between the applicant company, the regulatory authorities (in particular the EPA) and the local community.

The applicant and planning authority had particular disagreement over methodology and predictions for both assessing existing and proposed traffic loads and the related special contribution the planning authority has requested.

There are significant disagreements between the interpretation of data regarding surface water impacts between the applicant and Inland Fisheries Ireland.

11th September 2018

I opened the hearing at 10am. In accordance with the Agenda previously distributed, I invited **Rory Mulcahy** for the applicant to outline the reason for the applicant's decision to carry out an NIS.

Mr. Mulcahy noted that following the Further Information request by the Board the applicant re-confirmed its Screening conclusion that AA was not required. But this decision was made without full knowledge of the recent Judgement of the ECJ in People Over Wind vs Coillte Teoranta. A copy of this ECJ decision was distributed and Mr. Mulcahy highlighted paragraphs 19, 22, 27, 37 and the final conclusion in paragraph 40 in justification for the decision to notify the Board on the 31st August 2018 that it was not considered that an Appropriate Assessment was necessary. It was also noted in this regard that the terms 'precautionary mitigation measures' had been used in the Screening.

Mr. Mulcahy stated that the NIS would be ready for submission 3 weeks from todays date. Refereed to Section 30(7)(f) of the Act, S.177T(5) of the Act with regard to the power of the Board to request further information.

For Kildare County Council, **Deirdre Hughes** welcomed the decision of the applicant to submit an NIS. Ms. Hughes repeated the concern of Kildare County Council that there was insufficient information submitted by the applicant with regard to traffic information and suggested that this is an opportunity for the applicant to address this concern.

Lorraine Quinn (Observer) argued that it is unfair on local objectors that they cannot comment on the main application and NIS concurrently. She noted that the ECJ decision was issued before the Further Information request by the Board, and wished the failure of Bord na Mona to carry out a proper AA is noted. Ms. Quinn requested that the Board deem the application is invalid – she notes that the EIA Directive requires that the 'whole project' be considered, and as such, questioned the piecemeal approach of the applicant.

Robert Falcampe of the Millicent/Firbank Community Group notes that the proposed development will require 300,000 truck movements through its life, with some 35% running through the Millicent/Firbank/Clane, Sallins Area.

Brendan McGlynn, also of the Millicent/Firbank Group outlined detailed concerns about the impact of the proposed development on the local road system.

Donacha Byrne of **Inland Fisheries Ireland** stated that the IFI has no objection to the carrying out of an NIS, but noted that salmonid species scheduled in the Habitats Directive are present in the upper reaches of the Barrow/Nore watershed and requested that the NIS have full regard to potential impact on these species.

Following this, I asked Mr. Mulcahy if the applicant had considered the withdrawal of the NIS in order to allow for all submitted information to be updated accordingly. He argued that such a withdrawal and resubmission would serve no useful purpose.

I then adjourned the hearing, noting that the Board would have to formally determine if the submission of an NIS at this stage of the application was appropriate.

The Board subsequently, under Section 30(7)(f) of the Act, S.177T(5) of the Act, requested an NIS. This was submitted on the 20th November 2018, and was subject to a further round of written consultation.

11th March 2019

I opened the hearing again at 10am at the same venue as before. As previously, **Mr. Rory Mulcahy** represented the applicant and **Ms Deirdre Hughes** represented Kildare County Council. After introductions, I invited the applicants to present an overview of the proposed development and to respond to the submissions made on the NIS.

The applicant

Mr Mulcahy provided a general overview of the response to Kildare County Councils (KCC) submission, and noted the decision of the High Court in Fitzpatrick vs ABP with regard to cumulative impacts from other projects. He noted that there are a number of windfarm and solar farms proposed in the vicinity, including a water pipeline to the north proposed by Irish Water. He also confirmed that a new license application from the EPA will be required, and this precludes the Board from imposing conditions relating to emissions. He confirmed that the NIS concluded that the proposed development, including cumulative impacts from other developments in the area, will not have an adverse impact on any designated habitats.

Mr. Mulcahy introduced **John Payne** of Bord Na Mona to provide an overview of the proposed development. My Payne distributed a paper giving an overview of the proposed development (on file). I would refer the board to a number of tables and graphs in this submission, in particular on pages 7 to 9, which give a good summary overview of the proposal, and the slides following which provide a summary overview of projected volumes of the different types of material.

Mr. Mulcahy then introduced **Robert Hunt** from Tobin Consulting Engineers, who responded to the specific issues raised in the most recent KCC submission. He distributed a paper which is on file.

Mr Hunt outlined the search criteria central to the EIAR conclusion that the site is the environmentally optimal choice with regard to cumulative impacts – this was in response to KCC arguments in their submission. This is submitted as an update to the EIAR and an appendix to the submission (on file). In this regard I would draw the Boards attention to the table on **page 17** of this appendix which compares intakes to the proposed Knockharley Landfill (submitted December 2018), which is for an annual intake of 440,000 tonnes of non-hazardous wastes. I would also draw the Boards attention to **Figure 1.1** at the end of this submission, which shows clearly the other local sites subject to applications or proposed applications in the vicinity.

Mr Hunt outlined the impacts of these on the selection criteria and concluded that with regard to known sources of potential waste for Drehid, this site still comes out as superior in comparison to six other potential sites (**see page 7** of the submission). He also noted that even if Knockharley landfill is granted permission, it is not proposed to use this site for hazardous waste. With regard to heavy vehicle traffic it is considered the superior site. He noted in particular policy E7 in the Regional WMP which favours 'existing' landfills.

With regard to submissions on Community Gain, it is stated that the applicant has no objection to amending the provisions of the existing Community Grant Scheme insofar as amendments meet the current or proposed planning conditions and are agreed by the Community Liaison Committee.

With regard to claimed traffic infringement it is stated that BnaM maintain a Complaints Register at the Drehid Facility in accordance with the requirements of the Industrial Emissions Licence for the facility.

Further calculations are submitted with regard to the carbon sink potential of the existing cutaway bog.

Mr. Mulcahy then introduced the evidence of **Joanne Allen-Hamilton** and **Laura Kennedy** with regard to NIS/ecology issues.

The first part of their evidence responded to KCC's submissions on the NIS. With regard to other proposals in the vicinity (ECJ case C-323/17 noted) including the proposed Timahoe solar farm (shown on **Figure 5** of their submission), it was

argued in some detail that the protective design and mitigation measures would ensure no significant cumulative impacts with other developments in the area. It was emphasised (with additional information submitted) that there is no hydraulic continuity with other Balynafagh Lake SAC, and noted that the Barrow SAC is 38 km from the site. In page 4 of the submission it is stated that BnaM does not object to the proposed conditions requested by KCC. It was argued that discharge from the site lagoons is having an overall positive impact on water quality in the Cushaling. With regard to questions about accidental discharge, they referred to section 3.5.1 of the NIS. It was denied that improvement works to haul routes off site should have been considered in the AA. With regard to accidental spillage close to the SAC it is stated that standard emergency clean-up procedures would address any possible impact – this is described as a 'one in 1.6 billion year' possible event using 'Method D' of the TII Guidelines on Road Drainage and the Water Environment.

