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| **Metrolink Railway Order Application & Supporting Documentation, Our Clients: Mater Misericordiae and the Children's University Hospitals Company Limited by Guarantee and Mater Misericordiae University Hospital, Address: Eccles Street, Dublin 7. Ref Nos: ML5B-A4, ML5B-U32, ML5C-U3, ML5C-U4 and ML5C-U5** | | | | |
| 1 | Cover Letter | 4 | In terms of its infrastructure, parts of the Hospital date from the 1860s. The relevant wing of the Hospital that will be most impacted by TII's works is known as the Misericordiae wing and it is a protected structure. It is thus particularly sensitive to impacts from construction works. | TII and its consultants have undertaken surveys of the hospital building and discussed the operation of the hospital with the hospital managers in order to ensure that appropriate mitigation can be put in place during the construction phase of MetroLink.<br><br>The architectural heritage importance of the Mater Hospital (building reference BH-469) is acknowledged, and the building is included in the impact assessment on the Architectural Heritage in Chapter 26 of the EIAR.<br><br>According to the assessment, during the Construction Phase, an indirect impact on the building will occur due to the presence of the construction site directly in front of the protected structure. The magnitude of this impact will be 'medium', whilst the architectural heritage value is 'high'; the resulting impact is thus assessed to be 'very significant'. On completion of the works, the impact will be 'not significant'.<br><br>A direct impact will arise from deep excavation to within 8.5m of the hospital boundary and 14m from the hospital building, together with works to divert utilities away from the site to accommodate the station. Mitigation measures for noise and air quality, and occupants' health, may require a hierarchy of repair and conservation works to the front façade windows of the hospital as assessed in Chapter 10 Human Health Sections 10.5 & 10.6 along with standard mitigation measures outlined in Chapters 13, 14, 16 & A5.1 CEMP.<br><br>Chapter 26 Architectural Heritage Section 26.5.4.8 notes the magnitude of the impact will be 'medium', whilst the architectural heritage value is high, with the resulting impact assessed to be 'very significant'. As a result, mitigation measures will be implemented as follows:<br><br>- Following the Metrolink Project Conservation Architect (PCA) condition surveys of the windows, a hierarchy of mitigation measures for necessary interventions will be agreed with the property owner and noise and air quality specialists, to mitigate impact on building occupants. The impact would decrease to 'slight' following mitigation.<br>- The methodology for the construction of the D-wall for the station box to the front of the Mater Hospital is to be devised in conjunction with the PCA and is to take into account the nature of the construction of the retaining wall and boundary wall at the front of the hospital, and the nature of the hospital building. Vibration and settlement monitors are to be provided in the hospital building in the vicinity of the works, with alarms to identify any vibration that exceeds acceptable levels. In the event of the alarms being triggered, works would cease until the cause of the vibration is identified and systems modified to prevent recurrence.<br>- The boundary walls are to be protected by means of hoardings to be erected prior to the commencement of construction. |
| 2 | Cover Letter | 4 | There is also a significant amount of sensitive and highly calibrated equipment throughout the Hospital and the buildings are operating at capacity. | Equipment at the Mater Hospital buildings was assessed for electromagnetic interference, based on the lists of equipment potentially sensitive to EMI supplied by the owners, with the results presented in Chapter 12 of the EIAR.<br><br>During the construction phase, the significance of the effects of Electromagnetic Emissions and Stray Current on the equipment has been determined as 'Imperceptible', and the quality of effects is classed as 'Neutral', resulting in no impact on their operation.<br><br>During operation of MetroLink, the impact on Mater Hospital is assessed as follows:<br>1 - Significance of effects from DC magnetic fields has been determined as 'Slight' with a quality of effects classed as 'Neutral';<br>2 - Significance of effects from AC fields has been determined as 'Imperceptible' with a quality of effects classed as 'Neutral';<br>3 - Significance of effects from RF and Microwave fields has been determined as 'Slight' with a quality of effects classed as 'Neutral.<br><br>As a result, the sensitive equipment at Mater Hospital will not be affected by either the construction or operation of Metrolink. |

