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**IN THE MATTER OF AN APPLICATION TO
AN BORD PLEANÁLA
FOR PERMISSION FOR
STRATEGIC INFRASTRUCTURE
DEVELOPMENT
(THE CHILDREN'S HOSPITAL OF
IRELAND)**

ABP Reg. No. PL29N.PA0024

AND IN THE MATTER OF AN ORAL HEARING

Statement of Evidence of

Dr Martin Hogan FRCPI FFOM AFOM

1. Qualifications and Experience

I Dr MARTIN GERARD HOGAN hold a primary medical degree from University College Cork Degree (1987).

Among other qualifications I am a Fellow of the Faculty of Occupational Medicine of the Royal College of Physicians of Ireland and I am also a Fellow of the Royal College of Physicians of Ireland (FRCPI) since 2009.

I am a registered specialist in occupational medicine with the Irish Medical Council. I am currently a full time Consultant Occupational & Environmental Physician and director of Employment Health Advisers Ltd.

I am the Dean of the Faculty of Occupational Medicine of the Royal College of Physicians of Ireland. I am occupational physician to University College Cork and a Lecturer in occupational medicine, University College Cork. I am a specialist trainer in occupational medicine since 1997. I am an examiner with the Faculty.

My areas of special interest are, Toxicology, Environmental Health effects of Industry, Occupational Asthma, Health effects of Noise and Occupational Hygiene.

I have prepared human health impact assessments for many projects as diverse as Metro North, landfills, incinerators, airport runways and composting

2. Role in Proposed Development

I was invited to comment on potential Humana Health effects of the proposed development. While these matters had been extensively addressed in the EIS specific questions had been raised in submissions/ observations that would best be addressed by a medical practitioner.

3. Key Issues

3.1. INTRODUCTION

I will address the potential Human Health impacts of the proposed development including:

- Air Quality
- Aspergillus
- Noise

3.2. DESCRIPTION OF EXISTING ENVIRONMENT

The area of the proposed development is already a major healthcare facility. The Mater Misericordiae Hospital is of major importance from a healthcare perspective not only in Dublin terms but in National terms being a major tertiary referral centre. The Mater Private Hospital is one of the most important health care facilities in the private sphere.

3.3. POTENTIAL IMPACTS ARISING FROM PROPOSED DEVELOPMENT

3.3.1 Air Quality

Potential impacts in relation Air Quality are extensively addressed in Chapter 8 of the EIS. My colleague Dr Edward Porter has further addressed these matters in his submissions to the hearing. I will therefore restrict my input solely to Human Health Impacts.

As stated in Section 8.5 of Volume 2 of the EIS, there is the potential for a number of emissions to the atmosphere during the construction of the development. This project, like all other construction activities may generate quantities of dust.

Demolition, ground breaking and ground movement all generate dust. Construction

vehicles, generators etc., will also give rise to some exhaust emissions. Construction activities, particularly demolition and ground movements can lead to temporary mobilisation of *Apergillus* into the air with the possibility of increasing the likelihood of susceptible individuals suffering from serious infections.

Much of construction dust by its nature is quite heavy and disperses over a very confined area as it falls to ground rapidly. The construction process itself is not expected to generate large quantities of smaller size dust such as PM 10 and PM 2.5 which are more important in terms of environmental health effects. Mitigation measures in terms of dust control as detailed in the EIS, on the construction site will minimise any effects.

Based on information in the EIS the emissions of this the proposed construction phase activities will contribute at most 18% of the limit value for PM 10. This is a worst case scenario. In practice the effect is likely to be less than this.

Predicted PM2.5 concentrations at the nearest receptors are predicted to be significantly lower than the limit value of 25 µg/m³ which will be in place after 2015

Overall construction activities will not result in Air Quality Standards being exceeded over any significant period of time in the environment outside the construction sites. We therefore can be confident that there will be no significant health effects

Again, as stated in Section 8.5 of Volume 2 of the EIS, there is the potential for a number of emissions to the atmosphere during the operational phase of the development. In particular, the traffic-related air emissions may generate quantities of air pollutants such as NO₂, CO, benzene and PM₁₀. Space heating using natural gas will also give rise to some air emissions including NO₂ and CO. There will however be very little impact on current or baseline levels.