They summarised the findings of the NIS, in addition to presenting Appendix A of their report, an additional In-combination effects assessment. They concluded that there was no risk of adverse effects.

Mr. Mulcahy then introduced **Tom Cannon** of Tobins to present evidence on roads and traffic (Material Assets chapter of EIAR). With respect to submissions from St. Oliver Plunketts National School and the Protect Caragh Group he outlined a number of clarifications on haul routes and the figures provided. He confirmed that the traffic assessments included in the EIAR do include both light vehicles and HGV's as presented in Appendix 10.3 of the EIAR. **He also confirmed that the R409 and L2030 will not be used as a haul route due to weight restrictions.**

With regard to a KCC submission on Special Development Contributions – they requested a sum of €13,796,673 as outlined in Appendix 2 of the Chief Executives Report of the 9th February 2018. It is strongly denied that the levels of investment are required and in Table 1 (page 5 of the submitted documents), a set of alternative figures are provided, coming to €545,900.00.

Mr. Cannon states that BnaM would have no objection to a condition to implement a GPS tracking system for hauliers, but notes that it would take time to implement as it would have to be imposed as a condition in new contracts.

Mr. Cannon then discussed the structural assessment of the haul routes (page 7 of the submission). He outlined the techniques used to assess the impacts and stated that applicant is willing to accept the cost of regular road surveys.

Previous correspondence between the applicants agents and KCC are attached as an appendix to his submission.

This ended the submission of the applicant.

I invited **Ms. Deirdre Hughes**, representing Kildare County Council, to respond. She emphasised the national scale of the proposed facility and argued that it represents a fourfold increase in impact on the existing facility, even allowing for the permitted MBT plant. Ms. Hughes introduced **Mr. Liam McGree**, Senior Planner, to present the planning perspective of the Council

Mr. McGree distributed his written evidence. He outlined in some detail the planning background to the proposed development. He argued that it is considered to be non-compliant with a number of policies in the County Development Plan 2017-2023 (set out page 5 of his submission), specifically WM3; WM17; WM18; MT15 and LA2. He argued that:

No reasonable alternatives to the processes have been assessed and the proximity principle has been ignored.

The visual impact assessment submitted is not considered adequate.

It is considered that impacts on protected structures and recorded ancient monuments in the area and along the haul routes has not been adequately assessed.

It is considered that significant alterations would have to be put in place to address Community Gain.

The NIS is considered deficient as it has not addressed impacts on the haul routes. Concerns are also expressed regarding the potential for in-combination effects with other large scale proposals in the area such as 18/1534; 18/1514; ABP-303249-18 and the Irish Water supply project.

It is noted that there is a Seveso site 6.4 km from the site at Clonagh and states that consultation with the HSA should have been carried out.

He outlined four conditions that KCC requests if the Board is minded to grant – set out in page 9 of his submission.

Ms. Hughes then introduced the evidence of **Mr. Michael Holligan**, Senior Engineer for KCC.

Mr. Holligan distributed his written evidence. He argued that the proposed development is contrary to the Easter Midlands Regional Waste Management Plan (EMRWMP), specifically with regard to the strategic vision (Chapter 5, Section 5.2, page 40 of the WMP). It is noted that the Plan states that the ambition of local authorities is to cease landfilling activities for all major waste streams by 2030. It is argued that it should be policy to pursue the re-use of Incinerator Bottom Ash (IBA) as an alternative and provided evidence that it is used successfully as construction material in the Netherlands and Norway. It is also stated that fly ash is used in Germany for the backfilling of a salt mine.

It is noted (section 4 of his submission) that the receptors chosen with regard to air pollution that none of the dwellings were located at junctions or in villages/towns or locations where HGV engines were likely to be stationary and/or running on idle.

It is noted that with the imminent closure of Galway landfills there will be only four left in the state, all in Leinster (Ballynagran in Wicklow, Knockaharley in Meath, Powerstown in Carlow and Drehid. This leads to a concentration contrary to Section 5.5 of the EMRWMP.

He finished raising concerns about the completion of borehole analyses for bedrock permeability (EIAR, Vol. IV, App.6.1), also if it the proposed development would satisfy the requirements of the Water Framework Development, and if a satisfactory risk assessment has been carried out Ape 6.10 of the EIAR).

Ms. Hughes then introduced **Mr. Anthony Horan**, Associate Director for O'Connor Sutton Cronin Consulting Engineers, who were retained by KCC to analyse the figures submitted in the EIAR and related documentation. Mr Horan submitted both his evidence plus a detailed document entitled Planning Assessment Report for Kildare County Council Project No. K417, dated the 8th March 2019 (this was ancillary to his evidence but was not read into evidence in the oral hearing). I refer the Board in particular to Tables 1 to 5 in the main evidence for a detailed overview of his arguments.

The core of Mr. Horans submission was that by adjusting assumptions on the weight of each vehicle and assuming additional vehicle loads for construction, the scale of traffic will be substantially greater than that presented in the 'conservative' estimates

in the EIAR – summarized in his view in Table 1 on page 8 of his evidence. He argues that there would be an 11 fold increase in traffic if MBT plus proposed development takes place. He also noted the proposed unlimited lifespan for composting and leachate treatment. He argues that the facility takes in more material than is licensed – he assumed this is because of a requirement of capping waste. In addition, he made the following points and assumptions:

Questions why no 'fourth scenario' with no MBT. Argued that this is a more accurate representation of a do-nothing scenario.

Assumes 19 tonnes capacity (90%) per vehicle.

Argues that using assumptions set out in Table 3 this would significantly increase the number of HCV trips per day (Table 3).

Argues on the basis of table 3 and 4 that the TCE tables are not 'conservative'.

Argues that the figures do not give account of capping and fines material that would be brought to the site – Table 5 provides an estimate.

Notes it equates to 57 loads per day. HCV movements of 114.

All the figures he provides in excess of previous figures – he claimed the true number of movements is likely to be 424 per day (see 4.5 of his evidence). This is 180% of the trips suggested in the TCE traffic assessment.

He compares it to Poolbeg incinerator (PL29S.EF2022) and argues that traffic levels would be 3.5 times the assumption for Poolbeg.

He argues argued that video survey submitted for the EIAR were on some of the quietest days of the year and that real traffic levels would be substantially greater (4.10 of his evidence).

Argues that the submitted figures are 'beyond optimistic'. And that the stated growth factors are low and could lead to under-reporting.

It is argued that the Junction Analyses may not have been correctly calibrated for local conditions.

He then discussed specific issues with Prosporous and Clane Crossroads and queries the EIAR conclusions (4.17-4.19).