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| 3 | Cover Letter | 4 | Our clients are broadly supportive of the proposed Metrolink project, which has potential benefits for the Hospital and its patients. However, they remain concerned about potential impacts on the Hospital's operations both during construction and operation of the proposed project, and also about the extent of the permanent land take proposed to facilitate the scheme. | When MetroLink is operational, the operation of Mater Hospital will not be affected.<br><br>During construction of MetroLink, with the proposed mitigation in place, the operation of Mater Hospital will not be affected with the exception of airborne noise and ground borne noise from the TBM passage. With the proposed mitigation, the residual impacts will be:<br><br>1 - Airborne noise – this may cause annoyance to patients and staff but as areas of the hospital primarily affected are the upper floors that do not contain wards, no residual health impact is predicted.<br>2 - Ground borne noise - this may cause annoyance to patients and staff, users and others, but with mitigation including potential temporary relocation, no residual health impacts are predicted.<br><br>See also Responses (1), (2), and further Responses below for more detail on the mitigation and assessed impacts.<br><br>Regarding permanent land take please see Response (17) below. |
| 4 | Cover Letter | 4 | It is hoped that continued engagement by TII with our clients' concerns will enable those concerns to be addressed to the satisfaction of our clients and then reflected in any Railway Order ultimately granted by the Board. | TII confirm their commitment to further engagement and consultation with the Hospital to address its concerns |
| 5 | Cover Letter | 5 | It is acknowledged that the application recognises that there are potential impacts on the Hospital. Based on the information provided, however, our clients remain concerned about a number of issues which will need to be addressed during the assessment of the application. The Hospital provides a vital public service which must be allowed function and develop both during and after the construction of the Metrolink Project.<br>In brief, concerns arise under the following headings:<br>1 . Traffic impacts including access for emergency vehicles.<br>2. Construction impacts including noise, vibration and air quality impacts.<br>3. Operational impacts.<br>4. Extent of the proposed land take. | TII have responded to each of these concerns in turn below. |

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| 6 | 1. Traffic Impacts | 5 | **1. Traffic Impacts**<br><br>It is, of course, essential that access to the Hospital be maintained at all times for staff, patients, patient visitors, suppliers as well as goods and services. ..... In addition, the main entrance to both the emergency department and the underground car park is off Eccles Street.<br><br>It is noted that Chapter 9 of the EIAR (Traffic and Transport) confirms that during Phase 2 works, Eccles Street will be closed to all traffic except emergency vehicles. This will clearly have very significant operational difficulties for the Hospital- and impact on its services for patients and staff wishing to access services including the emergency department; the dialysis unit; the underground car park; consultants' rooms; the Hospital creche; the centre for nurse education (which is situate at 15, 16, 19 and 20 Nelson Street); the institute for cancer research etc. In addition, the Hospital's logistics and warehousing facilities for stock items are located on Eccles Street.<br><br>It is further noted that TII's anticipated opening date for the Metrolink Project is 2035, which indicates a potential for impacts on the Hospital over an extended period. During this time, there will be ongoing developments at the Hospital, including the new Major Trauma Centre, which is a development of national importance. The limitation proposed by TII on access to Eccles Street is a matter of particular concern in this regard. Clearly, the question of phasing of the construction works for the Metrolink Project and related implications for any future works on the hospital site needs careful consideration.<br><br>It is absolutely essential that there be no interference with the ability of emergency vehicles to enter and leave the Hospital. In addition, as is clear from the above, there is concern as to how the Hospital can manage its day to day activities in light of essential areas of the Hospital being left with restricted access onto Eccles Street. It is far from clear how TII proposes to maintain unrestricted access for emergency vehicles in light of the proposal to close Eccles Street to traffic or how it is proposed that the Hospital will re-route patients, staff and deliveries to it.<br><br>More generally, the impact of construction traffic on patients and the Hospital Building itself is a matter of concern and will need to be addressed comprehensively in conditions imposed on any Railway Order granted by the Board. | EIAR Appendix A9.5 section 7.7 details the construction traffic management associated with Mater Station. As identified, in Phase 2 and Phase 3 of the construction works, general traffic will not be able to access Eccles Street from Berkeley Road, however Emergency Vehicle access will be maintained from this location therefore ensuring there is no interference with the ability of emergency vehicles entering or leaving the hospital.<br><br>As presented in EIAR Appendix A9.5, Figure 7.32 Proposed Traffic Management Phase 3, the road width available on Eccles Street adjacent to the junction with Berkeley Road will be locally reduced to a single lane due to the construction footprint requirement and which will be used for Emergency Vehicles only. The remainder of Eccles Street will be retained for general traffic use with access for all traffic as far as the area of reduced width, thus maintaining access to hospital buildings/services.