Again as operational activities will not result in Air Quality Standards being exceeded over any significant period of time in the environment outside the construction sites. We therefore can be confident that there will be no significant health effects

3.3.2 Aspergillus

Aspergillus fumigatus is a fungus and one of many microorganisms which bring about the everyday decay of leaves, wood and other organic matter in our environment. It may be found virtually everywhere on earth, and, although we are all exposed to it regularly, it does not normally cause disease. Our bodies' immune system normally acts as if it were an innocent visitor, unless it invades tissues. In that event, the immune system responses will protect us.

Aspergillus spores (also called conidia) are very light in weight and therefore are easily spread by air currents.

Construction and renovations are associated with dust generation. In association with this there can be temporarily increased Aspergillus levels in air. While we have do not have good data on infective doses of these organisms, it is reasonable to expect that increasing the potential dose increases the likelihood of eliciting a response, in susceptible people. Therefore, in preventing or reducing health risks from Aspergillus, it is considered important to control exposure to spores by utilizing a set of best management practices.

There are individuals who, due to special circumstances, may be at higher risk. It is impossible for any individual no matter how vulnerable to completely avoid exposure to Aspergillus as the organism is ubiquitous in the environment.

There is no doubt that the individuals most vulnerable to Aspergillus as an infective organism are the immunocompromised. These are often but not always hospital based. It is of course true that as well as being vulnerable to Aspergillus they are usually vulnerable to a multitude of other organisms as well.

The National Guidelines for the Prevention of Nosocomial Invasive Aspergillosis During Construction/Renovation Activities were issued in 2002 by the National Disease Surveillance Centre (NDSC). These are summarised in the EIS.

All ground breaking construction work will have the potential to temporally increase the ambient air levels of *Aspergillus* in the immediate environs, that is within 200 metres of the site. Within this 200 metre area however the highest level are going to be within 50 metres. The proposed scheme is no different from any construction work in this respect. Other activities such as composting and even grass cutting can be associated with greater increases. For the vast majority of people this is not an issue. The relevant institutions for this project are the Mater Misericordiae and the Mater Private Hospitals. Mitigation measure proposed in above guidelines minimise the potential for any detrimental effect. These will be followed and therefore there will be no significant risk of a detrimental effect.

It is important to point out that the majority of inpatients in hospitals are no more vulnerable to *Aspergillus* than the rest of us. There are of course also usually a significant number of patients who are more vulnerable. Those who are, which includes those who are immunocompromised, are normally protected with appropriate controls including specialised ventilation and certainly would not be housed in rooms or wards where windows are opened. There has been extensive consultation with the Mater Misericordiae and Mater Private in particular with regard to this. HEPA filters (High Efficiency Particulate Air,) where installed are capable of eliminating in excess of 99.99% of particles with a dimension in excess of 0.3 micrometres. This is sufficient to essentially reduce *Aspergillus* to a much less significant health threat to patients. All these controls, where immunocompromised patients are situated, are necessary anyway, regardless of this project as *Aspergillus* is ubiquitous in the environment anyway. The added risk associated with the proposed construction should not pose a significant threat to the patients provided the NDSC Guidelines are applied.

3.3.2 KEY ISSUE RELATING TO NOISE

Potential impacts in relation to Noise and Vibration are extensively addressed in Chapter 10 of the EIS. My colleague Dr Stephen Smith has further addressed these matters in his submissions to the hearing. I will therefore restrict my input solely to Human Health Impacts. Mitigations measures are detailed in Section 10.5 of the EIS.