Mr. Horan then added the methodology used to assess the impacts on the existing haul routes (section 5 of his submission).

In section 6 Mr. Horan provided an overview (supported by reference to the main Report submitted) on specific haul routes, I'd summarise these as follows:

Alexandra Bridge (Haul Route 1) not suitable.

Haul Route 1.1 – not suitable (closed at Liffey Bridge).

Haul Route 1.2 – Notes possible requirement for upgrades. (HCV's turning right is a hazard).

Haul Route 2: Not suitable – closed at Liffey Bridge.

Haul Route 2.2. Accepts it is suitable subject to upgrade of Firmount Cross Roads.

Haul Route 3 – not suitable HCV's not permitted to use 1.4 km section from Enfield village to the roundabout with the R402.

Haul Route 4: Not suitable.

Note other routes.

Kilcock to Prosperous – not suitable

Assumed all national routes and motorways are suitable.

Finally (section 7 of his evidence), he argues that the pavement testing is deficient and does not provide a real assessment of pavement damage caused by existing traffic loads.

In his conclusion, Mr. Horan argued that the proposed development should be refused for four stated reasons, i.e.:

Insufficient pavement testing, with results showing that significant sections of the haul routes will not be capable of withstanding the increased loading.

Flawed trip generation calculations flawed to a level that renders the traffic modelling invalid;

Overcapacity issues on a number of junctions, most notably in Properous and Clane;

The non-assessment of the 'do nothing' scenario if no MBT goes ahead – it is argued that this has led to a falsely pessimistic assessment of the existing roads and traffic network.

This concluded Kildare County Councils submissions. I then invited submissions from Observers.

Catherine Murphy TD

Catherine Murphy TD gave an overview of her long term opposition to the facility and the potential impacts on the local community. Key points she made include:

She emphasized lack of guidance provided in the site selection process undertaken by either the EPA or the Regional Waste Management Authority - she considers this a major shortcoming of the proposed development.

Limited information on alternatives.

She noted how Ballinasloe landfill is winding down – this is resulting in all waste facilities in the State being concentrated in the Leinster region.

She argued it is not in line with balanced regional development.

She queried the lack of quantification on Capping material. Asks where it originates? Impacts on traffic movements.

She questioned if Oswardstown wastewater treatment facility is suitable for the leachate. Significant number of tankers now going to the facilities – concerns at cumulative effects of this traffic – not designed for this type of use in mind.

Accident rates she highlights the number of fatalities on these roads and associated insurance costs for locals. Existing traffic levels interferes with cycling and walking. Vulnerable road users are made even more vulnerable.

She emphasized concern over expansion of an already very large facility, now with the additional burden of traffic from Ringsend.

Issue of compliance with national standards. Notes that ABP is not responsible for monitoring or compliance.

Councilor Padraig McEvoy

Cllr McEvoy stated that he has been a councilor since 2009 and has sat on Regional Assemblies and has long voiced his objections to the operations of Drehid.

Notes that the existing road networks dates from the 1780's, and has suffered repeated failures because of its poor foundations.

He noted KCC evidence that the existing facility requires disproportionate amount of investment to maintain in acceptable state.

He argues that the proposal may not be viable if it had to pay the true maintenance price for the upkeep of the haul road system.

He acknowledges the environmental value of landfill gas capture, but questions if it is sustainable since it is not close to a user.

He submits it the proposal not consistent with long term plans on regional approaches to sustainability.

He notes that coming national and regional policy documents emphasize proximity to users and the importance of carbon sequestration and questioned if BnaM has taken this fully into account.

He noted a number of recent accidents at Furlongs Cross and the lack of available resources to upgrade this junction.

Argues that the issue of haul routes is more important than the radial distance analysis.

Mrs. Sheila O'Brien.

Ms. O'Brien introduced herself as a local organic farmer, who has long focused on reducing carbon emissions (her farm grows biomass for BnaM).

Argued that the proposed development is a huge burden on North Kildare – major burden of major proposals. There is a great difficulty for communities to organize to protect themselves.

She questions the distance waste needs to come from – waste from 45km, 60 minutes radius?

Issue of disease spread from material imported – particularly pig swill brought in from Foynes which is disposed of within the site. Expressed strong concerns over Foot and Mouth disease potential.

Issue of land protection.

Mr. Peter Sweetman (on behalf of the Protect Caragh Group).

Mr. Sweetman argued that the EIAR is inadequate as it lacks a Construction Management Plan

He emphasized that the AA/NIS must be made with 258/11; 164/17; People over Wind cases and others – he argues that it is impossible for the Board to grant permission in the absence of a failure to adequately address construction issues – he particularly highlights that the actual road crosses the SAC.

He notes no mitigation measures set out (under the Houlihan decision, they must be precise).

No construction management plan.

He argues that in the absence of firm mitigation measures set out within the NIS, the Board is precluded to grant permission.

He thanked KCC for their submission and supported their conclusions.

Lorraine Quinn on behalf of the Kildare Environmental Awareness Group

She states previous objection (in earlier oral hearing). Argues that the existing facility it has expanded to three times original level. It represents a 'quick buck' at local's expense.

The boglands will be destroyed.

Notes decision 151172 (KCC) – permission granted for solar farm to the north east of Timahoe – that has not been included in the cumulative assessment in the NIS.

She argues that the N4 Johnstown Bridge is not an acceptable route. She stated that the bridge over the Blackwater is unacceptable – and questions whether Meath have been consulted.

She sought clarity on a number of issues, including - extra trucks going in – cover material – what are the quantities? What type of material? The proposed membrane – 20 year lifespan, what about the future maintenance? She also noted the absence of a reference to the 'Fear English River'? It is west of the landfill. Questions what material is been brought in.

She argues that self monitoring of dust/noise/odours not acceptable.

She noted that no EIS was submitted for the original 2005 application – needs overall assessment.

Brendan McGlynn (represented by Robert Valcon)

Submits arguments as a local resident and long time opponent of the existing facility. Raised the issue of the quantity of traffic on Milltown Firmount Road – no information on capping – notes that this appears to be capping (following KCC's submission).

Asks for figures on the ‘real’ volumes.

He noted the failure of BnaM to provide figures in the past on the real quantity carried by each vehicle. Notes ‘30 tonnes’ per truck assumption. 57,000 trucks a year – says as local residents did an audit and surveyed every haul route. 65% of trucks went east, 35% went west – i.e. going through communities like Prosperous and Sallins.

States that accidents are ongoing (even if not connected with BnaM). Notes three accidents recently (but not waste trucks).

What percentage is incinerated in Poolbeg – argues that the application should not be an SID but should have gone through the normal planning process.

He noted no information on elevated of Ammonia into local water courses and groundwater.

Kieran Cummins

Local resident, introduced himself as having specific experience in the extractive industry and is representing a number of concerned residents. He made the following points:

The EIAR is paid for by the developers – questions its conclusions.

