Railway Procurement Agency

METRO NORTH
ORAL HEARING

Proof of Evidence

RPA Response to Further Information Submissions

Mr. Rory O ' Connor

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INTRODUCTION

On 1 October 2009, the Railway Procurement Agency ("RPA") submitted further information to An Bord Pleanála ("the Board"), in respect of the proposed Metro North Scheme, in response to a request for such information from the Board made on 26 June 2009.

37 submissions in relation to the further information were received by An Bord Pleanála by the closing date of 16th November 2009. Copies of these submissions were forwarded to RPA the last of which was received on 24th November.

RPA has reviewed all of the submissions received. Many of these submissions were from persons or bodies with whom RPA has been engaged in on going discussions throughout the course of the preparation of the Railway Order application and since the commencement of the oral hearing last April.

RPA will respond to these submissions, hereafter, and the Board should note that in some cases discussions and negotiations are ongoing. RPA is satisfied that it has addressed the majority of concerns and issues raised by parties. This evidence summarises our response to the submissions. This evidence follows the structure of the oral hearing modules.

We reserve the right to respond in more detail as the modules progress

LOCAL AUTHORITIES

(1) Fingal County Council

There has been a close and continuous liaison between RPA and FCC throughout the design stage of the project. FCC engaged fully throughout the design development and a significant number of issues and concerns were discussed and agreed. FCC set out its objectives for the development of the Metro corridor very early in the design process, this allowed RPA to develop design proposals consistent with these objectives and ensured a coherent development of the design.

FCC employed the services of Roughan & O'Donovan Consulting Engineers who assisted FCC in the technical review of the emerging design. In particular FCC provided detailed comments on the emerging design in relation to:

- The Metro alignment;
- The Stop design;
- Pedestrian and Cycle Access;
- Bridges and Structures;
- Road layouts;
- Environmental Impacts;
- Transport Interchange ; and
- Parking

This approach was very helpful in ensuring the design was developed to the standards required by FCC.

Discussions have continued throughout this EIA process and further to FCC's original submission to the Board and my response to that submission provided to this hearing on 22nd April 2009, RPA and FCC have reached an agreed position which will be covered in evidence given by FCC in Module 2. For the avoidance of doubt, I hereby confirm that matters have now been formally agreed with FCC and that RPA agrees, subject of course to the Railway Order being confirmed, to carry out and operate the scheme in accordance with this agreement.

(2) Dublin City Council

There has been a close and continuous liaison between RPA and DCC throughout the design and EIA stages of this project. At this hearing, on 22nd April last, I read into evidence details of a formal agreement between RPA and DCC (appendix 1 of Proof of Evidence – Response to submissions). As stated at that time RPA agrees, subject to the Railway Order being confirmed, to carry out and operate the scheme in accordance with that agreement. It is accepted that RPA's agreement to the terms contained in that schedule binds it to observe those terms, as they constitute part of the plans and specifications on the basis of which the Board is invited to grant the order. I now propose to present, in a similar format, details of the agreed position formally reached between RPA and DCC in response to their submission on the further information. The specific issues raised by DCC are set out in column 1 of the schedule and the particulars of the agreement in relation to these issues are set out in column 2. For the avoidance of doubt, I hereby confirm that matters have now been formally agreed with DCC and that RPA agrees, subject of course to the Railway Order being confirmed, to carry out and operate the scheme in accordance with this agreement.

PRESCRIBED BODIES

(3) Dublin Airport Authority (DAA)

DAA has previously expressed strong support for the proposed Metro North alignment and in its recent submission to the board, reiterated its commitment to working with RPA in the evolution of the works and proposals to facilitate the project.

RPA has discussed the issue of electromagnetic interference in detail with DAA and we can confirm that RPA will comply with legislation and DAA Bye Laws in respect of the use of any equipment that would impede the safe and effective operation of the airport and work with the DAA and the Irish Aviation Authority (IAA) in relation to any electromagnetic interference.

RPA has exchanged correspondence with IAA and DAA in respect of the risks associated with the use of light levels and the types of acceptable light fittings and equipment height to be installed in the airport area and adjacent areas. This issue has been discussed in detail with DAA and we can confirm that the DAA shall be included in the Metro North design review process at detailed design stage.

RPA confirms that the Risk Register will be amended to include that the North Apron at the Airport serves all hangar areas from Hangar 1 to Hangar 5 and includes aircraft parking stands and provides access to Runway 11/29. A significant level of vehicular traffic traverses the North Apron area

We also note the typo relating to the location of the Metro North stop in relation to Terminal 1, to the north east of the existing terminal.

<u>Scheme Traffic Management Plan (STMP)</u>

It is the overarching goal of the STMP to minimise the impact of The Metro North Scheme on all road users and to maintain access to businesses and other premises, whilst keeping traffic moving safely. In doing so, the economic vibrancy of Dublin City and other key areas, such as the Airport, will be maintained throughout the construction period. We see Dublin Airport as not only critical infrastructure of national importance but also a critical business. To this end we advocate that public transport, in particular bus, priority measures be implemented and maintained where possible to meet this objective. This would include the public transport gate at College Green as well as maintenance of existing bus lanes along the Ballymun Road (R108) and the Swords bypass (R132).

<u>T2 Proposals</u>

This section refers to the T2 road opening licences set out in *Dublin City Council's Directive for the Control and Management of Roadworks* for carrying out work in the carriageway, i.e. digging a hole to lay utilities; and not to Terminal 2 at Dublin Airport.

Congestion

It is the intention that during Metro North construction works the associated traffic impacts will be kept to a minimum. This will be achieved through the planning and sequencing of the works. The predicted traffic impact on the M1 is as a result of the Metro North construction traffic using this road and of traffic diverting away from the R132 where there is significant construction activity taking place.

The traffic impact on the R132 is as a result of the loss of road space needed for the works areas along this road and from the additional construction traffic generated from these works areas. Again, through careful planning and sequencing, the impact of Metro North construction works will not create significant adverse impact.

It should be noted that the predicted traffic impact on the M1 and R132, determined from the traffic modelling undertaken to date, may not be fully realised because the growth assumptions underpinning the traffic modelling are based on projections which do not factor in the economic downturn. Thus the traffic modelling undertaken for the assessment of the traffic impacts generated by Metro North construction works is considered conservative and represents a worst case scenario.

Importantly, it should be noted that all traffic management proposals by the contractor will be subject to the agreement of the traffic forum set out in the Scheme Traffic Management Plan.

Vehicle Recovery

Construction vehicles will be required to cross North Corballis Road and then traverse the access road to the Naul Road. The contractor will be required to have provision to recover any vehicles associated with the construction of Metro North such that North Corballis Road or the access road from the Naul Road do not become blocked. It is not the intention that the contractor provides vehicle recovery for other traffic in the vicinity of the airport.

(4) Department of Environment, Heritage and Local Government

The DEHLG submission to the board raises points in relation to the three national monuments impacted by the proposed scheme and the fact that any works affecting these national monuments, namely St Stephen's Green, the O'Connell Monument and the William Smith O'Brien Monument are subject to Ministerial consent. RPA acknowledges this requirement and that any agreement reached between RPA, the Office of Public Works (OPW) and the Department will form part of any consent that may be given by the Minister under the National Monuments Acts.

National Monuments Act

In accordance with Section14 (2) of the National Monuments Act 1930, RPA are aware that works at or in the vicinity of St. Stephen's Green, the O'Connell Monument and the William Smith O'Brien Monument require consent in writing from the Minister for the Environment, Heritage and Local Government.

St. Stephen's Green Strategy Document

RPA has liaised closely with the DEHLG and Office of Public Works (OPW) to agree mitigation for a number of the potential impacts of the scheme at St Stephen's Green. A St. Stephen's Green Strategy Document is being prepared, which sets out proposals and processes required in order to implement the mitigation measures detailed in the Metro North

Environmental Impact Statement (EIS) as well as the specific mitigation measures and requirements of the DEHLG and OPW. This document will form part of the Ministerial consent submission by RPA for works at St Stephen's Green.

Mitigation measures and emergency access

The vast majority of mitigation measures have been agreed with DEHLG and OPW. There has been extensive on-going discussions between RPA, OPW and DEHLG in relation to the location of the emergency escape core in St. Stephen's Green and it is anticipated that this issue will be resolved shortly.

HOSPITALS AND THEATRES

(5) Mater Campus Hospital Development Limited ('MCHD')

RPS Planning and Environment has on behalf of Mater Campus Hospital Development (MCHD) provided a submission to An Bord Pleanála in its letter reference 08173 dated 16 November 2009. The submission deals exclusively with the issue of the effects of electromagnetic interference on clinical equipment.

MCHD does however note that the submission is to be viewed as an expansion of its prior submission that remains valid. In its prior submission, MCHD raised the further issues of integration and permeability of the Mater Metro Stop with permitted development on the Mater Hospital Campus, aspergillus prevention, noise and vibration, parking and access and building structure.

Electromagnetic Interference

In the Further Information, Item 12 Electromagnetic Interference, Table 4.2, RPA provides the predicted EMF strengths which at any particular item clinical equipment peak at 5.0μT. RPA now notes that MCHD is to provide the EMI immunity levels for the different categories of equipment and this is welcomed.

Based on this information on immunity levels the need for mitigation measures may be decided. RPA does not currently expect that mitigation measures will be required but RPA has confirmed that should it be finally proven that there is a detrimental effect caused by electromagnetic fields caused by the operation of the Metro then suitable measures will be provided to ensure that such effects are mitigated.