<br><br>General traffic access to the hospital will be maintained through the detailed diversion proposals. To clarify, general traffic access to Eccles Street will be maintained via the N1. Vehicles seeking to route from Berkeley Road to Eccles Street will be diverted and approach Eccles Street from the N1 via either North Circular Road or Blessington Street. Vehicles travelling away from Eccles Street will be diverted southbound along Nelson Street and from there can continue to travel along Berkeley Street, Mountjoy Street or Blessington Street. Therefore, access to the hospital is maintained at all times for staff, patients, patient visitors, suppliers and goods and services vehicles. Similarly, access to the emergency department and underground car park is maintained, and can be accessed from Eccles Street via the N1. Therefore, there should be minimal impact on the Hospital's operations throughout the works. It should also be noted that construction works on Eccles Street will be complete in advance of 2035 as seen in the Construction Programme (Appendix A5.2)<br><br>TII will continue to work closely with Mater Hospital throughout the duration of the construction works to ensure minimal impact to the delivery of the new Major Trauma Centra, which is of national importance. TII will closely monitor all road closures to determine if they are required at all points of the works, or if they can be reinstated temporarily. As noted, access to Eccles Street will be maintained from the N1 direction, with the closure to non-emergency vehicles only impacting on the western junction with Berkeley Road. All diversions and closures will be displayed on appropriate signage, and a comprehensive publicity and information campaign will take place prior to the commencement of the Construction Phase. A Project Construction Traffic Forum will be formed, including representatives from key stakeholders such as Mater Hospital to ensure any issues or concerns can be addressed quickly and efficiently. |
| 7 | 2. Construction impacts | 7 | It is welcomed that the sensitivity of the Hospital is recognised in this way. However, our clients remain concerned that the extent of impacts have not been clearly identified, nor, more importantly, have the mechanisms for ensuring that adverse impacts on the Hospital and its patients can be avoided. | All potential impacts (air quality, noise, vibrations, settlement, human health etc.) on Mater Hospital along with their respective mitigation measures were assessed and presented in the relevant chapters of the EIAR. Refer to: Chapter 10 Human Health; Chapter 14 Ground-borne Noise and Vibration; Chapter 16 Air Quality; and Chapter 05 MetroLink Construction Phase - Appendix A5.17 Building Damage Report. |
| 8 | 2. Construction impacts | 7 | It is critically important that all patients are given the best possible environment from a health perspective. In Chapter 10 of the EIAR (Human Health), this is reflected in the description of the Hospital as a Very Highly Sensitive Receptor.<br>It is noted that psychiatric services as well as the National Isolation Unit are provided in the part of the Hospital closest to the Mater Station construction works and to the tunnel alignment, thus patients potentially the most sensitive to disturbance from construction activities may be the most likely to be affected. In addition, the Hospital's research and training facilities are situate in the Misericordiae wing as well as the entire finance team for the Hospital. | The location of sensitive receptors (psychiatric patients, research facilities etc.) was considered during the impact assessment for Mater Hospital. The assessment of impacts on these patients and facilities is reported in Chapter 10 of the EIAR. Mitigation Measures will include:<br><br>- Noise barriers up to 4m tall<br>- Noise insulation in some locations within the hospital<br>- Advanced communication and notification of works<br>- Standard dust mitigation measures outlined in the Dust Management Plan (Appendix A16.4)<br>- Standard construction mitigation measures outlined in Appendix A5.1 CEMP |

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| 9 | 2. Construction impacts<br><br>i. Noise | 7 | Although the sensitivity of the Hospital, and of psychiatric patients in particular, is recognised in the EIAR, there is a lack of clarity with regard to how noise impacts will be mitigated during the construction phase. It does not appear as if construction noise levels which reflect the sensitivity of the receptor, or which are designed to suit the hospital environment, have been proposed. Increased noise levels will lead to negative consequences for patients and staff within the Hospital. In this regard, the Hospital is concerned that the proposed mitigations for airborne noise will not be effective to mitigate any impacts from ground borne noise. Noise monitoring and controls will be needed for the entire construction period. | TII note that within Chapter 10, Section 10.5.1.3 it is stated that along with standard mitigation measures, coordination with sensitive receptors such as Mater Hospital will be required and is an important mitigation measure to prevent adverse impacts for patients and staff within the hospital. TII will liaise closely with the hospital for the duration of works to ensure minimal impacts insofar as possible. Further detail on impacts/mitigation is provided in the below paragraphs.