

Submission No.	117
Organisation Name or Name of Submitter	Hines Real Estate Ireland Limited (represented by Waterman Moylan)

Item No.	Section Ref.	Page No.	Observation Statement	TII Response
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Re : Railway (Metrolink-Estuary to Charlemont via Dublin Airport) Order 2022, AerCap House (former 65-68 St. Stephens Green)

1	Submission 1	3	<p>The route selection including horizontal alignment, vertical alignment and depth of MetroLink below ground in the area between Chainage 18+600 and Chainage 18+700 should be reviewed by NTA / TII to satisfy themselves and to ensure that</p> <p>(a) MetroLink does not cause structural damage to the foundation system supporting our client's building which comprises a mixture of CFA piles (some extending 12.5m below ground level) and pads foundations which are founded on the competent rock.</p> <p>(b) MetroLink does not cause structural damage to our client's building at the basement level. The basement structure forms the waterproof envelope to our Clients building and any damage would result in the ingress of water into the basement.</p> <p>(c) MetroLink does not cause damage to the bespoke cladding, glazing and fragile finishes of our client's building.</p> <p>(d) MetroLink provides the necessary vertical and/or horizontal clearance between the existing basements and the tunnels.</p>	<p>TII are satisfied that the approach adopted to date for assessment of building damage follows an industry standard approach undertaken on tunnelling and underground projects around the world including on the Channel Tunnel Rail Link and Crossrail in London, the Dublin Port Tunnel and currently on High Speed 2 in England, and therefore that further assessment does not need to be delivered prior to the route being consented. The purpose of the Stage 1 and Stage 2a assessments has been to provide/ensure confidence that the Works will not induce unacceptable damage to buildings/structures along the Route. The primary objective has been to confirm that the structural integrity of each building/structure will not be compromised by the Works.</p> <p>EIAR Appendix A 5.17, Building Damage Report, covers the assessed impacts of construction generated ground movements and settlement on property. Table 5-4 of this report shows that the building (AB-37) has been assessed as falling within the "Negligible damage" category currently, an explanation for which can be found in Table 4-4 of the aforementioned report. According to this Table, the Negligible damage category refers to hairline cracks. TII would also like to confirm that the assessment has additionally taken into account the presence of the basement as noted.</p> <p>Despite the low predicted impact of the tunnelling works on your building, it will progress to a subsequent Phase 3 assessment due to the piled foundations and basement structures noted.</p> <p>The Phase 3 assessment will take account of final design and construction methodology details. For the Phase 3 assessment, each building will be subject to detailed assessment on an individual basis. A detailed survey will be carried out as part of the Phase 3 assessment to provide the necessary additional information to inform this detailed analysis of how the individual elements of the building would be affected by the predicted ground movements. The method and extent of the detailed analysis will be determined on a case-by case basis and may include a more sophisticated semi-empirical or a detailed soil-structure interaction using finite element modelling methods. It is likely that the Phase 3 assessment will yield further improvement to the damage category determined by the Phase 2b assessment. The results of this refined assessment typically show that earlier assessments are conservative and over estimate the likely impact of construction generated ground movements.</p> <p>Ancillary features in each building/structure, which themselves do not contribute to the structural integrity of the building/structure, are considered in the subsequent Phase 3 assessment. The Designer/Contractor is responsible to further investigate the sensitivities of each building/structure to identify those elements within the building/structure curtilage that may not contribute to the structural integrity of the building/structure itself, but will most likely in themselves be sensitive to the excavation and construction processes.</p> <p>In each instance, engaging with the building/structure owner (or their delegated representative) the Designer/Contractor will be responsible for identifying further mitigations if mitigation measures are required. These mitigations might relate directly to the excavation and construction processes (at source measures), or they might relate to a direct protection of the non-structural elements for which damage related concern remain.</p> <p>If, based on the detailed Phase-3 assessment, the impacts are deemed to be unacceptable to items such as building cladding or basement waterproofing (or any other ancillary features) further mitigation measures would then be assessed and implemented. For example enhanced control the TBM slurry pressure in this zone would further reduce face loss and hence impacts. Additionally, there is the ability to increase the separation of the tunnel from your basement structures within the limits of deviation and rail design constraints. Lowering the tunnel alignment would further reduce the settlement but for your building this is unlikely to be needed as it is already in the Negligible damage category.</p> <p>During the Phase-3 assessment, TII will reduce the impacts from those conservatively stated to date such that any unacceptable impacts are negated. This process has been used successfully across major projects elsewhere with buildings of similar cladding and basement detailing.</p>
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2	Submission 2	3	<p>The construction information provided by MetroLink has been reviewed. We refer to the following points:</p> <p>a) Metrolink has assessed the "Groundborne Noise from Tunnel Boring Machine" and presents its findings on drawing no. ML1-JAI-EIA-ROUT-XX-DR-Y-14009 (a copy is attached to this submission). This drawing indicates MetroLink will generate an additional 50db directly under the location of our client's building which is unacceptable.</p>	<p>Appendix 14.5 Groundborne Noise and Vibration Blasting Modelling Results presents predicted groundborne noise and vibration levels during the construction and operation phase of the project. The prediction of groundborne noise during TBM passage for the AerCap House (65 St. Stephen's Green) is 49 dB LASmax, which is above the 45 dB LASmax threshold, resulting a significant impact on the buildings operation for the limited duration of TBM passage. Unfortunately, there are no effective methods available to reduce groundborne noise or vibration from TBMs at source, but noting that the duration of this impact will be in the order of up to two weeks as the TBM passes. It is important to note that the noise level as the TBM passes will be noticeable and perhaps disturbing for some, but will not cause any damage to the property. TII will liaise with Hines Real Estate Ireland Limited to ensure the timing of these impacts are known. The principal mitigation measures aimed at minimising impacts are as follows:</p> <ul style="list-style-type: none"> - Advance public consultation and stakeholder engagement can greatly reduce the significance of groundborne noise effects, as building occupants would be prepared for the passage of the TBM and resultant elevated noise and vibration levels. - TII will accept and consider applications for additional measures on a case-by case basis, in accordance with its Noise and Vibration Mitigation Policy (see EIAR Appendix A14.6, Airborne Noise & Groundborne Noise Mitigation Policy).
3	Submission 2	4	<p>b) Metrolink has assessed the predicted "Settlement" and presents its findings on drawing no. ML1-JAI-EIA-ROUT-XX-DR-Y-21149 (a copy is attached to this submission). This drawing indicates MetroLink will be causing a 20mm settlement directly under the location of our client's building which is unacceptable. Settlements of this magnitude cannot be accommodated by the building's structure and will cause damage to foundations; basement; superstructure; façade and internal finishes. As previously stated, the basement structure forms the waterproof envelope to our client's building and any damage would result in the ingress of water into the basement.</p>	<p>Please refer to Item 1. The settlement contours calculated were used to undertake the building damage assessment and conclude that typical damage would be Negligible and likely forms of repair would be limited to hairline cracks only. This is a conservative estimate. The Phase 3 assessment which will be undertaken for this building will refine the parameters and generally reduce the potential impacts further.</p>
4	Submission 3	4	<p>The operational information provided by MetroLink has been reviewed. We refer to the following point:</p> <p>a) Metrolink has assessed the "Groundborne Noise from Operation" and presented its findings on drawing no. ML1-JAI-EIA-ROUT-XX-DR-Y-14041 (a copy is attached to this submission). This drawing indicates MetroLink will be generating an additional 30db directly under the location of our Clients building which is unacceptable.</p>	<p>Appendix 14.5 Groundborne Noise and Vibration Blasting Modelling Results presents predicted groundborne noise and vibration levels during the construction and operation phase of the project. The prediction of groundborne noise and vibration for AerCap House (65-68 St. Stephen's Green) during railway operation are as follows:</p> <ul style="list-style-type: none"> - The predicted level of groundborne noise during the railway operation for 65-68 St. Stephen's Green is 34 dB LASmax, which is below the 40 dB LASmax threshold. - The predicted level of groundborne vibration during the railway operation for 65-68 St. Stephen's Green is 0.009 ms-1.75, much lower than the VDV (Vibration Dose Value is a parameter that combines the magnitude of vibration and the time for which it occurs) threshold of 0.8 ms-1.75. <p>As a result, we consider that no significant impact is expected on the building as a result of Metrolink operation.</p>