Regarding the issues raised by MCHD in the RPS letter dated 16 November 2009 the following response is offered.

a) RPA notes that the MCHD's EMC consultant's report is awaited. In this regard, RPA is aware that the EMC consultant is also working with Mater Private Hospital (MPH). RPA considers that a very co-operative approach has been reached between RPA and the consultant in regard to testing the immunity of sensitive medical equipment at MPH and that substantial agreement on many of the EMC issues has been reached.

b) In response to the question regarding the dynamic analysis of two trains passing, the predicted EMF strengths from DC sources are based on traction currents drawn by all vehicles running on the Metro North system. As such full consideration is taken of vehicles running on both tracks at the Mater Stop. No evidence has been presented to indicate that interference other than that arising from traction currents is relevant.

c) Regarding power electric fields generated from AC sources, no evidence is provided by MCHD on the "other technical sources". RPA considers that power frequency electric fields emanating from AC sources in the tunnel will be substantially absorbed by the mass of earth and reinforcing bars in the tunnel structure and will be negligible

at the distances to the MCHD equipment. There is a large body of evidence supporting this view of the extensive use of underground high voltage cabling in power utilities worldwide. It is widely accepted within this industry that electric fields do not emanate from underground cables.

d) MCHD quotes from the GE equipment manual and RPA queries the levels quoted for this equipment because the indicated susceptibility to a 1 watt phone at 23 metres would mean that the equipment is not compliant with the EU EMC Directive. The lowest common EU limit is 3 V/m under the relevant harmonised standard whereas the indicated susceptibility is calculated to be 0.24 V/m.

e) MCHD states that no analyses are included for the construction phase. RPA has considered in detail the question of electromagnetic interference arising from the presence of the tunnel boring machine. RPA has concluded that no interference issues arise, in part because of the very slow operating speeds of the equipment concerned and also because of the balanced nature of power supply and cabling arrangements.

f) MCHD notes that no mitigation measures are contained in the RPA reports. RPA's approach has been to calculate the anticipated levels of EMF that will be generated from the Metro North system under the worst case operating conditions. RPA has sought the immunity levels of sensitive medical equipment to determine if there is a need for EMI mitigation measures and has indicated that mitigation will be applied if there is found to be an EMI issue. RPA has already identified a number of possible mitigation measures but considers them unnecessary at this point in time.

<u>Integration and Permeability of the Mater Metro Stop with Permitted Development the Mater Hospital Campus</u>

RPA and MHCD have agreed all issues associated with the integration of the Metro Stop entrance into the Adult Hospital as well as associated pedestrian links around the Mater Stop.

Regarding MCHD's support for the provision of an entrance to the Stop on Eccles Street, agreement has now been substantively reached in this regard with the relevant parties.

<u>Aspergillus Prevention</u>

In its response to the request for Further Information provided against items 1, Part 2 and 3 (Rotunda and Mater Private Hospitals respectively), RPA set out the proposed mitigation measures for Aspergillus prevention. Those measures will naturally apply equally to MCHD.

<u>Noise and Vibration (Construction and Operational Phases)</u>

The concern of MCHD appears to relate to the premise used within the predictions of noise and vibration that the new hospital will not be operational before the completion of the Mater Stop box. Should this not be the case further impacts could arise

MCHD state that "*it will continue to engage with the RPA on this matter in order to ensure that the safe operation of the Hospital is not impacted upon by the construction and operational phases of the Metro North project* " and concludes by stating "*That all mitigation measures with respect to Noise and Vibration are agreed prior to the commencement of the Mater Metro box*"

RPA has provided its evaluation of the predicted noise and vibration levels that will be experienced in the new Adult Hospital and discussions are being progressed with MCHD. Further details will be provided in the hospital module.

<u>Parking and Access</u>

MCHD notes its concern regarding certain issues associated with parking and access and concludes that it wishes "*That the RPA liaise with MCHD with respect to all transportation and parking related issues during the construction phase of the Metro that relate to the operation of the Mater Hospital Campus".* RPA will ensure that this provision is included as an obligation on the contractor for the works.

Building Structure

MCHD has referred to the provision of an attenuation tank that is to be constructed by them above the Mater Stop. RPA is aware of this requirement and the necessary provision has been allowed for in the design of the stop.

RPA has liaised with MCHD regarding the diversion of services and does not believe that there are any issues of concern outstanding.

The landscaping proposals around the Mater Stop site have been agreed between RPA and MCHD.

RPA notes the concerns of MCHD regarding the use of recharge wells for groundwater. RPA does not expect that recharge wells will be required.

Regarding site security, RPA confirms that the responsibility for the securing of the works within the designated Mater Stop construction site will not be the responsibility of MCHD.

(6) Mater Private Hospital

Mater Private Hospital (MPH) has provided a submission to An Bord Pleanála in its letter dated 16 November 2009. An attachment, entitled "*Submission to An Bord Pleanála relating to RPA Metro North Further Information Response*" Revision A dated November 2009, to the letter was prepared by Tobin Consulting Engineers and deals with matters pertaining to land acquisition, limits of deviation, miscellaneous construction issues, ground settlement and structural stability, traffic impacts during construction, noise and vibration, electromagnetic interference, impact on utilities and air quality.

MPH state in its letter that consultations are ongoing with RPA to determine scheme design and mitigation measures and that progress is being made but significant issues remain unresolved. MPH further states variously within the body of its submission that impacts should be mitigated at source to minimise impacts on MPH.

Discussion and additional testing has indeed continued in conjunction with MPH and progress does continue to be made. It is expected that further significant progress will be made in the forthcoming weeks and that a full resolution of all the issues under discussion will be substantively reached prior to the conclusion of this hearing.

As such it is not intended to provide a full and substantive response to the issues raised in the MPH submission since much of the MPH commentary will have been overtaken by the further discussions.

For the information of the Inspector a brief summary of the status of each issue is provided in the following (by reference to the headings used in the attachment prepared by Tobin Consulting Engineers) and it is expected that further details will be presented during the hospital module of this hearing.

Redesign of Mater Stop

As has already been noted by Mr James Connolly, RPA has carried out a review of the Mater Stop layout to suit the introduction of a second entrance to the Stop from Eccles Street. This has enabled the location of the emergency escape from the south of the box and the southern ventilation structures to be repositioned. The effect of this re-positioning is that the main

excavations for the stop box are now more remote from MPH by a distance of 20 metres. This has meant that the effects of ground settlement, noise and vibration and air quality are substantially reduced.

The re-design has been discussed with MPH and the revised predictions for the effects of settlement and noise and vibration are currently being finalised with MPH along with any residual mitigation measures necessary. As noted above it is expected that further detail will be presented during the hospital module.

Book of Reference & Schedules of Acquisition

MPH is correct in pointing out the anomaly in item 15.2.1 of the Further Information regarding the acquisition of a small amount of temporary land. This land (coded as M6G-T1) is not in the ownership of MPH and the ownership is correctly recorded in the Fourth Schedule to the Railway Order Application.

Specified Deviations to the Alignments

MPH conclude by stating that "*At an absolute minimum the MPH would require that the alignments are fixed and would preferably require increased offset, from the hospital build line*".

RPA is able to confirm that the alignment is fixed and that there is no intent to allow that the southbound (most easterly tunnel) be moved closer to the footprint of MPH despite the limits of deviation being available to allow such movement.

Construction Issues Specific to MPH

In response to MPH comments, and as noted above, RPA has amended the stop box excavations, which has mitigated the majority of construction effects at source as recommended by MPH.

Discussion on the necessity to relocate clinical services, or otherwise, remains ongoing with MPH with a view that it may be possible that the majority of services, if not all may be maintained on site. This will be dealt with in more detail within the hospital module.

MPH has made comment against item 11(b) of the Further Information and has taken the conclusions in item 6.0 out of context and implies that RPA is stating that it intends to stockpile on the Mater Site. Item 6.0 states "*All material may be disposed of either a) where suitable for the construction of the works…".* The clear intent of this statement is that material excavated from the site may be used to construct, for example, embankments elsewhere on the project; it is inconceivable that it would be the intent to stockpile material on the very restricted Mater Site.

Ground Settlement and Structural Stability (and Appendix A to the Submission)

Discussions have continued with MPH on the effect of ground movement and, in particular, the effect that those movements may have on clinical equipment and in particular the linear accelerators. The decision to reduce the overall size of the Stop box (which has meant that the main excavations for the stop box are now more remote from MPH by a distance of 20 metres) has meant that it is expected that there will be no effect on the equipment due to these excavations. The tunnel works will still affect the equipment and mitigation measures as previously reported to the Inspector are being progressed further with MPH. It is expected that these will be confirmed during the hospital module.

The submission provided within Appendix A is not accepted by RPA and discussions are continuing with MPH. However as noted earlier it is expected that full resolution of all the issues under discussion will be substantively reached prior to the conclusion of this hearing.

Traffic Impacts during Construction of the Works

MPH is of the view that traffic into and out of the construction site should be via the North Circular Road rather than the circulatory route proposed by RPA whereby traffic enters the site via Eccles Street and departs via the North Circular Road. The main issue of concern of MPH, it is understood, is that it does not wish for construction traffic to pass close to the west façade of the hospital. RPA has suggested that noise from construction traffic may be mitigated by acoustically cladding the façade of the hospital. RPA continues to discuss appropriate mitigation with MPH and expects to reach resolution in this regard prior to the hospital module. Notwithstanding, RPA has committed to ensuring that the specified airborne noise limits are achieved.

Potential Impact of Noise and Vibration during Construction and Operation

Discussions have continued with MPH on the effect of airborne noise, groundborne noise and vibration. The decision to reduce the overall size of the Stop box (which has meant that the main excavations for the stop box are now more remote from MPH by a distance of 20 metres) has meant that the impacts of the stop box excavation are substantially reduced and the required mitigation measures minimised.

Further information will be provided during the hospital module and it is expected that full resolution of all the issues under discussion will be substantively reached prior to the conclusion of this hearing.

Potential Impact of Stray Electric Magnetic Currents during Construction and Operation

In its Further Information, RPA noted that work was continuing to a) measure existing field strengths in MPH, to b) carry out further test measurements at Beth Israel and to c) simulate magnetic fields on the linear accelerators to measure the actual effect on the equipment.

The work associated with a) and c) has now been completed and the results are being evaluated. It is not yet known whether the work associated with b) will be carried out and MPH advice in this regard is awaited. However, these tests may not be essential to the studies being undertaken. The results once evaluated will form the basis of the mitigation, if any, required. If mitigation is required RPA has already committed to providing what is finally determined to be required.

Further information will be provided during the hospital module.

Potential Impact on Utilities during Construction

MPH has suggested that it needs to be provided with a dedicated ESB loop feed, a secondary temporary standby generator, an additional electronic system protection, redundancy in the telecommunications system, an alternative source of water supply, and an alternative gas connection.

It has not been demonstrated that any of these additional/alternative services are necessary and RPA do not share this view. MPH has, in discussion, agreed to re-consider this section of its submission

Construction Nuisances - Dust / Particulates

There appears to be no question to address within this part of the MPH submission and RPA remains of the view that the details provided in its response to Item 14 of the request for Further Information remains appropriate.