Self – policing and regulation – questions issue of BnaM doing its own monitoring.

Insurance bonds – will they be adequate for reinstatement, etc.?

He asked are development contributions paid?

Questioned the intake figures. Questions how much people know, and what is the system for quantifying precise figures.

He argued the complains register is inadequate. Notes spillage in 2013 at the entrance to the facility – questions if it was on the register.

He argued that there is no transparency on monitoring.

Notes the locals tried to carry out a traffic survey– but he claimed that people were challenged by possible BnaM employees.

Raised issues of asbestos and the integrity of the proposed membrane.

He outlined long term local concerns about nuisance issues – GPS monitoring for traffic movements is queried. Community should be involved in any such issue.

Question on traffic numbers – emergency responders informed? Etc.

Particulate matter from diesel in local communities.

Flies and vermin from the existing facility and any such impact and ongoing issues with offensive odours.

He raised local concerns about impacts on private water supply – impact on local aquifers.

Issue raised of long term use of the lands – its use as an amenity following closure?

Bogs as carbon sinks. Questions about Irish Peatlands Councils work on bogs on carbon sinks and in particular the restoration of bogs through blocking drains.

Questioned whether they have addressed possible other sites for inert materials.

Questions whether the bridges are adequate for the traffic – especially the old canal bridge. What weight restrictions do they have?

Irelands Ancient East – need to address heritage.

Integrity of the road – refers to previous submissions.

Requests that the community have more say in reviews and monitoring of the facility.

Raised the need to look at other solutions instead of landfill.

I then allowed following an earlier request by Mr. Mulcahy to allow **Mr John Dillon** of **Tobins** to make a statement on the IFI submission on hydrogeology. He submitted written evidence (on file). I would refer the Board specifically to the useful drawings and figures at the end of this submission indicating the relationship between the Drehid facility and surrounding water catchments, in addition to information on ammonia loads and monitoring stations. I would summarise his points as follows:

With regard to the issue of impacts salmonids downstream - the Cushaling River may have some appropriate sections but has low flow and is of low quality. Refers to 7.3.5 of the EIAR for further details.

He states that ongoing issues in the Cushaling are not attributable to Drehid and that the proposed facility will not preclude the improvement of the Cushaling.

Cushaling is considered of low sensitivity due to absence of sensitive species.

States that ammonium concentrations continue to decrease since 2012 – also states that the site is not within the Slate catchment (the latter is referred to in the IFI submission.

He stated that drains will be rehabilitated in accordance with the EPA IPC license for as set out in the Timahoe South Bog Draft Rehabilitation Plan (copy provided in RFI response). He emphasized that the management of the drains was part of license requirements.

Notes presence of wet heath within the site – an indicator that the site is not drying. It is denied that flooding the peatland would necessarily decrease nutrient run-off and so would not address the IFI concerns.

Notes that the facility is operating fully in line with the IPC license.

He specifically denies that the proposed works will impact on the lands outside the red line boundary.

He argues that ammonium concentrations can be elevated in intact bogs (e.g. Clara Bog) and so the observed high ammonia levels would not necessarily be improved by bog restoration.

Outlines details on the proposed ICW's (Integrated Constructed Wetlands).

Argues that Glaslough WWTP (as raised by the IFI in response to their concerns about ICW's) is not an appropriate comparison – it is argued that the existing wetland operates effectively.

Argues that the Cushaling cannot be reinstated given changes in topography and the removal of the settlement lagoons would be contrary to the IPC license.

With regard to Osberstown WWTP – he states that it is operating within its design capacity.

In response to KCC's submission on the NIS

He submits that there are no hydrogeological linkages between the site, the Figile and the River Barrow – notes Figure 6 in the submission

Refers to section 6.3.10 of the EIAR for issue of Ballynafagh Lake with regard to further details.

Following this submission, I closed the OH for the day.

12th March 2019

For the second day of the second sitting of the Hearing, the Agenda set out that the day would be exclusively devoted to water and design issues, but I allowed two submissions held over from the previous day, one an observation by Mr. Bernard Durkin TD, the second a submission by Kildare County Council on traffic.

Mr. Bernard Durkin TD

Mr Durkin TD states that he has long opposed the Drehid facility, he was an objector to the original application, and states that his contention then that it would go out of control. He made the following points in his submission:

His original objection for the first planning application focused on the impact on roads, on water displacement, plus contamination in a bogland area and displacement of water (flooding issues).

Strong concerns originally expressed at how the volumes of material would increase (from 150,000 originally).

Concerns expressed at the origins of the waste, from all around the country and possibly further afield.

Objects to the use of North Kildare as a center for disposal for a much wider area and the concentration of waste disposal in one area of the State – North Kildare.

He outlined local ongoing concerns at odor, especially after a dry spell.

Argues that a bog is inappropriate for hazardous waste.

He raised concern about safety issues (crashes with trucks with hazardous waste) and submitted that it is too big a risk for local communities to ensure.

Issue of trucks waiting early morning in order to get in early to the site, resulting in pollution and traffic issues not addressed in the submission documents.

He raised concerns at an ongoing issue with contractors who will seek alternative routes even if they are not permitted.

Argues that the appropriate location would be closer to source or closer to a motorway.

He raised concern about ongoing problems with the road pavement maintenance

Requests the Board to consider if it is appropriate for the facility to be allowed to continue to expand – both footprint and nature.

Conclusion – emphasizes long term status as an objector from the first application. Argues that the original grounds of objection have been proven correct (ongoing growth in volumes, etc.). Acknowledges importance of BnaM but is concerned at nature of this development. No guarantees about future accidents or additional pollution arisings. (emphasizes dangers of hazardous waste). He argues that the proposal is incompatible with other Council objectives for the area (tourism, farming, etc.).

Mr. McEntee (replacing Ms. Hughes) for KCC then introduced **Mr. Jonathan Deane**, Senior Executive Engineer for Kildare County Council who had been unable to attend the previous day. He distributed his written evidence (on file) with regard to the impact of the existing development on current maintenance programmes. He stated that KCC believes that granting permission would have four serious detrimental effects (part 2 of his submission):

The increased HCV traffic will endanger public safety.

The carriage of hazardous waste may endanger public safety.

The development does not comply with the objectives of the CDP to support the improvement of the public realm within the settlements along the haul route.

The proposed development would endanger public safety due to the obstruction of road users.

Table 3-1 and Table 3-2 of his submission outlines current costs relating to the works. In summary, he stated that 46% of available resources are devoted to the maintenance of the existing haul route roads, which amount to 9% of the total road length in the area.

He clarified a number of specific issues with the road junctions within the settlements of Prosperous, Clane, Allenwood, Derrinturn, Kilshanroe and Johnstown Bridge. He highlighted the Firmount Cross roads as having a particularly challenging geometry.

That completed all submissions.