<br><br>Airborne Noise<br><br>EIAR Chapter 13 Airborne Noise and Vibration, Section 13.7.1.1.4 AZ4: Northwood to Charlemont, presents the airborne noise levels and mitigations measures proposed for Mater Hospital during construction.<br><br>Construction noise levels at the rear of 39 – 51 Eccles Street (Mater Hospital) are calculated to exceed the Noise Insulation (NI) trigger value for a number of construction phases associated with the Mater Station construction activities, and a very significant effect is determined without further mitigation intervention. In this instance, NI is proposed to the rear facades of this building in accordance with the TII Airborne and Groundborne Noise Mitigation Policy (see EIAR Appendix A14.6). The residual effects are determined to be negative, moderate and short-term.<br>Construction noise levels at the upper floors of the main Mater Hospital are calculated to exceed the NI trigger value, during one phase only when piling/D-wall activities are occurring for the north section of the station box. In this instance, NI or temporary relocation is proposed in accordance with the TII Airborne and Groundborne Noise Mitigation Policy.<br><br>Ground borne noise and Vibration<br><br>Threshold levels for the assessment of groundborne noise and vibration have been determined for buildings with different uses and sensitivities. The threshold levels used for Mater Hospital are based on guidance for hospital buildings, as indicated in EIAR Chapter 14, Table 14.3 from groundborne noise and Table 14.7 for vibration.<br><br>In Section 14.4.1.8 AZ4 – Groundborne Noise during Construction, Table 14.29, are presented the predicted noise levels during the TBM passage compared to the threshold values for noise for various sensitive receptors (including Mater Hospital). The calculations are presented for the closest part of the building to the works, as this is where noise and vibration levels can be expected to be the highest. According to the calculations in Table 14.29, the LAmax for TBM passage at Mater Hospital has a value of 48 dB while the Threshold Level for this building is 45 dB, resulting in a significant impact on the buildings operation for an approximate 2 week duration during the TBM passage. Unfortunately, there are no effective methods available to reduce groundborne noise or vibration from TBMs at source. The principal mitigation measures aimed at minimising impacts are as follows:<br>• 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.<br>• 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 Appendix A14.6).<br><br>In Section 14.4.1.8 AZ4 – Groundborne Noise during Construction, Table 14.30, the predicted noise levels during mechanical excavation are presented compared to the threshold values for noise for various sensitive receptors (including Mater Hospital). At Mater Hospital the LAmax for mechanical excavation has a value of 33 dB compared to the Threshold Level for this building of 40 dB, resulting in no significant impact on the buildings operation.<br><br>In Section 14.4.2.6.1 AZ4 - Groundborne Noise from Railway Operation, Table 14.44, the predicted noise levels during railway operation are presented compared to the threshold values for noise for various sensitive receptors (including Mater Hospital). At Mater Hospital, the LAmax for operation has a value of 29 dB compared to the Threshold Level for this building of 40 dB, resulting no impact on the buildings operation. |

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| 10 | 2. Construction impacts<br>ii. Vibration | 0 | Given the sensitive nature of the health care equipment within the Hospital, the vibrations from construction activity and tunnelling are a major concern. Sensitive equipment may be negatively impacted by vibrations from construction activity and from the proposed tunnelling. Any impact on sensitive equipment will have critical implications in relation to patient care. It will also impact the Hospital's training and teaching department which uses sensitive equipment. Ensuring equipment remains calibrated will also be of vital importance. It is noted that vibration monitoring is proposed, but specific commitments regarding monitoring, calibration and the consequence of exceedance must be included in any Railway Order. In this regard, it is essential that the Order provide for a cessation of activities which may affect sensitive equipment before any such effect takes place, i.e. that thresholds are set at a level which entirely avoids the risk of exceedance. In addition, ongoing monitoring of vibrations will be needed throughout the operation of the proposed Metrolink. | Refer to EIAR Chapter 14, Section 14.4.1.9 AZ4 – Groundborne Vibration during Construction<br><br>Table 14.32, presents the predicted vibration levels during TBM Passage compared to the threshold values for vibration for various sensitive receptors (including Mater Hospital). The VDV (Vibration Dose Value) for TBM Passage at Mater Hospital has a value of 0.249 m/s-1.75, which is lower than the VDV Threshold Level for this building of 0.4 m/s-1.75, resulting in no significant impact on the buildings operation.