Risk Register

RPA does not agree with the comments made by MPH in relation to the Risk Register and by way of example:

a) MPH states that a more detailed Risk Register should be available for the Mater Stop and that it would be expected and anticipated that RPA and its consultants would have a much greater understanding of the geotechnical, geological and hydrogeological risks in the environs of Mater Stop. RPA would respond by noting that there is a very detailed risk assessment for the Mater Stop that sits behind the Risk Register reflecting its more advanced stage of design. Risk assessments are summarised in the form of risk registers. RPA has a very good understanding of the geotechnical, geological, and hydrogeological risks in the environs of Mater Stop.

b) MPH states that there is no evidence that the RPA has taken the approach of designing out any of the significant risk items identified which will affect the MPH. This statement is inaccurate. RPA has and continues to spend considerable time in consultation with MPH to determine a design that minimises impact on MPH. The Physical Agents Working Group was set-up by RPA to address such issues and RPA has and continues to develop mitigation measures to design out risk.

c) MPH states that the Risk Register has not been reviewed and revised to account for the known presence of gravels in the environs of the Mater Stop and possible dewatering of these granular deposits during the excavation of the stop box This statement is incorrect, see for example risks 106_T 182, 195, 196, 200,

d) MPH states that RPA fail to access the impact of tunnelling in mixed face conditions and the potential for increased ground loss. This statement is also incorrect, see risk 107_T033

e) MPH states
- that the impact of dewatering sand and gravel lenses is not assessed and,
- as excavations are likely at the Mater Stop for an extended period, the temporary dewatering could extend for many months,

RPA believes that the provision made in terms of diaphragm wall cut off, and toe grouting means that de-watering of the ground outside of the box would not be extensive, and lowering of the ground water is limited by the Contract to 1m. Furthermore the sands and gravels are known to be dense and therefore in terms of building response there would not be expected to be significant consolidation settlement.

It is unfounded for MPH to state "*This is considered a major failing*". RPA knows that if any dewatering settlement were to occur, the settlements would be very small, accrued at a very slow rate and from experience tend to be much more uniform across an area, and will therefore have no significant impact on the environment.

f) MPH states that there is a failure to provide a clear geological, geotechnical, hydrogeological and hydrological conceptual model for Mater Stop which prevents a comprehensive understanding of the sub-terrain environment. This is refuted and RPA has a comprehensive understanding of the sub-terrain environment.

AREA MN107

(7) Irish Life Investment Managers, Ventasker and the Royal College of Surgeons in Ireland on behalf of Stephen's Green Shopping Centre and car park.

Jones Lang LaSalle who have been retained by Irish Life Investment Managers, Ventasker and the Royal College of Surgeons in Ireland on behalf of Stephen's Green Shopping Centre and car park raise a number of concerns in their submission in relation to utilities, access and landtake.

RPA has met with and corresponded with Jones Laing LaSalle (JLL) in relation the to the Stephen's Green Shopping Centre and car park to address their concerns and have to date furnished them with all relevant information.

RPA have confirmed that the utility sub phases will be split such that only one entrance of the shopping centre is affected at any one time.

Heras style fencing will be used around construction phases in the vicinity of St Stephens Green Shopping Centre such that shops remain visible during the enabling works.

JLL requested that the RPA carry out a fundamental review of access routes to the combined car park. In determining access routes we explored and reviewed a number of options, these were discussed with Dublin City Council Traffic department, this included the use of Hume Street and St Stephens Green East as suggested by JLL. This particular route is an important bus route and DCC did not think it would be viable at this time for general traffic.

Our objective in the Scheme Traffic Management Plan was to demonstrate that access to car Parks can be maintained, but we do recognise that that there may be more than one solution to access car parks from different parts of the city and a number of alternatives have been demonstrated to JLL. Principle access routes to all car parks within the city affected by the works will be agreed with the Traffic Forum and suitable signage put in place.

JLL requested that RPA carry out junction modelling of the Pembroke Street/ Leeson Street junction. This is not the only route for traffic to access the car parks. On completion of the oral hearing, and agreement of the Traffic Forum of principle access routes, modelling of critical junctions will be carried out as required by the contractor.

We confirm our agreement to provide clear communications and signage to the combined car park.

The work in the area directly outside of the entrance to St Stephens Green Shopping Centre will be carried out at night when the shopping centre is closed. This work involves the installation of electrical and telecommunications ducts 120mm and 100mm in diameter respectively in two separate trenches approximately 900mm deep and 300mm wide. It is anticipated that these works will be complete in 4 shifts. To minimise disruption to the Fitzwilliam Hotel which is located some 60m to the south of the works any breaking or noisy works will be carried out at the start of the shift i.e. breaking ground with breakers or saw cutting slabs. Excavation will be carried out with a mini digger or by hand if required and suitable noise barriers will be used. Installation of plastic ducts will be by hand as will the placing of fill material. At the end of each shift and prior to the opening of the shopping centre the works will be suitably covered to a high standard so as to allow unimpeded access to the shopping centre.

Work in the vicinity of TGI Fridays and The Dandelion will take place during the day. The works will be planned and executed such that access will be maintained at all times.

We confirm that none of the enabling or utility works that extend west along South King Street will impact the access to Sinnott's Bar.

RPA will be responsible for monitoring all construction work and ensuring implementation of all constraints by the Contractors during Utility Diversion works at SSG.

(8) Percy Nominees Ltd, 68,69 O'Connell St and 31-33 Henry St, Dublin 2

John Spain Associates has on behalf of Percy Nominees Properties provided a submission seeking assurance that the basement levels of the properties at 68 and 69 O'Connell Street and 31-33 Henry Street will not be subject to any utility diversions works. There is no proposal by the RPA to acquire, now or in the future, the basements in this part of O'Connell Street or Henry Street to facilitate Metro North utility diversions.

(9) Kildare St and University Club

The environmental limits and mitigation measures set out in the EIS provide adequate protection to the Kildare Street and University Club.

(10) Carrigwood Developments Ltd, 13/13A St Stephen's Green and 24 Dawson St, Dublin 2

Carrigwood's submission raises all of the points raised by the St. Stephen's Green Hibernian Club's submission. I will address these points in the response to the St. Stephen's Green Hibernian Club's submission.

(11) Glenberg (Peter Mark Group) 3, 43 and 74 Grafton St, Dublin 2

The Metro North EIS provides Glenberg with sufficient information to assess the likely impacts, mitigation measures and residual impacts for all environmental topics.

Utilities

As it is intended to make new utilities operational prior to decommissioning of existing utilities, there is little or no risk of an interruption to supply. A detailed assessment of the utility diversion works was submitted as further information to An Bord Pleanála. This included a risk register outlining the risks and proposed mitigation measures.

The permissible levels of noise and vibration are set out in the EIS.

Vibrations and groundborne noise

Vibration from any blasting will be controlled by reducing charge weights to avoid building damage and suitable advance warning will be given to anyone who may experience noise or vibration from the blast.

Mitigation measures

The contractor will be obliged to implement an Environmental Management Plan in accordance with ISO 14001:2004 demonstrating that all the requirements and mitigation measures as specified in the Railway order and/or the CMR are managed and implemented.

RPA Indemnification and meeting Glenberg expenses

There are sufficient legal remedies already available to Glenberg to protect its interests. The contractors carrying out the Metro North construction works will be obliged to have a sufficient level of third party liability insurance

(12) Cafolla Family, 8 Lower O'Connell St, Dublin 2

The Cafolla Family's submission raises concerns relating to the impact of utility works on their basement business, the Global Internet Café, and also access to their commercial premises at ground floor level.

The utility diversions to be carried out on O'Connell Street Lower as part of the enabling works package works for Metro North will have a direct impact on the basement structures outside of the building line at No 8 O'Connell Street and adjacent properties.

The construction of the secant piling wall for the Station Stop Box comes to almost 4 metres from the building line of the properties on Lower O'Connell Street East.

Utility diversions in O'Connell Street Lower are required to relocate existing utilities and services, which are within the footprint of the proposed stop box construction, to new locations outside of the footprint. The purpose of this work is to allow a clear area for the main

works contractor to construct the stop in the shortest possible time scale, thus causing the minimum disruption to businesses and the public during this time.

In the case of O'Connell Street Lower the only available space to install diverted utilities is within the remaining 4 metre wide corridor between the secant pile construction wall and the building line of the properties. (ref Fig 1.1 below)

No 8 O'Connell Street Lower and adjoining properties will have the exterior part of their basements acquired by the RPA in order to facilitate these utility diversion works.

All other variations and alternative proposals on how to divert the utilities have been fully explored and exhausted to the degree that our current proposal is the only feasible one.

It is anticipated that the works will take 25 weeks in total to complete at O'Connell Street Lower. The works outside individual premises will be complete in 5 to 6 weeks with the works progressing along the street. During the period of construction the footway will be excavated and a temporary decking placed over the open excavation to allow access to business and retail premises at all times.

(13) Bank of Scotland Ireland, 124-127 St. Stephen's Green West

RPA have reached agreement with Bank of Scotland in relation to all mitigation measures.

(14) Ampleforth Ltd, Fitzwilliam Hotel

RPA have reached agreement with the Fitzwilliam Hotel in relation to all mitigations measures.

(15) The Westin Hotel

The Metro North Construction works in the vicinity of the Westin Hotel will be carried out on Westmoreland Street North of Fleet Street. Traffic management in the area is subject to agreement from the Metro North Traffic Forum, and specific measures will be put in place to deal with possible congestion. The introduction of the Public Transport Gate will remove general through traffic from the Area with suitable diversions put in place.
Access to the Hotel for customers, servicing and deliveries will be maintained at all times.

(16) West Hotel Trading Company on behalf of the Westbury Hotel

The contractor will be obliged to comply with the groundborne noise and vibration limits set out in the EIS.

The Stage 1 Preliminary Ground Movement Assessment Report and Stage 2A Preliminary Building Response Assessment Report have been submitted to An Bord Pleanála and are available to the West Hotel Trading Company. Building response assessments will be undertaken in accordance with the Impact Assessment Methodology described by the EIS. RPA has undertaken geotechnical site investigation and interpretation and this information has been submitted to An Bord Pleanála and can be downloaded from the RPA website.

All monitoring (including vibration, noise, settlement and ground water monitoring) will be carried out in the vicinity of the Westbury Hotel before the works commence, and will continue throughout the works and for a period of time after the works are completed. Monitoring will not be carried out on 'real time' basis. the Westbury Hotel will be kept fully informed of the monitoring results, major works and activities planned in the vicinity through a liaison person.