I then introduced the main module for the day. The Board has nominated Prof. Paul Johnson of TCD as a consultant. I introduced Prof. Johnson and invited him and Donnacha Byrne of Inland Fisheries Ireland to engage in a three way discussion with the applicant on the design issues of the proposed development, in addition to impacts on the ground and surface water. Most responses were from Damien Grehan of Tobins – for simplicity in the following section I have simplified my summary of all responses from BnaM representatives as 'BMN' with Mr. Johnson as 'PJ), and Mr. Byrne as 'IFI'. I invited Prof Johnson to open the questioning.

PJ: He underlined the importance of understanding the conceptual model for the proposed development, within the following headings:

Source material

Design and locality

Regional aspects.

PJ: (Question to BnM). The nature of the waste that is proposed for the landfill appears to be primarily bottom ash and fly ash. Notes that existing and permitted incinerator plants within the State already have a ferrous and non-ferrous removal system – why also proposed? This has implications for the nature of emissions.

BNM: The metals recovery facility is for ash – mostly sourced from existing and proposed facilities. There is no metals extraction at Poolbeg. Also has potential going forward with markets in processing the material for use. Also notes that Carranstown does not remove non-ferrous. Looking to remove as much non-ferrous as possible.

PJ: The ash is to be solidified. This is to reduce possible emissions? How certain are they about the leachability of the final product?

BnM: Bottom Ash will be disposed in the non-hazardous cells. Leachate will be generated at the facility for both hazardous and non-hazardous landfill. The leachate will be re-used within the ash treatment facility. So it is considered to be a self-contained operation. No direct discharge of untreated leachate at the facility.

PJ: Issue of leachate test for bottom ash if it is to be considered non-hazardous:

BNM: Appendix 6.10 of EIAR – outlines the testing regime for materials for characterization.

PJ: How sure can they be that it will be classified as non-hazardous?

BNM: The operator has to prove to the EPA it is non-hazardous. The operators (Carranstown) will have to prove this too.

PJ: The ash at Ringaskiddy may be hazardous.

BNM: If this is the case, it will have to be disposed of in the hazardous landfill.

PJ: Any measures of the leachability of the cementitious (post-treatment) waste?

BNM: Using a similar Indaver site in Belgium research is available to indicate it is stable. Plus, the leachate recollection facility will address residual leachate.

PJ: Emphasizes that the strategy of design is on containment. What is the potential for leakage through the containment? (to be dealt with later). Ash is alkaline – if it is exposed to acidic rainfall, leachate levels do tend to have elevated metals content. Wonders if this is well understood.

PJ: Question on the management of peat removed during construction of the landfill. Where will the peat go?

BMN: Section 4 of the EIAR outlines the construction phases. The peat that has to be excavated will not arise in one quantity – the peat will be reused where possible on the site, including the making up and facing of embankments and as topsoil for capping.

PJ: Issue of drainage for this peat.

BMN: Water from storage piles goes into the internal drainage system, through swales and wetlands, etc. Notes trial Integrated Constructed Wetland (ICW). There are similar facilities elsewhere where tailings ponds have been used.

PJ: How is the peat going to be used? PH could be quite high.

BNM: Mostly in perimeter embankments and capping. Notes environmental screen berming in the application drawings. The peat can be used in these.

PJ: Other hazardous materials – what types will be allowed in to the site?

BNM: Asbestos may be accepted, handled in line with the operating guidelines for the site. Also, gypsum, contaminated stones, gypsum, heavy metal containing waste (not medical, solvents, PCB's, etc). Not coal tar.

PJ: Removal of peat – 1-2 metres residual – then some of the subsoil (clarifying details).

BnM: Longitudinal Sections in the application drawings show intercell and internal berms and liner materials.

PJ: Notes high groundwater level is very high – within a meter or two of the site. Dewatering required?

BnM: Confirms that dewatering is required, and this is similar to ongoing management of the individual cells.

PJ: Asks after site is completed – is dewatering permanent or is it allowed to recover.

BnM: The dewatering is turned off once the cell stabilizes – but notes that local subsoils are generally impermeable.

PJ: Notes that water levels may rise above current levels.

BnM: Confirms that this is correct.

PJ: Notes proposal for hydraulic containment.

BnM: confirms this is the existing process and what is proposed for the hazardous waste site. But emphasizes the impermeability of the soil and so lack of vertical pressure on the liner. States that the existing cells have proven this approach works.

PJ: Notes it has only operated since 2008.

PJ: Depth of the waste – 20-30 metres? Is this correct?

BNM: yes

PJ: Considerable pressure on the base.

BnM: Similar design as the existing facility.

PJ: Raises a point about localized bearing pressure.

PJ: Questions design of the liner – natural soil plus geomembrane.

BnM: Section 3.5.1 of the EIAR outlines the design. Liner has a number of layers, with natural impermeable subsoil. Bentonite enhanced soil. Comments on permeability figures. Notes holistic element of the design, including removal of leachate. Provides more references.

PJ: Assumption is that HDPE liner with liner is equivalent to 5 meters of mineral soil? So the assumption is that the natural nature of the soil will fulfil requirements?

BnM: Notes difference between hazardous and non-hazardous liner is the hydraulic conductivity – the hazardous landfill has a proposed figure in accordance with BAT and the Landfill Directive requirement.

PJ: This assumes the integrity of the baseliner will be maintained.

BnM: Argues that ongoing testing on the site will ensure that QA standards will be maintained. Conscious of issue of ensuring integrity of the liner.

PJ: Raises question about 'Landsim' assumptions.

BnM: Modelled inputs assumed.

PJ: Capping material: How do they see the final capping and final use and how does this effect the final design of the capping?

BnM: Follows EPA Landfill Design Manual. Normal layers (gas protection, drainage, etc). Geomembrane, on top of this, capped off with 1 metre soil and 150mm topsoil. Final regeneration of grass on top of the mound. A restoration plan is provided, but this has not been integrated with the final capping design.

PJ: Will capping material be imported?

BnM: Materials balance in EIAR – mostly generated on site. Also proposed clay layer from borrow area.

PJ: Underlying mineral soil: Some very deep clefts of material on the site – this impacts on groundwater drainage – questions deep clefts and western flow of groundwater shown on the plans. The subsurface material is not homogenous – questions the evaluation of the permeability. Only four boreholes? Asks for elaboration on how sure they are about the low permeability of those subsoils.

BnM: Notes total information from this investigation and historic investigations. Numbers in Chapter 6 of the EIAR.

PJ: Linkage between Cushaling and the groundwater system was referred to by IFI (Mr. Byrne). Figures tends to indicate that the permeability is higher than that stated.

BnM: The tests have been carried out. Outlines past investigations and interpretations of the existing data.

PJ: Questions the 'bigger picture'. Definite hydraulic connection between the subsoil and bedrock and Cushaling.

BnM: Agrees with this.

PJ: Landsim risk assessment model – how significant is the permeability of the underlying mineral soil in Landsim models and prediction?

BnM: Outlines the assumptions.

