Submission No.	003
Organisation Name or Name of Submitter	Aidan Cyril Forde (Cordarragh, Brighton Road, Foxrock) - submitted by Magahy Broderick Associates Structural Civil & Environmental Engineers

Item No.	Section Ref.	Page No.	Observation Statement	TII Response
We write on behalf of our client Aidan Cyril Forde, Cordarragh, Brighton Road, Foxrock, Dublin 18 to make an submission/observation in relation to the Railway (Metrolink-Estuary to Charlemont via Dublin Airport) Order 2022				
1	Observation	1	TII wish to thank you for your submission. Responses where relevant are provided below in (3) and (4).	TII wish to thank you for your submission. Responses where relevant are provided below in (3) and (4).
2	Observation	2	We have obtained some information from McCrae's Consulting Engineers archives in relation to the foundations of the building and can confirm that secant piles (750-900mm diameter) were used around most of the perimeter of the building. The piles used were cast in situ concrete bored piles and were in the region of 8.5 to 9.5m deep. The basement slab level is c. 4m below the finished ground floor level, with the underside of the car lift pits a further 2m below the finished basement level. The accompanying documentation states that the tunnel can deviate up to 15m laterally, 15m vertically down and 5m vertically up. We estimate that in the event of the tunnel deviating 5m upwards the top of the tunnel would be c. 7m from the assumed bottom of the piles for our client's building. Figure 1 below is a sketch of our clients building with the possible proposed tunnel routes shown. (See PDF)	TII thanks you for the information provided. Please refer to responses (3) and (4) below.
3	Observation	3	The piles are installed down to the level of the limestone bedrock and we have concerns that vibration from tunnelling could affect our clients foundations if the final chosen location of the tunnel is too close to the bedrock the piles are bearing onto.	With regard to the proximity of your basement piles to the tunnels and the impacts of vibration on your structure, EIAR Chapter 14 Groundborne Noise and Vibration, Appendix 14.5 presents the predicted groundborne vibration levels during the construction phase of the project for 10/11 Leinster Street South: The predicted level of groundborne vibration during TBM passage is 0.248 ms-1.75 day and 0.208 ms-1.75 night, below the VDV (Vibration Dose Value is a parameter that combines the magnitude of vibration and the time for which it occurs) Threshold Level of 1.0 ms-1.75 day and 0.5 ms-1.75 night, resulting in a not significant impact on the building. It should also be noted that there is no other mechanical excavation nor blasting at this location, resulting in no impact on the building. With regard to settlement induced by the tunnelling operations your buildings have been assessed as being within the "negligible" damage category and hence no significant impacts are anticipated. This is as detailed in EIAR Appendix A5.17. The design includes for a limit of deviation which is required to allow for unforeseen obstructions and construction tolerances which may necessitate a change to the alignment. In the highly unlikely event that this were to occur, any resulting environmental impacts will comply with the limits set by the enforceable Railway Order. TII has carried out a comprehensive set of ground investigations in accordance with relevant guidelines and best practice. It has a high confidence that MetroLink can be constructed along the proposed alignment without requiring vertical or horizontal adjustment. However, in order to guard against rare and undetectable subterranean conditions that might interfere with construction, the Railway Order provides for limits of deviation (as have other railway authorisation since at least the 1840s). The impacts of potential changes within the Limits of Deviation are considered in the Wider Effects Report (Appendix A5.19).

Submission No.	003
Organisation Name or Name of Submitter	Aidan Cyril Forde (Cordarragh, Brighton Road, Foxrock) - submitted by Magahy Broderick Associates Structural Civil & Environmental Engineers

Item No.	Section Ref.	Page No.	Observation Statement	TII Response
We write on behalf of our client Aidan Cyril Forde, Cordarragh, Brighton Road, Foxrock, Dublin 18 to make an submission/observation in relation to the Railway (Metrolink-Estuary to Charlemont via Dublin Airport) Order 2022				
4	Observation	3	We request that a detailed schedule of condition be prepared by the applicant prior to commencement of the works and vibration and noise monitors are installed in line with current best practice.	Monitoring instrumentation will also be installed to monitor the performance of the works and potential environmental impacts, including those discussed above to ensure that limits in the EIAR are not breached. TII would also draw attention to the fact that residential properties within 50m of the station excavation, or 30m of the tunnel are eligible to subscribe to the Property Owners Protection Scheme (POPs) which includes for pre and post-construction condition surveys and repair of damage. The Property Owners' Protection Scheme is in addition to the existing legal rights of property owners and is in place to provide a simple and prompt way of rectifying any damage caused under the project up to the ceiling of €45,000. If the sum should exceed this amount the normal claims process would be used with the insurance companies for TII and/or the contractor. Appendix 5.1 of the EIAR contains an outline Construction Environmental Management Plan (CEMP) which outlines the proposed approach to noise and vibration monitoring during the construction phase in Table 6.2. A full monitoring and auditing programme will form part of the CNVMP which will be agreed with the Local Authorities prior to the commencement of the Construction Phase. TII's contractor(s) will prepare a Construction Noise and Vibration Management Plan (CNVMP) for the proposed Project as referred to in EIAR Appendix A5.1, Outline Construction Environmental Management Plan (CEMP). The CNVMP will be a live document and will include a full monitoring and auditing programme which will be agreed with the Local Authorities prior to the commencement of the Construction Phase, including predetermined monitoring trigger levels to ensure noise and vibration limits are not breached, noting that it is not possible to mitigate TBM groundborne noise and vibration at source. Table 6.2: Noise and Vibration Measures of the Outline CEMP outlines the monitoring programme requirements. Unfortunately, there are no effective methods available to reduce groundborne noise or vibration from the TBM at source but noting that the duration of this impact will be temporary and of the order of up to two-weeks as the TBM passes TII will undertake advanced consultation and stakeholder engagement to prepare people for the passing of the TBM and ensure the timing of these impacts are known.