The contractor will be obliged to implement an Environmental Management Plan in accordance with ISO 14001:2004 demonstrating that all the requirements and mitigation measures as specified in the railway order are managed and implemented.

Access to Westbury Hotel will not be obstructed by RPA or its contractor(s) throughout the construction phase. There will be no change to the current arrangements for emergency vehicles at the premises.

There are sufficient legal remedies already available to the West Hotel Trading Company to protect its interests. The contractors carrying out the Metro North construction works will be obliged to have a sufficient level of third party liability insurance.

(17) The Stephen's Green Hibernian Club

Site establishment

For the main works, during installation of the guide wall, Heras style fencing will be used to protect the worksite. Individual worksites will be approximately 20m in length. Local pedestrian diversions will be required around the work sites. For approximately 2 weeks, the minimum distance between the Heras fencing and the Club's frontage (balustrade to the basement) will be 4.5m and to the Clubs entrance will be 6m. Following installation of the guide walls, timber hoarding will be erected on the guide walls prior to the diaphragm wall excavation. The distance between the hoarding and the Club's frontage will be approximately 5.7m and between the hoarding and the Club's entrance will be 7m. This hoarding will be in place for the duration of the stage 1 works which is anticipated to last some 17 months. The hoarding will have an attractive bright finish as agreed with the Club, and directional signage to local businesses including the Club will be provided. Lighting will be provided where appropriate. In stage 2 of the main works, the hoarding will be relocated to a distance of approximately 16m from the door of the Club. In stage 3 the hoarding will be relocated inside the railings of St. Stephen's Green.

Escalators

The orientation of the escalators cannot be changed as this would conflict with the design of the stop below ground level. The entire area in front of the Club is being pedestrianised and thus there is no possibility of crowding or congestion outside the Club. RPA can confirm that upon completion of the escalator opening and prior to the commencement of any works on or in relation to the installation of the escalators, a semi – permanent solid covering will be fitted to close off the escalator opening.

Utilities

The estimated duration of the utility diversion works between Grafton Street and Dawson Street is 20 weeks. The duration of utility diversion works in the vicinity of the Club will be significantly less. The contractor carrying out the utility diversions will be bound by the noise and vibration limits set out in the EIS. The works will be sequenced to ensure that there is adequate space for pedestrian movement and that the Club is accessible at all times. Because the utilities must be diverted into the space remaining between the stop box wall and the buildings, the utility excavations will be immediately adjacent to the premises on St. Stephen's Green North.

Main Works

The works that will be carried out in area B in front of the Club are described in the Fitzwilliam Hotel environmental report. The environmental impacts, mitigation measures and residual impacts associated with this work are set out in the EIS.

Timescale

While the overall timescale is shown as approximately six years, the main works in the street outside the club are scheduled to take approximately 27 months, following which the street will be reinstated.

Socio-economic impacts

The main mitigation measures in respect of socio-economic impacts are those set out in the EIS for noise, vibration, air quality and traffic. These will apply to the works in the vicinity of the Club.

Noise

The contractor carrying out the main works will be obliged to put appropriate mitigation measures in place to ensure the airborne noise limits set out in the EIS are not exceeded.

Mitigation at source is the preferred approach for noise. RPA considers the installation of sound-proofing to the Club's windows is not necessary or appropriate.

Site boundaries

Contractors will be obliged to ensure the construction site boundaries will be kept in good order, clean condition and appropriate signage will be used to ensure that safe access for residents, workers and visitors is maintained to and through the surrounding area.

Working periods

RPA will ensure that the contractor(s) will comply with the requirements of the EIS in terms of noise limit values with the addition that tools, plant or equipment which involve percussive processes will not be operated before 08.00. Contractors will not plan any works at night (22.00 to 07.00) where these works would cause the noise limits to be exceeded. However, it is noted that in exceptional circumstances works planned to be completed by 22.00 may extend beyond that time. Where in such circumstances, work likely to cause disturbance to the Club must take place after 22.00 RPA will require the contractor(s) to inform the Club in advance, as soon as possible after becoming aware if the requirement. Lighting of the site will be turned off once work ends (other than what is necessary for security purposes). Ending the works at 20.00 would extend the overall duration of the works in the area. Lower noise limits will apply after 19.00 as set out in the EIS.

Vibration and Protection of Ceilings

RPA has completed a building characterisation and basement survey of the Club. RPA's technical advisers who specialise in the fields of vibration and conservation architecture, which includes specialist knowledge of internal plasterwork finishes such as those evident in the Hibernian Club will also inspect the property.

Vibration limits are provided in the EIS and Contract Documents. However RPA acknowledge that buildings such as the Hibernian Club that have sensitive or valuable finishes which may prove difficult to repair will require special consideration on a case by case basis. Furthermore RPA also accept that the ceiling in the Hibernian Club may be vulnerable, and will therefore require a detailed assessment to be undertaken.

Depending on the findings of this assessment, it is possible that additional protection will need to be provided to the ceiling. Hence the entries 107_T 161 and specifically 107_T162 in the Risk Register submitted to An Bord Pleanála as part of the Request for Further Information. No work can be undertaken until these risks have been satisfactorily closed out.

An architectural conservation survey will be undertaken (by an appropriately qualified conservation professional) of those parts of the building that lie within the zone of influence to inform the building response assessment. In addition all buildings on the record of protected structures that fall within the zone of influence of the works, including the Hibernian Club, will have pre and post construction condition surveys undertaken

Soils and Geology (including settlement)

The Stage 1 Preliminary Ground Movement Assessment Report and Stage 2A Preliminary Building Response Assessment Report have been submitted to An Bord Pleanála and are available to the Club.

Building response assessments will be undertaken in accordance with the Impact Assessment Methodology described by the EIS, Mater Stop to St. Stephen's Green, Area MN107 – Book 7 of 7, Section 9.3, and will be further informed by the detailed assessments and surveys previously described.

RPA has undertaken geotechnical site investigation and interpretation. This information has been submitted to An Bord Pleanála. Further ground investigation in the area of St. Stephen's Green will be undertaken by the contractor as required to inform the detailed design.

Dust

The contractor will be obliged to comply with strict environmental controls in order to mitigate any nuisance from dust on adjacent properties. RPA will monitor the contractor's compliance with these requirements.

Visual impacts

The hoarding around the site will have an attractive bright finish as agreed with the Club, and directional signage to local businesses including the Club will be provided. The contractor will be required to maintain site boundaries in a good and clean condition. RPA does not believe it is necessary for the Club to reconfigure its operations during the construction period.

Mitigation measures

The contractor will be obliged to implement an Environmental Management Plan in accordance with ISO 14001:2004 demonstrating that all the requirements and mitigation measures as specified in the Railway Order and/or the Construction and Maintenance Requirements are managed and implemented.

Foundations

Where a building has sensitive and valuable finishes the contractor is obliged by the Contract to limit the impact to 1 in accordance with Table 9.3 of the EIS.

No ground anchors will be installed beneath the property and no land is referenced beneath the property for the installation of ground anchors.

Sufficient information will be provided of engineering works that could have an impact on the basement and foundation of the club.

Vibration generated by construction, including the enabling works will not cause structural damage. The potential damage effects from vibration will be assessed against detail construction planning proposals. This assessment will be made available.

Windows

It is not envisaged that the windows will have to be sealed and a ventilation system provided. Noise and dust will be mitigated at source and the contractor will have a number of mitigations measures in place to ensure this is the case. The RPA response to the ABP request for further information on the Fitzwilliam Hotel reports in the airborne noise section, under "Residual Impacts During Construction" that "Implementation of the mitigation measures detailed is likely to result in the residual impact being reduced to Low and not significant for the construction works." The impacts on the Hibernian Club will be no worse, and neither alternative means of ventilation nor a glass and timber acoustic facade are required.

Access of fire engines

Access to premises for the emergency services will be maintained at all times.

Pedestrian and service access

The Club does not currently have a dedicated set down area or loading bay. In conjunction with the proposed future Luas Line BXD works it is proposed that a loading bay / drop off point be located on the west side of Dawson Street between the junction of St Stephens Green North and Joshua Lane, subject to agreement with Dublin City Council.

Access to the RIAC car park and the Stephen's Green Shopping Centre Car Park will be maintained at all times, as described in the EIS and the Scheme Traffic Management Plan.

Pedestrian access to the front of the premises will be maintained at all times.

Alignment of the Luas BXD Line

The Railway Order drawings take account of the proposed alignment of the Luas BXD line.

Rates

The payment of rates is a matter for the Club.

RPA Indemnification

There are sufficient legal remedies already available to the Club to protect its interests. The contractors carrying out the Metro North construction works will be obliged to have a sufficient level of third party liability insurance.

(18) Justin Marden

The architecture of the metro north stops is shown on the Railway Order plans. Materials and finishes are shown in the Architectural Design Guide. Street interventions are agreed with the local authorities. The contractor will be obliged to employ an architectural design team with a proven track record on metro projects to develop the design for construction in compliance with the Railway Order plans. This team will also include specialists in conservation architecture, lighting design, building acoustics, accessibility, landscaping, pedestrian modelling and sustainable architecture.

We would reiterate that Mr. Marden's proposals are impractical and structurally unsound.

(19) Mary, Teresa and Seamus O'Donohue

The concerns expressed by the O'Donohues in their submission to An Bord Pleanála relate to working hours and associated noise, vibrations and explosions and the "interference" with St Stephen's Green.

Some work, particularly on the tunnels, may need to continue outside normal working hours, both to achieve efficiencies and to keep the work safe at all times. However, tunnelling working hours will be limited by the noise restrictions in the Environmental Impact Statement (EIS) to ensure that no disturbance is caused to residents at night time.

The approach taken to hours of working in the EIS is to limit the impacts of noise, vibration etc caused by the works, rather than to specify particular hours of working. This will allow the contractor to work in the most efficient manner subject to controls on disturbance of people, and should result in a shorter overall period of disruption. Blasting will not take place in residential areas at night and suitable advance warning will be given to anyone who may experience noise or vibration from the blast.

The noise assessment detailed in the EIS addresses the worst case in terms of noise emissions and takes a cautious estimate of mitigation. In this regard, the EIS sets out a package of mitigation measures for noise that the Metro North contractor will be obliged to adhere to. These measures are designed to avoid undue disturbance to residents especially during night times, Sundays and bank holidays. Whilst construction noise is inevitable, noise levels will be monitored during construction to ensure the contractor complies with these obligations and disturbance is kept to a minimum. RPA will require that noise monitoring must be undertaken by a suitably qualified and competent specialist.