BREAK

PJ: The nature of the underlying soil – fundamental to the design. Any indicators that vertical gradients are impacted by local conditions?

BnaM: Agreed, but the differences are within quite a narrow band, and generally consistent through the year.

PJ: Surface water aspects: Overall drainage of the site has been significantly altered by peat extraction. Most has been to the west. Main proposal to direct surface drainage into the site and manage in that way.

BnaM: Agrees, and outlined details of the design.

PJ: ICW were designed to achieve specific aims – is there a design concept behind them?

BnaM: Existing trial pond on the site. These wetlands appear to be working quite well.

PJ: Asked the parameters of testing.

BnaM: Improvements in suspected solids and ammonia. Notes issues with ammonia in existing wetlands.

IFI: With regard to ICW – has looked through other proposals for designs on these proposals – seeks clarification on the design of these ICW's.

BnM: Clay liners used (no membranes).

IFI: Concerns about the efficiency of the trials. Notes absence of some figures in the reported outputs. Notes 2 exceedances at SW6 and all samples on SW5 (total 7 fails). Concern about leakage from the pond. And concerned that contaminated water is bypassing one of the sampling points. Concern that water may be bypassing the system and flowing into the internal drainage network and into what was the original course of the Cushaling.

BnM: Emphasizes that they are not reliant on the ICW. Notes role of swales in intercepting water and other elements of the design (7.5.1 of EIAR). ICW are a 'belt and braces' approach with all the other measures. With regard to SW6 – states that

the wetland has been in place since 2015. Measurements at the outlet of the wetland and all water passes at monitoring point SW5.

IFI: Restates concern on the lack of information on water bypassing and the lack of information to support the conclusions of the EIAR. Questions the conclusion that all water run off is collected to the ICW. Also points out the statement that it was pumped water that was causing the exceedances. What level of pumping is underway at the moment? Concern that there may be ammonia coming from the pumpwater from under the existing landfill.

Also asked if it is designed to construct the ICW the same way as the trial ICW?

BnaM: Notes with ammonia – this is a natural part of peatland break-down.

IFI: Big concern that the construction of this facility will conflict with future plans to deal with future water quality issues. Accepts that it is a difficult issue to deal with, but argues that it conflicts with a long term solution.

BnM: Conscious of issues around ammonia and are involved with the EPA to look at projects to address the issue. But emphasizes that it is part of the issue with cutaway bogs. Gives example of where separate facilities compatible with re-watering – argues that the ICW's are part of a system to mitigation and address the issue.

IFI: Raises issue of Glaslough facility which uses an ICW – existing ICW, has consistent winter exceedances of ammonia (very significant releases). Notes comment on previous day that the Glaslough example is not a good model. Emphasizes concerns about waters bypassing the ICW's.

BnaM: offers to provide additional figures. States that it would not be possible for significant water to bypass the monitoring points.

IFI: Main concern is Cushaling. States there is very good habitat on Cushaling, the issue is water quality. Notes other improvements (another facility). Expecting salmon to recover (after I questioned his statement to clarify what he means by 'very good habitat', IFI confirmed that he meant the overall river vegetation and form was suitable for salmonids – most likely only ammonia and suspended solids are preventing their breeding).

BnaM: Notes existing poor water quality – and a number of other pressures on the water quality.

PJ: Agrees on crucial issue on the liner of the ICW.

PJ: Need for design of the ICW to do what you want them to do – they have to be designed specifically for purpose.

PJ: Notes that the example of Clara given earlier about ammonia releases (it was argued by BnM that it was generating ammonia in nearby waterways) – this bog was in fact cut, just not to the extent of Timahoe bog.

PJ: Notes that flooding the wetland would have a significant impact on aeration of ammonia.

PJ: Question on climate change impact.

BnM: 20% allowance for increase in rainfall. Leachate controls designed to be kept at a particular level – the design allows for changes.

PJ: Issue of removing leachate – is there capacity in local wastewater treatment plants?

BnM: Leachate isn't currently treated. Irish Water has stated that the capacity will be there. It is assumed that other upgrades in the Greater Dublin Region will allow for sufficient capacity.

PJ: Is this really sustainable if it has to be trucked out?

BnaM: Conscious that the surrounding surface water bodies may not have the assimilative capacity for treated leachate. Notes the reuse of leachate on-site for processing the ash. Methods in place for minimizing requirements for outputs. Emphasis on recirculating leachate.

KCC: Where will capping material be from within the site?

BnaM: Borrow pit identified. 66,000 cubic metres material identified.

BnaM: Additional issue on ICW. Confirms future ICW could be lined.

IFI: Seeks clarification on one point: Situation on existing landfill. Is there pumping from existing cells?

BnaM: Confirms a small amount.

Issue of rainfall intensity – BnaM – agreed that this requires addressing.

This module then ended.

Mr. Mulcahy requested that they be allowed present a response to KCC's points regarding protected structures and recorded monuments along the haul route. This was presented by **Mr. Martin Fitzpatrick** of Through Time Limited consultancy. He distributed a precis of his evidence (on file). He specifically outlined a response to KCC submission on possible impacts on archaeology and structures along the haul routes. He identified all these by name (see lists provided pages 5 to 10 of the document). He discussed these in some detail, stating that in all the cases of archaeological sites and protected structures along the routes there was no identified impacts as there are no proposed works or alterations to the road that could impact. He noted that any traffic over bridges that are protected would be in accorded with accepted load limits.

With regard to KCC's points about 'Irelands Ancient East' and in particular the tourist potential of the tentative world heritage site of Dun Ailinne, he stated that as the facility is 4.5 metres from the R403 and is well screened there would be no impact. He stated that while there is no dispute about the significance of Dun Ailinne, the site is some 25 km from the site, this distance ensuring there would be no impact.

This ended all submissions.

I allowed cross questioning to start – as Mr. Fitzpatrick could not attend the next day. Questions were led by Mr. McEntee for KCC as follows:S

KCC - Asked how to define 'proximity' with regard to the identified sites.

MF- In the introduction – at the road edge, but not set back. Second one looked at ones with set back. All within 5 metres.

KCC: How to define impact?

MF – Impact based on the assumption that its an existing used road. Taking into consideration to the use of the road. What about Millicent and Firmount Cross – a Regional Route?

MF – confirms it is not.

KCC distributed a map (on file) listing recorded monuments along the routes.

Is aware that there are monuments along the road.

KCC- Haul route no.1. With regard to the Alexander Bridge. Did he (Mr. Fitzpatrick) examine the bridge?

MF – not in an engineering sense. The existing road crosses the bridge with existing traffic.

Questions about the number of HCV's.

Mr. Fitzpatrick stated he could not comment on structure of the bridge as he is not an engineer.

KCC: Route 2.2Haul route: How can you say the monuments will not be impacted?

MF: Will not provide a structural engineers analysis.

Haul route no.4 – crosses four bridges. MF replies states that he is not giving a structural engineers structure.