<br><br>Table 14.33, presents the predicted vibration levels during Mechanical Excavation compared to the threshold values for vibration for various sensitive receptors (including Mater Hospital). The VDV (Vibration Dose Value) for Mechanical Excavation at Mater Hospital has a value of 0.001 m/s-1.75 much lower than the VDV Threshold Level for this building of 0.2 m/s-1.75, resulting in no significant impact on the buildings operation.<br><br>Table 14.34, presents the predicted vibration levels during blasting compared to the threshold values for vibration for various sensitive receptors (including Mater Hospital). The PPV for blasting at Mater Hospital has a value of 3.1, much lower than the PPV Threshold Level for this building of 8, resulting in no significant impact on the buildings operation.<br><br>In Section 14.4.2.6.2 AZ4 – Groundborne Vibration from Railway Operation, Table 14.45, are presented the predicted vibration levels during Railway Operation for various sensitive receptors (including Mater Hospital). The VDV (Vibration Dose Value) for Railway Operation at Mater Hospital has a value of 0.005 m/s-1.75, resulting in a 'not significant' impact on the buildings operations.<br><br>With regard to vibration effects on the use of sensitive equipment, as outlined in Chapter 8 of the EIAR, consultation has been ongoing with the Mater Hospital since 2018. The hospital has been asked to identify sensitive equipment that may be impacted by groundborne noise and vibration, but to-date no locations of any such equipment have been identified within proximity to the works. However, It is understood that the locations of sensitive equipment could change over time, and in advance of the works an in-depth consultation exercise will be carried out with the Mater Hospital to re-confirm the location of sensitive equipment. The programme for the TBM will be planned by the contractor and there is potential to plan the passage of the TBM during weeks when critical use of sensitive equipment can be avoided. |
| 11 | 2. Construction impacts<br>ii. Vibration | 8 | Construction hours including use of the tunnel boring machine ("TBM") is of greater significance in this case. The standard construction hours set out in the EIAR will likely not be appropriate in relation to minimisation of adverse impacts on the Hospital, when medical or surgical training procedures are in session. Consideration should be given to establishing the most appropriate times to use the TBM and blasting of rock. | The progress of the TBM is a continuous operation throughout the 24-hour period and it is not proposed to introduce temporary stops in the progress due to risks associated with additional settlement above the TBM. However, as the programme for the TBM will be planned by the contractor, they will be able to give advance notice of the periods of time that the TBM will be passing in proximity to the hospital . There is thus the potential to plan use of sensitive or critical equipment around the passage of the TBM.<br><br>Vibration from blasting has been considered, predicted levels of vibration are below the threshold for significant impact (see Response (10). Nonetheless, during consultation with Mater Hospital, there will be potential for the contractor to agree timing of blasting operations. |
| 12 | 2. Construction impacts<br>ii. Vibration | 8 | Section 7.53.2 of the Non-Technical summary highlights the potential use of 'blasting' to enable rock excavation as well as drilling. The Mater Station is noted as a location for blasting. This will likely generate higher levels of noise and vibration, however, the period of disruption will be over a shorter duration. The potential impact of the blasting must be carefully considered, in particular for potential damage to the fabric of the Hospital's Misericordiae wing as well as to the houses on Eccles Street. | The potential impacts of blasting have been addressed within the EIAR with predicted vibration levels during blasting given in EIAR Chapter 14, Table 14.34 for Mater Hospital. The predicted PPV from blasting at Mater Hospital is 3.1 mm/s, which is lower than the PPV Threshold Level for this building of 8 mm/s, resulting in no significant impact. The predicted Air Overpressure from blasting at Mater Hospital, given in Table 14.35, is 105.6, which is lower than the PPV Threshold Level for this building of 125, resulting in no significant impact. |

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| 13 | 2. Construction impacts<br>ii. Vibration | 9 | Section 7.5.5 of the Non-Technical Summary suggests a boring rate of 'about 70m per week. As such, it is reasonable to think the actual boring works in the vicinity of the Hospital will be in the order of a number of weeks. Clearly, the construction of the Mater Station box will take a considerable period of time. TII's documents suggest that the disruption due to noise will be mitigated by its proposed top down construction sequence. While this will mitigate much of the airborne noise, it will not mitigate the impact of ground borne noise and vibration and it is far from clear how it is proposed to mitigate this impact. | The passage of the TBM is anticipated to impact upon buildings above its passage for a period of approximately 2-weeks. For proposed mitigation for groundborne noise from TBM passage see Response (9) above. |