During the construction phase, some slight vibration may be felt up to 20 metres from the cutting face of the tunnel boring machine. Vibration will also be heard as groundborne noise, and in quiet areas audibility may occur over a period of up to six weeks for each tunnel drive.

Potential groundborne noise effects have been assessed as part of the Environment Impact Assessment. At night, groundborne noise levels will be restricted to ensure that the works do not cause noise disturbance. Noise levels will be monitored during construction to ensure the contractor complies with these obligations and disturbance is kept to a minimum.

The EIS predicts that there will be no significant noise or vibration impacts during the operational phase.

Vibration from any blasting will be controlled by reducing charge weights to avoid building damage and suitable advance warning will be given to anyone who may experience noise or vibration from the blast.

The risk of significant damage to property during construction is extremely low. All structures that lie within the zone where there is considered to be potential for effects from the tunnelling operations will be carefully assessed for risk of damage. Surveys will be undertaken, protective measures will be developed for those structures likely to be affected and buildings will be monitored during and for a period after construction. If cracking or other effects occur suitable remedial works will be carried out. This has been standard practice on tunnel projects worldwide for many years.

RPA has implemented a Property Owners' Protection Scheme. This Scheme has been established to offer reassurance to residents living close to Metro North construction that in the unlikely event that damage results from the works it will be rectified swiftly under the Scheme. The O'Donohues have been invited to participate in the Scheme.

At St. Stephen's Green the provision of lifts and escalator entrances, and the like, are an essential feature of Metro North. The location and form of such features and a full reinstatement plan for the Green have been developed in consultation with Dublin City Council, the Department of the Environment, Heritage and Local Government, and the Office of Public Works who have responsibility for the Green. The Reinstatement Plan will essentially return the Green to its existing condition as a Victorian park.

The EIS carried out a full assessment of all sites of architectural and cultural significance along the route. A range of mitigation measures are proposed in the EIS to reduce or eliminate both the construction and operational impact of Metro North.

Advanced Enabling Works, under the control of the RPA, are being undertaken to ensure that the greatest of care is taken with the built heritage affected by the proposed works. As an example all preparatory works at St. Stephen's Green necessary to minimise the potential impact on the Green will be managed by the RPA in advance of the main infrastructure contractor commencing works in the Green. Enabling Works are to be carried out in agreement with all statutory bodies including Dublin City Council and the Office of Public Works.

RPA has commissioned a series of baseline surveys to establish a better understanding of the condition of existing areas and properties of architectural merit. These surveys will provide an enhanced assessment of the impact of the proposed construction works and better inform the on-going design work.

RPA has appointed an experienced Conservation Architect to provide expert advice on all matters relating to Architectural Heritage for Metro North. The Conservation Architect is producing the Metro North Architectural Heritage Protection Plan which is a strategy detailing the most effective way of implementing the mitigation measures proposed in the EIS. He will devise methodologies in line with legal requirements and based on best conservation practice.

The main infrastructure contractor who will develop the reference design, is obliged to appoint its own conservation architect to review the detailed design and proposed construction methodologies, as well as monitoring all construction work associated with protected structures and structures of architectural and historic interest. The contractor is also responsible for the development of surveys, method statements, risk assessments and quality management plans for addressing matters of architectural heritage.

The contractor is also to design an effective and precise movement monitoring system to determine the effects of all construction and associated civil works at surface level as well as the effects on all relevant structures.

(20) Dublin Chamber of Commerce

RPA acknowledges the consistent support of the Dublin Chamber of Commerce for the Metro project. The design of the airport stop takes the needs of airport passengers into account. In particular four, twenty six person lifts have been provided from concourse level down to platform which will result in an average wait time of no more than 30 seconds for a lift. Escalators have been arranged to provide logical and direct routes from concourse to platform.

(21) Abbey Presbyterian Church

RPA understand the concerns raised by Abbey with regards to the potential impact of Metro construction on the church. Broadly RPA are in agreement with the requests Abbey have made of RPA that are listed under the conclusions section of the submitted document (paragraph 64).

RPA has met frequently with Abbey, most recently on 6th and 13th November to discuss the previous drafted version of this submission, before it was updated to reflect the issues discussed at the meeting of 6th November 2009. As noted in the submission and by the notes of the meeting of 6th November 2009, RPA do not accept a number of the statements made in the submission, however RPA do recognise and understand the concerns raised by Abbey regarding the risk of potential damage to the Abbey structure, and wish to reassure Abbey that its requests of RPA made under paragraph 64 will be addressed as follows:

Expert Panel

RPA is setting up an expert panel, as described by the Monitoring Proof of Evidence presented on 23rd April 2009 by Mr. Geoffrey Featherstone. The panel will comprise of eminent industry recognised experts in specialist fields such as construction generated ground movements and building response. Professor John Burland has agreed to be a member of this panel. The proposals to carry out the instrumentation and monitoring duties (including appointment of the Independent Monitoring Engineer), will be reviewed by the relevant qualified members of the expert panel before they are implemented to ensure they are appropriate.

In the unlikely event that the expert panel or RPA's geotechnical and tunnel engineers identify trigger values have been reached, or monitoring trends indicate that these will be reached imminently then RPA will reserve the right to take action, and if necessary instruct the safe cessation of that element of the works giving cause for concern until corrective actions proposed are to the satisfaction of RPA.

Independent Monitoring Engineer

An Independent Monitoring Engineer will be appointed in accordance with the Monitoring Proof of Evidence presented by Mr. Geoffrey Featherstone on 23rd April 2009. While the Independent Monitoring Engineer will be jointly appointed by RPA and the infrastructure contractor for good administrative reasons, he will be technically independent of both parties. This is the fairest and most transparent approach to appointing the Independent Monitoring Engineer. The appointment is also vetted by the expert panel as set out previously.

Additional Ground Investigation

RPA is committed to completing additional ground investigation boreholes in the vicinity of Abbey and will ensure that appropriate engineering measures will be designed to limit ground movements in accordance with the advice of RPA specialist technical advisers that include Professor John Burland.

Responsibility of Health and Safety

RPA is ultimately the state body responsible for the Metro project and will comply with all of its obligations under the health and safety legislation. As stated above, RPA is committed to additional ground investigation and will ensure that appropriate engineering measures will be designed to limit ground movements in the vicinity of Abbey.

In the unlikely case of an unexpected incident during construction RPA's infrastructure contract with the infrastructure contractor requires the infrastructure contractor to cease all excavation works at the location impacted and take immediate action to ensure the safety of the works, adjacent properties and any staff or members of the public.

Condition survey and damage restoration

RPA will complete a condition survey of Abbey pre and post the construction phase.

RPA will limit buildings of historical significance, including Abbey, to a Category of 1. This means that where a building has historical significance the 'at risk' category shall be reduced to 'slight' (category 2). Protection measures shall be provided for all property that is categorised as being 'at risk'.

Responsibility of design

RPA confirm that comprehensive and competent designs will be prepared to protect Abbey. Metro is being brought forward as a Public Private Partnership "PPP" project as mandated by government. An integral part of the PPP model is that the detailed design of the works is carried out by the infrastructure contractor's consulting engineers and not by the client. This design is carried out against a strict set of design constraints set out in the Contract. This approach is very common around the world on both PPP projects and traditionally funded design and build contracts.

The infrastructure contractor will design the works, RPA however will review this design in accordance with a formal review procedure set out in the infrastructure contract. Only when design submissions are approved by RPA in accordance with the review procedure can the infrastructure contractor proceed with the construction of the relevant part or parts of the works.

Alignment

The tunnel alignment so far as practicable will be located within the limestone bedrock taking account of all relevant considerations that influence the design. This includes the adoption of a risk management approach by RPA to determine the most appropriate design solution for sub-surface structures, alignment, and the surrounding environment.
The site and ground investigations undertaken to date by RPA have identified a requirement for further ground investigation between the Mater and Parnell Square Stops which RPA has committed to completing as previously outlined. Once the results of this additional ground investigation are known the vertical alignment along this section will be reviewed taking account of the above considerations. RPA, supported by its technical advisors who are internationally recognised as experts in their specialist fields, (Professor John Burland (building response) and Mr. Alastair Biggart (tunnelling)), will outline to Abbey the basis that has determined the final selected Metro North vertical alignment in the vicinity of Abbey, including the appropriate management of any risk to which Abbey may be exposed.

Method statements

Abbey will be provided with written method statements giving, in sufficient detail for independent technical assessment, if necessary, full information of what will be done to preserve the structural integrity of Abbey during tunnelling and the excavation for Parnell Square Stop.

Noise, vibration and settlement monitoring

The infrastructure contractor will be contractually bound to comply with the requirements of the Environmental Impact Statement in terms of noise, vibration and settlement limit values.

RPA shall procure that noise, vibration, and settlement will be monitored at suitable locations, to be agreed by Abbey, and the latest noise, vibration and settlement monitoring results shall be made available to Abbey on a two weekly basis (or on demand by Abbey) to a representative nominated by Abbey.

AREA MN106

(22) Groarke's Shop, 32-34 Lower Drumcondra Rd

The concerns expressed by the Groarke's in their submission to An Bord Pleanála relate to pedestrian access during match days; interchange with Irish Rail; the pedestrian bridge and cantilevered walkway; land; and deliveries.

Pedestrian access during match days

There are two pedestrian crossings located on the Lower Drumcondra Road. Therefore pedestrians can access the Drumcondra Stop from both sides of Clonliffe Road without having to cross Clonliffe Road. When pedestrians enter the Drumcondra Stop on the Lower Drumcondra Road western foothpath, there is an extensive 50m long passage way for pedestrians to travel before reaching the lifts and escalators that lead to the concourse levels. This is considered a very safe and adequate solution.

On match days specific measurements will be out in place for crowd control. Customer Service Officers (CSO) will be stationed at the entrance of the Stop to control the numbers entering. CSO's and Gardai will manage the passenger circulation into the Drumcondra Stop.

Two stations at Drumcondra

One of the key reasons for the location of the Metro North Stop is to have an interchange with the existing Irish Rail station at Drumcondra. Irish Rail has an existing pedestrian bridge that connects its inbound and outbound platforms.

The Irish Rail concourse level will be connected to the inbound Irish Rail platform via a cantilever link and there is a footbridge over Irish Rails tracks to the outbound platform. The existing footbridge connecting the two sides of the platform is not adequate for the volume of people forecast to utilise the Drumcondra Stop and for safety reasons this is also required as a means of escape.