Regarding Clane. What about Clane Abbey?

MF – agreed that it is within 23 metres of the route but stated that there is no basis for considering that there would be an impact.

Question from the floor:

Is Johnstown Bridge a protected structure?

MF confirmed that it is.

I closed the hearing for the day

March 13th. This day was reserved for cross-questioning and final statements.

Cross questioning commenced with Mr. Mulcahy for BnM leading. He addressed specifically to Mr Cronin, engineering consultant for KCC.

BnM: when was he (Mr. Cronin) engaged to prepare the report?

KCC: 16th November (issue of acceptance). Report submitted 1st of March. Refers to section 2.3 of the report. Asked to look at the impact on the road network and to analyse the BnaM EIAR road submission. Confirmed that they did not carry out individual surveys or detailed traffic model (relying on information submitted by BnaM in the EIAR.

BnM: Refers to section 3.4 of Mr. Cronins evidence Drehid taking in more material? Refers to associated table. Notes some information submitted by Kildare County

Council (information on waste) and from the EPA website. The basis for the assumption in 3.4? That the material is required for capping?

KCC: Confirmed.

BnM: What understand by capping? KCC:

Daily, intermediate and final capping of the site. Different from the note in the table (final capping?). Accepts that there is a difference between 'final' capping and other engineering purposes.

BnM: Refers to section 4.5 and set out a number of questions about the assumptions.

KCC: Assumptions of quantities in haulage vehicles (20 tonnes assumption). Information from TII. States that trucks have 12.5 tare (unladen) load, with 18-19 tonne load capacity. Assumed articulated load with weight. Insists that 20 tonnes is noted as normal truck. States that it is not a conservative estimate.

BnM: What if they are articulated?

KCC – no evidence that they are articulated. Insists that its based on information provided. (BnaM states that articulated trucks are used).

Dispute over average weight of the material – rigid or articulated trucks? What is the conservative estimate. KCC insists that it is clear and obvious that it refers to a 4 axle rigid truck, BnaM are saying it is not an assumption, articulated vehicles are brought in.

Mulcahy confirms that the average weight of vehicles entering the site is 23.4 tonnes in 2018. Asks if this the 20 tonne figure is conservative. BnM state that this information was available.

Next assumption:

BnM: Section 4.5.3 of the report: Assumption on working hours. Mulcahy states that the EIAR gives different hours.

KCC: This was based on current practice, not the applied hours of opening.

Clear that KCC analysis based on existing working hours, BnaM point out that operating hours applied for are longer.

BnM: section4.5.4. Capping materials – Mulcahy refers to EIAR Table 10.5. First part of the table – 'existing' 2017. Indicates 'engineering material' equivalent to 700 HCV's. Assumes its capping and roads material. Mulcahy argues that they did take

account of capping and engineering materials 'in future scenarios'. KCC: **Accepts that it was wrong to state that it had not been accounted for in the submitted figures.** In response states that the 114 figure is based on an assessment of what is anticipated.

BnM: Asks to make an analysis based on his calculations. KCC: Agrees that less material is required in future years.

KCC refers to table in EIAR (p.169, table 3.25 and 3.26). Estimated materials balance. Notes his assumption of a 2.1-2.2 multiple for cubic metres to tonnes.

Note assumption of 81% accepted waste. This is based on the 'proposed' assertion, on the assumption that some materials were not taken in during 2017, hence those figures are not relevant.

Mulcahy insists the assumption on engineering material is clear in the EIAR – response from KCC that it is 'not clear'. But accepts that engineering material is accounted for in the EIAR.

Mulcahy states that the hazardous material only requires capping material – this is already accounted for. Notes issue of 66,000 cu meters from borrow pit on the site. (table 3.6). Page 171 – 1.47 million cu m., will be reclaimed and used on the site (EIAR).

Discussion ensues about whether the borrow pit is providing all the capping material.

Generally seems to have been accepted that the borrow pit will provide capping material (this undermines some of KCC's arguments). 'some' of the engineering materials.

KCC insists that their assumptions are conservative and notes no figures on loaded materials exiting (recycling material). Horan – notes confusing levels of figures in the tables. It doesn't tally.

Questions to Mr. Deane on Development Contribution scheme.

Unfortunately, original author of the submission on the development contribution scheme not available for the oral hearing.

Page 7 of submission on levies.

BnM – refers to EIAR – page 404 – extracted from development plan, includes details of works carried out by KCC. The works included works to junctions. Are those the same as those referred to for Special Development Contribution? Table 10.2 are for major reconstruction works – KCC says they were general upgrades. KCC insists that the works are a different order of magnitude (difference between those in the development contribution scheme and the Special Development Contributions). Difference between acquisition, widening, reconstruction. The figures mentioned in the Chief Executives report are for upgrading.

Mulcahy – dispute between the parties whether this is double counting.

KCC – considers that the figures are justified as a distinction between the two types of work. All works attributed to existing traffic loads.

This ended the questioning by Mr. Mulcahy.

Kildare County Council declined the offer to put questions to the applicant.

A number of Observers put questions to the applicant as follows:

Kieran Cummins – Observer

Issue of the bridge – Johnstown Bridge - Is it a protected structure? Have they carried out an engineering assessment? (BnM indicated that this is not their responsibility), as with the further questions on bridges).

Line of bridges from Allenwood south - Structural integrity of the bridges. Weight restrictions.

KCC confirmed there is no weight restriction on these bridges, but concur with his concerns.

Community contributions. Would they agree with protected structures for those that are not so protected? Encourage BnaM in the desire to protect them.

Construction management plan? Any comments on Mr. Sweetmans submission? BnM referred to the EIAR - Section 3.5 – outlined elements to be included in the construction management plan. Argues that construction takes place across the entire life span of the operation and so this is dealt with throughout the EIAR. Method statement included. 3.5.3, outlines quality control issues 3.5.5 and 3.5.6,

etc. 7.5.1 looked at construction phases, 7.6 looked at construction phases. Mitigation measures have been set out through the EIAR – note table in Appendix 4 (this was requested). Mr. Mulcahy – refers to Howlin decision – denies that Mr. Sweetmans interpretation is correct. It referred specifically to issue of information and conditions. Plus People over Wind. Notes that mitigation measures need to be identified. States that the specific mitigation measures required are set out as identified.

Issue of self policing. Questioned issue of figures being provided. Do the applicants have a response?

BnaM – notes requirements set out under license and existing planning permission.

Cummins – wish to put on record that they are dissatisfied with existing situation.

There is an issue with enforcement – annual subs – (development contributions). The witness is not available.

Is the Register publicly available? Any redacted issues?

BnaM – the complaints register is not fully available (legal issues)

What happens if the lining is ruptured?

BnaM: It will be constructed and maintained in line with EPA guidance. It will be protected with geotextiles. Will use specialist contractors. BES layer below. Refers to 3.5.6 of the EIAR. QA procedure. Notes information will have to be provided to the EPA as part of licensing requirement.