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5	Submission 4	4	MetroLink has proposed to acquire the substratum land located under our client's building, which is outlined in drawing no. ML1-JAI-EIA-ROUT-XX-DR-Y-01096 (a copy is attached to this submission). This is unacceptable to our client, as the future potential to develop this prominent commercial site in the future will be damaged.	<p>TII note your concerns about the potential impact of MetroLink Project on future potential development of your site. The acquisition of substratum land beneath the Hines Real Estate Ireland Limited building is to enable the construction of the Metrolink tunnel and protect it from future uncontrolled development.</p> <p>MetroLink will be a catalyst for and provide opportunity for future development and regeneration. While the MetroLink Railway Order does not include for future neighbouring or overhead development, the tunnels and stations are designed to support appropriate future imposed loads.</p> <p>TII will be required to make submissions in relation to planning applications for proposed future developments on or adjacent to MetroLink and there will necessarily be some engineering constraints (such as permissible loadings) required. However MetroLink is committed to engaging with known development proposals and new development proposals as they emerge with the intent of facilitating such developments as they emerge to the maximum extent consistent with the safe operation of the proposed Project.</p> <p>Again in common with other existing rail and tunnel projects, following grant of the Railway Order and development of detailed design, TII will produce "Guidance Note for Developers" that will be the subject of bye-laws following the grant of Railway Order and which is designed to facilitate future adjacent or over-site development while protecting the integrity and safety of the MetroLink works and operations.</p> <p>Therefore at this stage TII is dealing with known development proposals on a case by case basis, TII will work with parties in the future to assist with the wider development of sites over and above stations and tunnels. In this context TII has successfully engaged with a number of developers over the last two years to accommodate development over and in proximity to the alignment and there have been no material restrictions on development subject to the implementation of agreed design and mitigation measures and it is not anticipated that MetroLink will have a material impact on the development potential of sites above and in proximity to the alignment in future.</p>
6	Summary	4	In summary, our client requests that the route of the proposed MetroLink tunnels are diverted away from their current proposed location (under our client's building) to either below the public carriageway or buildings that will not be damaged or compromised by the presence of the tunnels located under.	<p>TII do not intend to alter the alignment as the building damage assessments undertaken support the validity of the alignment. Refer to Item 1 above.</p> <p>The proposed vertical alignment has already been determined to provide sufficient rock cover to the tunnel and therefore to limit the ground movement impact on the building above to a sufficiently low level.</p>