Pedestrian Interchange Bridge to Irish Rail outbound platform

RPA is aware of the granted planning permission referred to in the Groarke's submission which includes for the extension to the existing business and six apartments. This is indicated on the Metro North railway order drawing as "proposed development by others". It is noted that the cantilever link was incorrectly omitted from drawing (106010 - Ref.A). RPA is aware there may be some minor effect on the granted planning permission, although the existing Irish Rail Bridge is adjacent to the proposed new development and the proposed Metro North bridges are over 30m from the development.

Cantilevered link to the Irish Rail inbound platform

The cantilever link to the Irish Rail inbound platform is hidden behind the buildings as correctly shown on the East Elevation drawing. The cantilever link and the pedestrian

footbridge over the Irish Rail tracks are not equal in size. RPA rejects the contention that these two bridges will form a blank wall to Groarke's future development.

Section of land

RPA has had detailed discussions with Groarke's in relation to the section of land which they describe as being in abeyance. The proposed use of this land is as a landscaped garden area that will be maintained by the PPP contractor (InfraCo). This will not adversely affect the existing business or proposed development. It is envisaged that access to this land will be via the laneway.

Deliveries

RPA believes that advantages will accrue to the Groarke's shop through increased footfall outside the premises. In relation to access, detailed construction sequencing will be completed by the contractor to ensure delivery access is maintained throughout the construction phase.

Wayleave and temporary site on the laneway

The Metro North railway order application has referenced part of Groarke's laneway for a temporary site and another part of it as a Wayleave at ground level for an emergency access route.

Air rights over the laneway for the pedestrian bridge over the Irish Rail tracks

The Metro North railway order application has referenced air rights over the laneway for the pedestrian bridge to the outbound Irish Rail platform.

Air rights over the laneway cantilevered bridge

The Metro North railway order application has referenced air rights over the laneway for the cantilevered pedestrian bridge to the inbound Irish Rail platform.

(23) Residents for Realignment

The EIS, Scheme Traffic Management Plan and Item 2 of the further information demonstrate that the utility diversions can be carried out successfully while keeping traffic flowing through the city and maintaining access to all business premises and car parks at all times. All traffic management plans have been developed in consultation with Dublin City Council.

In relation to the crossover tunnel, RPA considers it appropriate for the contractor to determine the optimum construction sequence. Constructing the crossover tunnel from the ventilation shaft would result in construction traffic using Millmount Avenue for a longer period of time, though with fewer trucks per day as the rate of excavation of the crossover tunnel will be slower than that of the shaft.

In relation to the construction of the ventilation shaft, the expected noise levels are given in the EIS. Excavators will not operate at night. Blasting will occur underground in very controlled circumstances and will not have a significant impact on the school playground.

In relation to the operation of the ventilation shaft, the louvers on the ventilation building are at a height where any smoke is ventilated above the level of the school. As part of its operating safety case, the metro operator will develop an emergency fire plan which will require the approval of the Railway Safety Commission and Dublin Fire Brigade. It should be noted that the likelihood of a fire in the metro is extremely remote.

In relation to working at night, RPA considers it appropriate to limit noise levels rather than ban night-time working entirely. There are many activities which may be carried out at night

without any noise impact, for example, activities associated with finishing of stops and installation of systems in tunnels.

In relation to tunnel boring at night, the EIS makes it clear that tunnelling at night can only take place where the level of groundborne noise does not exceed $40dB_{LAmax,S}$ or, if this level is exceeded, where there are no complaints. In other words, if the groundborne noise level is greater than $40dB_{LAmax,S}$ and a single complaint is made, then tunnel boring cannot proceed. This approach is being adopted to provide the flexibility to the contractor to reach agreement with local residents to continue tunnelling at night, whereas an absolute ban would remove such flexibility. Residents will be given a free phone number for reporting complaints. This hotline will be manned at all times during construction by a team competent to answer questions within a specified period of time. Further details of this service will be developed in due course, well before construction begins.

The requirements to design and maintain the track to meet vibration limits will be absolute contractual obligations on the contractor, and the system will not be accepted by RPA until it is satisfied that these obligations have been met.

(24) Courtlands Residents Association

RPA welcome the Association's support for the Scheme.

In relation to their concerns about traffic movement on Griffith Avenue, construction traffic associated with Griffith Avenue Stop will travel west on Griffith Avenue and then north on Ballymun Road. The contractor will be obliged to comply with the requirements of Dublin City Council's *Directive for the Control and Management of Roadworks* in relation to all temporary traffic management arrangements. Information on temporary traffic management arrangements will be made available to residents in the area, including residents associations, in advance of these arrangements being put in place. Vehicular and pedestrian access will be maintained to all houses at all times and the predicted changes in traffic will not severely affect the accessibility of your property.

In relation to extra noise and dust contamination the contractor will be obliged to comply with strict environmental controls in order to mitigate any nuisance from dust on adjacent properties. This will include the development and implementation of an Environmental Management Plan in accordance with ISO 14001, an internationally accepted standard for controlling environmental risk. The EIS (Volume 2, Chapter 12, Section 12.4.2.1) includes a comprehensive series of mitigations which the contractor will be obliged to comply with, including covering of vehicles and use of wheel washing facilities. RPA will monitor the contractor's compliance with these requirements. As a minimum the contractor will be required to monitor noise at all work sites where there is the potential to cause noise disturbance to persons. RPA will require that noise and vibration monitoring must be undertaken by a suitably qualified and competent specialist.

Metro North will be designed to comply with the requirements of the Greater Dublin Strategic Drainage Study, which is mandatory on all new developments in Dublin. The runoff from the structures will be stored underground on the site, and discharged at a rate equivalent to the run-off from the undisturbed land. This ensures that the Stop will not create any additional risk of flooding. The Dublin City Council Drainage Department will vet the detailed design plans of the Stop to ensure that these requirements are adhered to.

In relation to concerns raised by Courtlands Residents Association about imported parking and additional buses RPA will continue to liaise closely with the appropriate statutory bodies, Dublin City Council and Dublin Bus, in developing a detailed plan for the operational stage of Metro North.

(25) John and Eva McDermott

John & Eva McDermott raise concerns in their submission to the conclusions reached in Item 1 Part 4 of the Further Information submission to the Board. They are concerned that there *will be a very severe/high impact from airborne and groundborne noise despite mitigation measures being taken*. They also raise concerns about vibration.

Their concerns however are not consistent with the conclusions of Item 1 Part 4 which states that during the construction phase, with the application of special mitigation measures, the periods in which the noise impact assessment criteria noise levels are exceeded will be sufficiently brief to avoid significant noise impacts. The RPA submission goes on to state that noise levels due to construction will be monitored at selected noise sensitive locations during the construction works, including at a representative location in St. Joseph's Avenue, and that there will be no noise impacts at St. Joseph's Avenue during the operational phase.

Regarding vibration and groundborne noise Item 1 Part 4 clearly states that the key sources of vibration and groundborne noise during construction in the vicinity of No. 12 St. Josephs Avenue will be associated with rock breaking during the construction of the Drumcondra Stop, the boring of the tunnels and the excavation of cross passages near St Ignatius Road and Carlingford Road. With the implementation of the mitigation measures set out in the EIS, rock breaking is predicted to result in a medium impact by day. Rock breaking at night is likely to be avoided, as a mitigation measure, as it would cause high impact. The passage of the tunnel boring machine is predicted to cause vibration in the very low impact category, and groundborne noise in the medium impact category, by day. The tunnel boring machine would only operate at night if groundborne noise levels did not exceed $40dB_{LAmaxS}$. Vibration due to construction will be monitored at selected locations during the construction works. The RPA submission goes on to state that there are no residual impacts in relation to vibration or groundborne predicted for No. 12 St. Joseph's Avenue during the operational phase.

John and Eva McDermott also request that tunnel depths proposed in the application be significantly increased in areas where tunnelling is under residential properties. For the reasons set out above RPA would not share this view as impacts identified in the EIS can be mitigated during construction and there are no residual impacts in relation to noise, vibration and groundborne noise during the operational phase.

In relation to John and Eva McDermott's concerns about the routing of tunnels and the location of the Drumcondra Stop this was dealt with previously in evidence by RPA in Proof of Evidence *Description of Scheme; System Concept and Route Alternatives* on 1 April 2009. It should be noted that the Drumcondra Stop is located off Drumcondra Road Lower as suggested by Mr and Mrs McDermott as well as being adjacent to St Joseph's Avenue. This provides the optimal location for the Stop in terms of constructability, operational efficiency and accessibility.

(26) Dr Shane McGeary

The key concerns expressed by Dr Shane McGeary in his submission to An Bord Pleanála relate to the acquisition of his property; traffic management arrangements in Drumcondra; and surface water management.

<u>Acquisition of property</u>

On November 23 2009 RPA wrote to Dr McGeary and Ms Canavan to confirm that RPA did offer to buy or rent their property on August 26 2008 and asked if they would confirm their preferred approach. Following discussions with Joseph Mooney Solicitors and Mr Kieran Sudway acting on behalf of Dr McGeary and Ms Canavan RPA received no clear indication of the couple's preference. It is in this context that Mr Allen, CEO of RPA, advised Mr Bertie Ahern TD that they did not avail of the opportunity to enter negotiations to purchase their property.

RPA confirms that it remains willing to discuss the purchase of 1 St Alphonsus Avenue on a negotiated basis.

Traffic management arrangements in Drumcondra

The works will require the closure of one end of St. Alphonsus Avenue for the period of the works associated with the construction of the underground metro Stop at Drumcondra, which is likely to take approximately three years. St. Joseph's Avenue will not be closed and will be freely accessible at all times from St. Anne's Road and St. Alphonsus Road.

Car parking on St. Joseph's Avenue will not be affected by the works. Some parking spaces on St. Alphonsus Avenue will be lost for the period of the works. A turning circle will be provided on St. Alphonsus Avenue for cars parking on the Avenue.

St. Joseph's Avenue will not be used for construction traffic, which will access the site directly from Lower Drumcondra Road.

More generally, to mitigate the effect of spoil removal during the construction, the excavated spoil from the works will be removed via a number of haul routes. Excavated material from the main tunnelling works is planned to be removed from a worksite located at Albert College Park up the Ballymun Road and onto the M50. Spoil arising from the construction of the St. Stephen's Green Stop and the majority of the O'Connell Bridge Stop is planned to exit the city via the quays and the Dublin Port Tunnel. The remaining spoil from O'Connell, Parnell, Mater and Drumcondra Stops as well as the spoil from the ventilation and emergency shaft in St. Patrick's College will be removed via the Drumcondra Road.