Is there a shelf life for the materials? They have a life in excess of the landfill itself. Toxic waste – asbestos? Can they elaborate on what this represents?

BnM: Asbestos and asbestos waste material, hazardous C&D waste, metals containing waste. Does not include clinical, etc. Transport of hazardous waste to the site. Fly ash in covered tipper trucks. Asbestos will be baled and wrapped – will not be imported in a loose form.

What about an accident incident? Do they have a plan? An emergency response team?

BnM: It will be part of the EPA license agreement.

Who is responsible for clean-up if it happens off site?

BnM: The individual waste operators is responsible – BnaM will provide assistance.

GPS tracking devices. Who would have access to these records? **KCC** in favour of maintaining that as public record.

What about emergency numbers?

BnM: There is an existing number posted on the entrance.

Raised issue again about possible intimidation of members when the community attempted their own analysis.

Pavement test on the roads?

BnM: Yes, it was completed – refers to EIAR.

Flies from leachate? Vermin, Invasive species?

BnM: the hazardous material would not be expected to attract the same level of vermin as with the existing use. Section 3.2 of the EIAR deals with vermin control.

Notes this is a concern by the residents.

Hours of operation – Noxious odours are not confined to hours of operation – have they conducted an assessment on particulate matter? Any assessment on the value of peoples homes?

BnG: Not as part of the application.

Issue of private wells and impact on water supply. What is the applicants proposal if this occurs?

BnG: Issue covered within the EIAR. The nearest private wells are tested. Plus local boreholes are tested.

Carbon sinks: Are the applicants of aware of rehabilitation?

Bng: Information on file.

Have alternative uses been considered?

BnG: Refers to BnaM business plans, and overall plans. Response: The community do not see any gain from the proposal.

Has the backfilling of quarries been considered for hazardous waste?

Wishes to state that the community were unaware of the scale of the proposed development they would have objected in the first place – example of disorderly development.

Electricity generation – 4.99MW?

Bng – confirmed that is existing power generation.

Footprint of the operation – has it been mapped?

BnG. It is continuously surveyed. States that it is not outside permitted area.

Proximity principle: Issue of waste coming from a wider area.

BnG:Refers to a number of documents – PP does not mean it be local or national, it refers to specific wastes and those that require special treatments. Notes in EIAR the volumes currently been exported.

Next **Observer Name?**

Issue with Abbeylough River – issues associated with ongoing BnaM works.

Sheila O'Brien – farmer from locality

On-site monitoring – question – Is there an accident/event file and is that available to the public? Issue of lack of monitoring by EPA. Local levels of mistrust of the EPA and monitoring.

Department of Agriculture license?

BnG:Yes, license for composting.

Swill delivered? Quotes from Foyne delivery. How is this treated? Foot and Mouth. Strong concerns expressed.

BnG – Confirms that this material is deep buried in accordance with license conditions.

Displacement of wildlife – page 20. Foxes, rats, badgers, etc.

BnG: Biodiversity element of the EIAR No badgers on the site confirmed. No setts recorded.

Emphasizes trust issues. – notes general attitude to people –

Robert Valkerp

Refers to Mr. Paynes presentation – gives total tonnages for various scenarios.

Existing: total 663,857 tonnes. How many vehicles – divided by 23 tonnes – 28,826 vehicles. 57,000 trucks.

10.5 and10.6 of EIAR.

How much is waste specifically? A. 10.9 lists the construction traffic – 2019 figure.

AES waste?

What percentage is going in is municipal waste or construction waste.

Refers to EPA annual environmental report. Concentration level for methane and carbon dioxide exceeded. 34 incidences on site of ammonia exceedances.

Notes number of inaccurate figures, etc.

Claims that it is relevant to the issue of monitoring the site.

Illegal parking of trucks. Claims that late vehicles are parking up and brought in the following morning.

KCC has confirmed the above unauthorized parking site has been closed.

Joanne McLoughlin – Protect Caragh Group.

Outlines constant problems with the site and the community.

States that there is a loss of trust between the communities and BnaM.

Constant problems with issues on roads in the area.

Seamus Lonegan

Complaints regarding odour from the landfill. Constant issue with odours. Constant lack of consultation with the community.

I then ended the cross questioning and invited the parties to make their final statements:

Kildare County Council

Expressed thanks to the Board for allowing a sharing of views. The Council have strong concerns in relation to the development. It is of a very significant national level scale. There are ongoing compliance issues and issues with compatibility with the development plan and the waste management plan. Issues of proximity principle and the waste hierarchy.

Particular concern is expressed at roads and the issues – Mr. Horans evidence is emphasized – ambiguities in the applicant's details. Insufficient analysis of the impact of the proposed development on the haul routes. A focus on lacunae in the traffic generation analysis. Focus on working days and loads of the vehicles – insists that it is not a proper conservative analysis. Bringing up again issue about importation of capping materials. Lack of clarity on the quantities of material.

Issue of weight bearing of the roads emphasized. Argues that the haul roads cannot bear the additional traffic.

Notes Jonathan Deane (roads department) evidence – the impact to date on the existing haul routes – 47% of the available funds has been expended on the haul routes. This is having a significant impact on funds available to Kildare County Council. Mr. Horan emphasized in his report and precis evidence that the haul routes are not suitable for the level of traffic proposed.

Development Contributions – KCC would like to make it clear that S.48 is very clear about when works must commence and be completed (within 5 years), the requested Special Contribution is for additional works – this will not provide for the reconstruction of the roads that is required. States that it will be a challenge for the authority to spend the word and to upgrade as required – serious consideration should be given to where the monies will come from for the long term maintenance and construction of these roads.

Mr. Mulcahy for the applicant:

Notes the purpose of the hearing is to provide clarification, especially on hydrology and design – notes the response to Prof. Johnsons work and the IFI comments – they state that the required impermeability can be provided.

The three main questions – in accordance with the proper planning and sustainable development. Notes that the waste management authorities are supportive. Emphasizes that not all waste disposal/treatment facilities are in the East Region – Ringaskiddy is now available. Notes that much of the proposed waste has nowhere else to go.

Second part of the task – EIAR – submits that adequate information has been submitted. Notes that many of the queries raised apply to the existing landfill. Regrets with the lack of trust. Main environmental information (apart from water) relates to traffic. Argues that Mr. Horans submission for KCC was based on incorrect assumptions.

Special Contributions – argues that while a fair contribution should be made – argues that the Council is seeking funding for all road improvements to a 20 year

standard. It is argued that this is inappropriate, submits that much of the works are already provided for in the S.48 Contribution.

Jurisdiction Issue – AA and the NIS – ABP has statutory obligation to assess this, submitted that there is no contrary evidence that the conclusions are incorrect.

Thanks everyone on behalf of the team.

Following the final statement by the applicant, I thanked all parties on behalf of the Board and closed the hearing.