| 14 | 2. Construction impacts<br>iii. Air Pollution and Dust Control | 9 | It is obvious that any impact on air quality in proximity to a major hospital could have adverse implications for patient care. In addition, the creation of dust from construction activities could have adverse impacts, particularly if it leads to elevated levels of aspergillus. Although this risk is identified in the application documents, our clients consider that insufficient attention has been paid to the nature of the Hospital buildings in assessing this risk. The Misericordiae wing of the Hospital is an old building relying mainly on natural ventilation from open windows. The proposal to "seal windows" in order to mitigate risk from construction dust and aspergillus is simply not feasible. In the circumstances, our clients will require that mitigation measures capable of being put in place at the Hospital are proposed and assessed as part of the consideration of the application. Specific dust control and monitoring will be needed on an ongoing basis and precise commitments will be needed in this regard. | As noted in EIAR Chapter 10 Human Health, Section 10.5.1.1.1 Very Highly Sensitive Receptors, in the vicinity of the Mater Hospital there are considerable earthworks and the dust emission magnitude for the proposed site area is classified as large. However, with the extensive mitigation measures proposed for the construction process, including measures for dust suppression, it is predicted that dust emissions from the construction sites will not be significant. Therefore, no exceedance of air quality standards is expected at the façade of the Mater Hospital and consequently no significant adverse effects to human health.<br><br>In relation to aspergillus, survey and prevention works will take place before construction commences by a competent contractor in proximity to any sensitive buildings and in particular in proximity to the Mater Hospital site which utilises passive ventilation on Eccles Street. The National Guidelines for the Prevention of Nosocomial Invasive Aspergillosis During Construction/Renovation Activities (National Disease Surveillance Centre 2002) and National Guidelines for the Prevention of Nosocomial Aspergillosis (HSE 2018) will be taken into consideration by the competent contractor as a source for the Aspergillus Prevention Plan. The National Guidelines for the Prevention of Nosocomial Aspergillosis (HSE 2018) provide a risk assessment for aspergillus, preventative dust mitigation measures and, in Appendix B of the document, pre-project planning and contractor advice. If the resulting mitigation measures require interventions such as sealing windows to the Mater Hospital building, consultation with a Conservation Architect will be undertaken.<br><br>In terms of biological risk, there may be vulnerable patients in the Mater Hospital and there are extensive guidelines in relation to how this risk can be managed and reduced. Vulnerable patients will typically be people with decreased immune systems due to illness or treatments for illnesses such as bone marrow transplants or haematological diseases. These, however, will be typically in wards that are designed to prevent Aspergillus build up in the area. These wards will have HEPA (High Efficiency Particulate Air) filters on windows and ventilation systems and controls in relation to items such as flowers or plants being on site. In this protected environment there are no significant increased risks because of the additional activity related to construction. |

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| 15 | 2. Construction impacts<br><br>iii. Air Pollution and Dust Control | 9 | In addition, given the nature and context of the building, any agreed protection measures should be undertaken in consultation with a Conservation Architect. TII need to agree with the Hospital the proposed purpose and nature of the protection measures to ensure that the patient wards, the administration offices as well as the teaching/training spaces can be maintained in use for their current function.<br><br>As this part of the Hospital is a protected structure, any interventions to the building fabric, including the window protection measures need to be agreed with the appropriate planning authority. TII need to carry out detailed condition surveys of the adjacent Hospital buildings prior to the works commencing. These should have detailed sections on the building fabric, including windows, stonework etc. and include both external and internal elements. Similarly, it has been recommended to the Hospital that TII carry out condition surveys of all public realm areas adjacent to the works that may be susceptible to settlement due to the construction activities.<br><br>Having regard to the protected status of the structure, the uses to which they are being put, and the vulnerability of those who use its services, our clients have very limited flexibility in relation to how they can absorb impacts. It is noted that proposed mitigation of construction impacts at sensitive locations involves temporary re-housing of sensitive locations or people where mitigation is not possible. It is not clear what "re- housing" is proposed, or whether it will be appropriate or even feasible in a very busy hospital. Precise details of what is proposed will be required in order for the Hospital and the Board to assess the merits of this proposal.