Noise impact Criteria have been clearly set for all noise sensitive locations in the vicinity including other hospital buildings

PREDICTED RESIDUAL IMPACTS (Post Mitigation)

Construction Phase

The mitigation measures suggested in Section 10,5 of the EIS does include reducing noise at source and screening. In addition maintaining closed windows with temporary secondary glazing where necessary is also an excellent mitigation measure. As previously stated this is the normal position of hospital windows at any rate for other reasons

A noise criteria of 45dLeq indoors has been set for hospitals A background noise level of 45dB Leq indoors is very unlikely to interfere with communication. This corresponds to much higher levels outside due to the attenuation of the building. While this will vary, depending on the age and the design of the building one can expect a minimum of 15dB attenuation even with windows open and often much more in practice. With windows open some exceedances of the noise criteria can be expected during certain periods of the construction phase. It is important to note that these are worst case scenarios.

It should be stated that a busy acute hospital will have levels significantly above 45dB due to internal movements, procedures etc.

Noises levels in excess of 60dB from internal activity are normally expected from time to time. In other words the effects of external construction noise are likely to be less than pre-existing internal noise.

For potentially sensitive receptors such as the Mater Private hospital it is important to recognise that regarding the control of noise only, windows could be kept open for most of the time and closed in the event of noise becoming obtrusive which as explained may be only for relatively short periods of time,

However for reasons detailed above windows of a hospital will normally be closed for reasons other than noise and unrelated to this proposed development. These reasons include maintenance of internal hygiene and microbiological control by reducing the entry of dusts and organisms such as Aspergillus, which are always present in city centre locations such as this, from entering into health care areas.

Based on the predicted results presented in the noise evidence no ongoing adverse effects either in the construction or operational phases of the proposed scheme are predicted.

Sleep Disturbance

No night time work is proposed during the construction phase. Some works may need to happen outside of regular working hours to facilitate the works i.e. – to complete concrete pours that may be necessary to facilitate sensitive receptors, and the potential effects associated with this but these will be rare and can be planned and potential receptors advised.

In terms of vulnerable receptors, again the Mater Private Hospital is considered. Patients will often try to get some sleep by day. It is important to note, as anyone who has either worked or been in a hospital at night, they are relatively noisy places due to the necessity of around the clock health care. Given this, the predicted noise levels during construction during both day and night are not going to be significantly above existing levels and therefore no impact on human health is predicted.

Operational Phase

As there will be no significant change in background noise levels compared to the Do Minimum scenario, no impact on Human Health is predicted.

4. Submissions and Responses

4.1. Issue – Helicopter Noise

Submission:

A number of submissions, including Terry Mallin, Patricia O Connor and Frank D'Easaille mention concerns relating to Helicopters and noise emanating from same.

Response:

A helicopter pad is not proposed for the facility.

4.2. Issue – Dust/ Air Pollution

Submission:

A number of submissions including An Taisce, the Mater Private Hospital, Clare Fallon mention increases in dust levels or deleterious effects on air quality

Response:

Air Quality standards are designed to protect human health, even the most vulnerable. Neither during construction nor operation will there be any significant deterioration in air quality. No deleterious human health effects are predicted.

4.3. Issue – Noise

Submission:

A number of submissions including Evelyn Morris, The Mater Private Hospital, Terry Mallin, Clare Fallon have mentioned noise either in construction or due to increased traffic

Response.

With the mitigation proposed noise levels will not increase significantly above those already existing and the absence of night work during construction greatly reduces the potential impact on sleep for example.

4.4. Issue Stress

Submission

Evelyn Morris mentioned in her submission about potential stress and mentioned previous construction in the area and points out this may get worse with the "monstrosity" of a building.

Response

While I accept construction activities can be a nuisance for a period of time I know of no scientific evidence that stress related illness increases in these circumstance nor indeed related to the design of buildings in the vicinity.

5. Conclusion

From a human health perspective no negative impacts on human health from the proposed development.

Speaking as a doctor I welcome wholeheartedly the proposal to build this National Children's Hospital and when operational I am sure it will have a hugely beneficial effect on the health of our children and indeed our children's children for many years to come.