All routes are subject to agreement with Dublin City Council. The removal of spoil will not be 24/7 as it will be restricted by the constraints detailed in the EIS. The contractor will also be obliged to agree detailed traffic management arrangements with the local authority and will be required to comply with *Dublin City Council's Directive for the Control and Management of Roadworks.*

Surface water management

The metro will be designed to comply with the requirements of the Greater Dublin Strategic Drainage Study, which is mandatory on all new developments in Dublin. The Dublin City Council Drainage Department will vet the detailed design plans of the Stop to ensure that these requirements are adhered to.

The Contractor for Metro North will be obliged to select appropriate tunnel boring methods and manage the works in order to avoid any impacts from changes in the water table. All the underground structures are designed as undrained (watertight) structures and therefore will not behave as large diameter drains that would have a long term impact on the ground water regime. The geology of the area and the use of a tunnel boring machine makes any significant drawdown of the groundwater table unlikely. The water table will be monitored before and during construction.

(27) Harry Mannion

Mr. Mannion proposes an alternative route for the metro in his submission. The route proposed is not a feasible route for several reasons. St. Mobhi Road is too narrow to accommodate a surface metro line and road traffic. The railway line through Connolly Station and across the loop line bridge has no available capacity. It is not feasible to construct the surface route suggested through the south city centre without significant property acquisition and demolition. The proposals to run viaducts through Trinity College and along Lower Abbey Street would have significant negative environmental impacts.

RPA checked on a weekly basis that all documentation provided for public inspection was complete.

(28) Albert College Residents Association, Ballymun Road Association, Greenfield Park Residents Association

This observer comments at length on the Atkins report on the location of DCU stop. As the Atkins report was commissioned in response to a request for an independent examination of the DCU Stop, RPA has refrained from any comment on the findings of the report, and has limited any comments to matters of fact. We thus do not intend to respond to comments by the observer on the methodology or findings of the Atkins report. We note that Atkins are available to answer any questions the inspector may have in relation to their report.

In commenting on the Atkins report, the observers raise the issues of flooding, car parking and vibration.

The EIS notes that run-off collected during the construction phase will be attenuated to ensure no negative impacts on local drainage patterns and to mitigate potential flooding of lands adjacent to receiving water bodies. The EIS assesses surface water impacts during both the construction and operation phases as not significant. This issue will continue to be given due consideration during the design and construction process.

Any additional car parking restrictions that may be required around the DCU Stop will be a matter for the roads authority (Dublin City Council). However, in general it was noted that Metro is predicted to reduce private car usage in favour of public transport. RPA canvassed the residents of Albert College Estate on the option of installing a gated fence between the estate and Ballymun Road to discourage metro commuters parking in the estate. Little support was received for this suggestion.

The observers highlight the predicted noise and vibration impacts prior to mitigation. Following mitigation, the EIS predicts that there will be no significant noise or vibration impacts during the operational phase.

The observers propose that a hybrid design now be considered. The hybrid option would not appear to have any significant advantages over the Railway Order design. The net effect of the hybrid design is to move the northern entrance pavilion to the corner of Albert College Park, thus creating permanent land use impacts on both the grass verge along Ballymun Road and the park. The visual impacts remain but are transferred to a different row of houses on Ballymun Road. The stop box is naturally ventilated, with ventilation openings in the roof. The hybrid crosses beneath the entrance road to DCU which restricts the space available for such roof vents.

RPA do not accept that the stop entrances will attract loitering or anti-social behaviour. The stop will be staffed at all times during opening hours, and will be provided with a direct telephone line to security services. CCTV cameras will monitor the areas around the stop entrances on a 24-hour basis. The stop has been designed with enclosed entrances to avoid vagrancy in open escalator entrances. Planting and lighting around the stop entrances will discourage people from congregating in hidden areas.

In relation to the vertical alignment of the scheme through Ballymun, and consequently the location of the tunnel boring launch site, the observers argue that a bored tunnel option should be preferred. They base their arguments entirely on construction impacts. RPA considers it inappropriate to base long term decisions in relation to infrastructure design on short term impacts. The fact is that this section of the route will get a much more user friendly system, which will be there for hundreds of years, with brighter, shallower and more accessible stops than areas where the surface topography necessitates a deeper bored tunnel and much deeper platforms. Even if short term impacts were considered relevant, the proponents of a bored tunnel alignment persistently ignore the consequences this would have for the stops at DCU and Ballymun. These would be significantly wider and deeper in size. In the case of DCU Stop, the construction site would occupy half the width of Ballymun Road for a period of four years. While the construction of a cut and cover tunnel is obviously more impactful than the construction of a bored tunnel, the tunnel follows the median of Ballymun Road, a six lane dual carriageway, and two lanes of traffic will be maintained in each direction at all times. While the impact of construction traffic on heavy goods vehicle movements on

Ballymun Road is rated in the Scheme Traffic Management plan as significant, this relates primarily to the percentage difference – in absolute terms, the impact amounts to 20 additional vehicles per hour on a road carrying in excess of 1,100 vehicles per hour at peak times.

AREA MN105

(29) Ballymun Regeneration Ltd

There has been a close and continuous liaison between RPA and BRL throughout the design and EIA stages of the project and RPA intends to continue working closely with BRL to resolve all issues.

Utility Diversion Works

RPA has assessed the utility diversion design in light of BRL's observations and are unaware of the existence of such issues although clarification has been sought. It is not anticipated that any of the issues raised by BRL are of a material nature and will be dealt with through the ongoing design liaison process.

Bus Lane

RPA has confirmed previously that the Scheme Traffic Management Plan for Metro North has been developed in conjunction with the Dublin City Council's Traffic Department. RPA has modelled, with good results, Ballymun Main Street with one general traffic lane and one bus lane in each direction, with the bus lane stopped short at each junction allowing access at the bus lane for general traffic. Dublin Bus and the Dublin Transportation Office are supportive of this proposed arrangement and it is intended to implement this for the duration of the works. The final decision on the use of road space however resides with the DCC Traffic Department and RPA is continuing to liaise with them in this regard.

In relation to the section of carriageway between the realigned St Margaret's Road and Balbutcher Lane North for which planning permission has been granted, if the road shown as under construction is not completed by the time the Enabling Works require it as a traffic diversion route during utility diversion works in the vicinity of Ballymun Main Street and Santry Avenue, the diverted vehicles will use the existing link between St Margaret's Road and the new IKEA road which is approximately 200m west of the main IKEA entrance.

In relation to the vehicular movements to be accommodated along Ballymun Road north of the Santry Avenue junction during this period, all the north south vehicular movements along the R108 will remain unaltered.

Regarding the statement made by BRL in relation to the costings for Bored Tunnel Option in Ballymun we would refer BRL to Item 8 of the Further Information submission.

(30) Ballymun Community Organization Network

The concerns expressed by the Ballymun Community Organization Network in their submission to An Bord Pleanála relate to the interface with the proposed Ballymun Plaza; ground water; and surface water.

Metro North interface with the Ballymun Plaza

The proposed plaza designed by Ballymun Regeneration Limited (BRL) does not form part of RPA's Railway Order application. Planning Permission was secured separately under a Part 8 Planning Application, submitted by BRL, for the works at the Plaza. RPA has a responsibility to ensure that the design of Metro North is integrated into the surrounding environment and

with adjacent developments. The interface of the Stop entrance to the east has not changed from the original RO submission.

The integrated entrance on the east of the Stop is one of three main access/egress routes to/from the Stop, there will be one from the Plaza by stairs and lift to street level on the east, one direct to street level on the west side by stairs and lift and one at -1 level into the Ballymun Town Centre (BTC). RPA has amended the link into the BTC (west side) to take account of the changes to the design of that structure as Treasury Holdings resubmitted an amended planning application. Permission has been granted for this development.

The utilities required to be retained under Ballymun Main St to the west of the Stop make it impossible to move the Stop box any further west. The 10m lateral movement relates to tunnels only. The Limits of Deviation for the underground Stop are far less as the locations of surface penetrations and associated structures for the Stop access points and ventilation are constrained by the roadway, central median and footpaths above.

Regardless of whether Metro is constructed using a tunnelling or a cut and cover method through Ballymun the concourse level of the Stop will remain unchanged in respect of its integration with the developments to the east and west.

Ground Water

The river Wad is constructed beneath Ballymun Road and Collins Avenue in a culvert, with an overflow pipe continuing down Ballymun Road to the Tolka River. The proposed Metro works have been designed to maintain the route and capacity of this culvert, though some local diversion will be necessary.

The contractor for Metro North will be obliged to select appropriate construction methods and manage the works in order to avoid any impacts from changes in the water table. All the underground structures are designed as undrained (watertight) structures and therefore will not behave as large diameter drains that would have a long term impact on the ground water regime. The geology of the area and the appropriate construction methods makes any significant drawdown of the groundwater table unlikely. The water table will be monitored before and during construction.

Surface Water

Metro North will be designed to comply with the requirements of the Greater Dublin Strategic Drainage Study, which is mandatory on all new developments in Dublin. The Dublin City Council Drainage Department will vet the detailed design plans for Metro North to ensure that these requirements are adhered to.

(31) Tesco Ireland Ltd

Tesco Ireland Ltd supports and welcomes the development of Metro North and recognises it is of strategic importance to the Greater Dublin Area. RPA acknowledges the concerns raised by them in relation to access/egress to and from the Old Ballymun Road and the R108 during the construction phase of Metro North.

Traffic

RPA has discussed the traffic arrangements with Tesco Ireland Ltd and their consultants and is happy to provide the following assurances

- That during the construction phase two lanes of traffic will be maintained at all times on the R108 / Ballymun Road.
- That during the construction phase a right turn will be maintained at all times from the Old Ballymun Road onto the R108.

- That vehicular access/egress to and from the property of Tesco Ireland Ltd. at the junction with the Old Ballymun Road will be maintained during construction, though there will be local traffic lane diversions as the Old Ballymun Road is lowered and rebuilt. This may involve single lane working for a short period of time. This single lane working will not be permitted during the period 14th November to 14th January inclusive.

Subject to the agreement of DCC, the layout of the Old Ballymun Road / R108 junction will be broadly in line with sketches provided by Tesco's traffic consultant Waterman Boreman.