<br><br>More generally, a detailed condition survey of the Hospital will be required before any works commence and, in the event the Railway Order is granted, detailed conditions regarding the timing of any works will need to be imposed. | Regarding protection measures to the building during construction, as outlined in EIAR Appendix A5.1 (CEMP), temporary or permanent specialists with appropriate skills and experience will monitor on-site construction on behalf of TII, where required. In terms of Architectural Heritage, this will include a Project Conservation Architect. A Cultural Heritage Strategy (see EIAR Appendix A25.1) has been prepared by TII's Project Archaeologist and Conservation Architect, who will remain involved during the duration of the project. Where any specific works are considered necessary to the fabric of the building these would be agreed with the Planning Authorities.<br><br>Regarding settlement, in EIAR Appendix A5.17 Building Damage Report Table 5.2 the Mater Hospital assessments to date indicate that the building falls into the 'Negligible' damage category and hence further assessment is not required. That said, due to the age and importance of the building, it has been designated "special" and hence a further assessment will be undertaken by the main works contractor. This further assessment will pick up on the building's condition close to the time when the building will be impacted.<br><br>TII are happy to engage further with Mater Hospital regarding the works programme and timing before the construction works start.<br><br>In relation to "temporary re-housing" it is noted that at Mater Hospital, the psychiatric ward is impacted by TBM passage which could require the relocation of patients to either another part of the hospital or to an alternative hospital for the period of time. It is noted in Chapter 10 that a best case scenario would be three days and a worst case scenario would be for two weeks. TII will work with Mater Hospital in consultation with hospital authorities in relation to this measure.<br><br>In EIAR Chapter 13 (Airborne Noise & Vibration) Section 13.7.1.1.4 it notes for Mater Hospital that 'Construction noise levels at the upper floors of the main Mater Hospital are calculated to exceed the NI trigger value for one phase when piling/D-wall activities are occurring for the north section of the station box. In this instance, NI or temporary relocation is proposed in accordance with the TII Airborne and Groundborne Noise Mitigation Policy'. It should be noted that this area is not used as a ward nevertheless TII will continue to consult with the Mater Hospital management regarding the most appropriate mitigation measures to be adopted regarding this mitigation. |

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| 16 | 3. Operation of Metrolink | 10 | In addition to our clients' concerns regarding the potential construction impacts, the operation of Metrolink, and in particular Mater Station, has the potential to permanently affect the Hospital and its operations. Although this clearly has the potential to benefit the Hospital, it will be necessary to ensure that the project is operated and managed in a manner which does not compromise the Hospital's operations. Commitments and safeguards will be required as part of any Railway Order. | During the Metrolink operation phase there are no predicted impacts affecting the Hospital's operations, as noted below.<br><br>**Airborne noise:** During operation the Metrolink will be in tunnel within the Mater Hospital section of the proposed Project. As noted in EIAR Chapter 13, Section 13.5.3.2.3 Ventilation Systems, the primary operational noise sources will relate to the station and tunnel ventilation systems. The specific noise level from ventilation systems will be calculated as part of the further design development. Specifically, the operational noise level from each shaft and surface grill will be calculated to the nearest sensitive areas to each and specific attenuation designed for each system so as to not exceed the relevant design criteria for each location. As such, no mitigation will be required at the Hospital building itself.<br><br>**Ground borne Noise and Vibration:** EIAR Chapter 14, Section 14.4.2.6.1, Table 14.44, presents the predicted noise levels during railway operation compared to the threshold values for noise for various sensitive receptors (including Mater Hospital). The predicted groundborne noise level for railway operation past Mater Hospital has a value of 29 dB LAmax,s which is below the Threshold Level for this building of 40 dB, resulting in no impact on the buildings operations.<br>In Section 14.4.2.6.2 AZ4, Table 14.45, are presented the predicted vibration levels during railway operation for various sensitive receptors (including Mater Hospital). The VDV (Vibration Dose Value) for railway operation past Mater Hospital has a value of 0.005 ms-1.75, which is well below the 0.2 ms-1.75 VDV threshold level of for this building resulting in no significant impact on the buildings operations.<br><br>**Air Quality:** The air dispersion modelling assessment has found that in the 2035 opening year no receptors will have ambient air quality exceedances of the ambient air quality standards for the Do Something (and Do Minimum) scenario as a result of the proposed Project. There is a single slight adverse effect but no moderate or substantial adverse effects expected as a result of the Operational Phase of the proposed Project. Therefore, overall, it is considered that the residual effects are within the EPA Guidelines (EPA 2022) with the likely effects considered overall as 'Neutral, Not Significant and Long-Term'.<br>**Electromagnetic Interference:** The Radiology Department of the Mater Hospital is located in the Whitty Wing on Level 2. It is more than 100m from the proposed alignment and therefore modelled levels at this distance are such that no significant effects are likely to be experienced in the operation of the on-site MRI, CT and PET-CT scanning equipment. Accordingly, the significance of effects on the Mater Hospital from DC magnetic fields has been determined as 'Slight' with a quality of effects classed as 'Neutral'.<br><br>**Traffic:** The Berkeley Rd/Eccles Street junction will be reinstated to provide for general traffic use. |

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| 17 | 4. Acquisition of Lands | 10 | Our clients are, ....., very concerned about the proposal to acquire permanently the Four Masters Memorial Park.....<br><br>There is little or no recognition in the application documentation as to the historical import of this Park or that the Park is within our clients' ownership and used by them periodically for the benefit of the Hospital and its patients for symbolic and historical Hospital occasions - this is not recognised in the Planning Report accompanying the documentation at all.<br><br>Our clients' understood that the Park would be required temporarily during the construction of the proposed project, but that it would be returned to our clients' use and ownership thereafter. The necessity for a permanent acquisition has not been explained in the application documentation and a basis for confirmation of the CPO element of the Railway Order has therefore not been made out. | According to Chapter 21 Land Take - Permanent land take is required at the proposed stations and along the surface, retained cut, and cut and cover sections of the proposed Project alignment. The acquisition of lands for cut-and-cover sections (including for the underground stations) has been considered as permanent land acquisition during the Construction Phase, although following construction, all or part of this land may have the potential to be returned (or the surface level made available for use) subject to agreement with the landowner. In addition to land take required for the footprint of the permanent works, lands will also be required temporarily for the construction of the project. In the context of this Chapter, temporary means land that is utilised for a period of time to facilitate the construction of the proposed Project but is then returned to its former, or another (non-MetroLink) usage. It is envisaged that the park will be re-instated upon completion of works albeit with modifications to landscaping and alignment.<br><br>In the case of the Four Masters Memorial Park, the EIAR Chapter 27, (The Landscape) notes in Section 27.5.4.20 that - 'The proposed works will necessitate the removal of a substantial area of the park on a temporary basis, along with the perimeter railings, the nineteenth century memorial cross (The Four Masters Cross) and the sculpture (Healing Hands), dating from 2000. Whilst the station will be below ground, it will have a number of elements on the surface, including ventilation grilles, air intake shafts, fire access lift, emergency escape stairs and the main entrance to the station. These will be placed along the Berkeley Road frontage, mainly within the park. Following the completion of the station box, the Park will be reinstated on the surface to a shape and form similar to the existing Park with updated planting, including new trees along each side of the triangle. The railings and gates, the Four Masters Cross and the sculpture will all be reinstated to slightly amended alignment and locations. The existing garden and grotto adjoining and within the grounds of St Joseph's Church will also be reinstated on the existing footprint and in similar style to the Four Masters Park proposals with proposed trees. This allows the accommodation of the introduced elements of the station which will now be expressed at surface level'.<br><br>So in the case of the Four Masters Memorial Park, whilst permanent land take is considered as permanent land acquisition during the Construction Phase, a significant part of this land will be able to be returned to use as a park after the reinstation works are finished. The intended compulsory purchase of the park as part of the Railway Order Application will allow TII to open the reinstated and improved park to the wider public who will be able to fully avail of its extraordinary amenity value. |
| 18 | Conclusion | 11 | It looks forward to the opportunity to engage further on these and other issues at an Oral Hearing and our clients are more than willing to have a preliminary meeting of the parties and observers In advance of the main oral hearing. | See Response (4). |