RPA is not able to revise the location of the proposed access to private property adjacent to the Tesco Ireland Ltd access gate and does not believe such to be necessary.

AREA MN104

(32) The Byrne Family

The concerns expressed by the Byrne family in their submission to An Bord Pleanála relate to the vertical alignment of Northwood Stop in relation to the alignment options through Ballymun and the widening of the overbridge across the Old Ballymun Road.

The alignment options through Ballymun do not impact on the vertical alignment at Northwood in that the at-grade Stop as set out in the railway order plans would remain on the surface.

The widening of the overbridge across the Old Ballymun Road has come about as a result of detailed discussions between RPA, Ballymun Regeneration Limited and Fingal County Council and can now accommodate a future widened road that will pass under the R108 to link up with developments along the south of the M50 Motorway and to the west of the Ballymun Road, this will provide increased penetration to the Metro North Stop. This is within the limits of the lands referenced for compulsory acquisition and, as such, does not create an additional impact on the Byrne Family land.

(33) Metropark

The further information submission states that the Byrne family is broadly supportive of the proposed 300 space park and ride and the Metro North Scheme in terms of infrastructure provision and the future delivery of the interchange with Metro West at this location, RPA welcomes this support.

In relation to the request for traffic modelling input data RPA has been in correspondence with ILTP Consulting and explained most of the information they are requesting regarding model zonings, model assumptions etc are contained in the Validation reports which were forwarded previously to ILTP.

RPA is firmly of the view that it is not the role of ILTP to "validate" or determine the adequacy or otherwise of the MNTM Model or its inputs and parameters. This is the role of the Dublin Transportation Office (DTO) who are the custodians of the DTO Saturn Model; the base model from which the MNTM model is derived.

The MNTM is effectively the Saturn Model which has been populated with denser or refined highway and land use data surrounding the Metro North alignment corridor. The refined information is used to enhance the MN traffic impact assessment process. Information on the extent of the enhancement process is shown in the MNTM validation report. The DTO have validated the work undertaken for the development of the MNTM and issued a certificate of validation at the rear of the Base Year Validation report.

The traffic assumptions underpinning the strategic assessment of traffic impacts for the base year and future model runs are clearly set out in the STMP as follows:

- Section 5.9 - Model Process Flow Chart
- Sections 6.3,6.4, and 6.5 describe the assumed transport environment for 2009 and 2011
- Table 6.1 lists the assumed highway network changes for 2009 and 2011
- Table 6.2 identifies the assumptions for Modelling of Metro North Construction Scenarios.

It should be noted also, that as the MNTM is an enhanced version of the DTO model and as such the use of the MNTM falls under the DTO's protocol of use procedures.

In RPA's previous proof of evidence in relation to the Byrne Family lands north of the M50, we stated that discussions were ongoing and it was hoped that agreement would be reached prior to the Area MN104 module. Since the adjournment of the oral hearing in April the Byrne Family withdrew from discussions and it is now unlikely agreement will be reached before the Area MN104 module.

In relation to the original Byrne Family submission in respect of the lands known as Metropark RPA would make the following observations which we will expand upon during the module.

The Byrne Family has requested, as a minimum, that the crossing shown on the draft railway order plans be upgraded and *two additional vehicular crossings* be provided *over the proposed Metro line* within their lands. In discussions with the Byrne Family RPA always made it clear that support for any additional crossings and the upgrading of the proposed crossing would be contingent on unqualified support from the relevant statutory bodies including Fingal County Council and the National Roads Authority, and the publication of a Local Area Plan for the area. The Byrne Family has not been in a position to confirm any of the above prerequisites are in place and indeed since their submission to the Board last year we understand very little progress has been made in developing a coherent strategy for their lands.

In recognition of RPA's support for the future development of the lands RPA always made it clear to the Byrne Family that in the absence of the above requirements being met the Metro North Infrastructure will be designed in such a way so as to not preclude vehicular crossings being constructed in the future, thus ameliorating any impact of severance on their land and ensuring the lands can be developed in the future.

In their original submission to the Board the Byrne Family also request that the station at Dardistown be reconfigured to take account of future development to the south of the station, in particular it is their contention that an additional southern platform should be added affording better access for passengers. RPA considers that the Stop design included in the draft railway order is adequate and the addition of a southern platform would only serve to add risk to the safe operation of the railway. Furthermore the access road immediately south of the Stop needs to be retained for access to other properties and maintenance of the railway.

A number of other issues were raised by the Byrne Family in their submission to the Board last year, RPA intends providing a full response to all the points raised therein during the Area MN104 module.

It should be noted that the presence of Metro North will add greatly to the development potential of the Byrne Family lands and this is recognised in the Economic Development Strategy for the Metro North Economic Corridor (Indecon, 2008) which notes that without Metro many of the elements outlined in the Strategy will not arise.

AREA MN102

(34) Maureen Ó'Scanaill, Céim Dearg

In relation to the additional submission on the traffic management analysis, the Metro North Traffic model was developed in 2006 and the forecasts underpinning the future years (2011) in terms of growth are likely to be overestimated given the deterioration of the economy and its impact on traffic levels. The traffic results and impacts generated by the Metro North Traffic Model and reported in the STMP would be conservative. As regards the R125, the traffic counts for this road were taken in October 2006 and were then factored up to take account of the predicted growth in the coming years. The model assumed for the base year eastbound traffic movements to be 500 pcu's per hour and westbound traffic to be 500 pcu's, this was against a figure from the actual October 2006 counts of 240 eastbound movements and 420 westbound movements. We would thus refute the claims that the reliance on 2006 data is entirely unsafe and improper. We would also refer to our previous evidence which included the traffic models validation reports from the DTO.

(35) Juliana and Joseph Boland

RPA does not believe that the small amount of land being acquired from the business premises would undermine the viability of the business. RPA has offered on several occasions to meet the Bolands' at the business premises to survey the buildings and to help us better understand the nature of the business and the work carried out on the site so that we may determine how best to mitigate any impacts and agree the most appropriate action to be taken in relation to the building which must be partially demolished. To decide on the most appropriate action, we would need access to the building to determine whether the entire building would have to be replaced or whether a new gable wall can be constructed. Any agreed works will be carried out by RPA. This offer has not yet been taken up. RPA remains available at any time to discuss these issues to try and reach agreement.

RPA and its contractors will be responsible for compliance with any statutory environmental requirements applying to the project. The statutory rights and obligations of the business will not be affected by the works.

In relation to operational noise, the report referred to concludes that the magnitude of the noise impact after mitigation is considered to be low.

In relation to vibration, the report referred to notes that the residual impacts will be at insignificant levels for vibration from all construction works, and also notes that there are no residual impacts predicted in the operational phase.

In relation to the second entrance into the residential property, as the surface will be reinstated following the completion of the works, it is envisaged that access to the property at this location would be available after the completion of the works.

RPA will ensure that the contractor implements all flora and fauna mitigation measures as set out in the EIS.

AREA MN101

(36) Bovale Developments Ltd

The importance of the Lissenhall Stop in the context of the future development of this area is recognised. In the absence of development, there is currently no demand for a Stop at Lissenhall. The Lissenhall Stop will only be fully constructed and opened in conjunction with the development of the area, as envisaged in Fingal County Council's strategic vision for Swords. The Further Information request presumes that it is RPA's intention to fully construct Lissenhall Stop in the first instance. This is not the case. The presence of the Stop platforms would require speed restrictions as the LMV's passed through the Stop which is operationally inefficient.

RPA has agreed with FCC that the Lissenhall Stop will be built only once development of the area has commenced. RPA will however make provision for a future Stop at Lissenhall during construction of Metro North.

(37) William and James Flynn

The concerns expressed by William and James Flynn in their submission to An Bord Pleanála relate to the landscaping mound at the Metro North depot.

The mound should not be viewed in isolation. It forms the boundary for the Depot and Park and Ride facility, which occupies a large area, and provides natural screening for the depot and in particular the park and ride facility. The Depot site is located on the boundary of a proposed development zone and screening the facility is key to minimising the potential for negative environmental effect associated with it. The screening as designed (the mound and proposed landscaping strategy) is in line with best national and international practice, to avoid the impression of an industrial landscape in the centre of a mixed use parkland setting.

The screening minimises the visual effects of the facility for some of the existing residents on Batter Lane. The mound also serves as a form of noise barrier for the neighbours in particular minimising the noise effects associated with the park and ride and depot activities. As above the removal of the mound could have a negative effect.

It should also be noted that reducing the landscape mound would mean spoil disposal being significantly more costly and would import additional negative environmental effects.

DOCUMENT HISTORY			
Version	**Author**	**Date**	**Status**
1	RPA	18 November 2009	Internal draft for comment
2	RPA	23 November 2009	Internal draft for comment
3	RPA	23 November 2009	Draft for discussion with DCC
4	RPA	25 November 2009	Internal re-draft for comment
FINAL	RPA	25 November 2009	Final – for issue to DCC

BY REFERENCE TO THE LETTER SUBMITTED BY DUBLIN CITY COUNCIL DATED 16 NOVEMBER 2009 TO AN BORD PLEANÁLA, THE FOLLOWING IS THE AGREED POSITION OF DUBLIN CITY COUNCIL AND THE RAILWAY PROCUREMENT AGENCY, FOLLOWING FURTHER DISCUSSIONS ARISING FROM THE ISSUES RAISED.

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
		ITEM 1 – Impact Assessment on Sensitive Receptors		
1		**Fitzwilliam Hotel**		
	1) 8.2.3	Noted vibrations not to exceed 12mm/s ppv		Noted
	1) 8.2.3	Noted blast vibrations not to exceed 5mm/s ppv		Noted
	1) 8.2.3	KB values in line with DIN 4150 (for sensitive rooms).		Noted
	2) 9.2.3	The direction of flow on Glover's Alley is to eastbound in the construction and operational phases of the proposed development. The process for alteration of traffic flow from a legal point of view will have to be followed.		Agreed
	3) 10.2.1	Stage 1 Assessment indicates settlements of 8mm maximum and differential settlements of 8mm maximum		Noted
	4)	Noted that compliances and values for noise, ground borne noise, vibrations and settlements will be dependent on as yet undecided construction		Noted

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
		methodologies of the InfraCo.		
	5)	It is not clear exactly who will conduct the monitoring referred to, when, how or where and to whom will it be reported upon and their power/responsibility to act thereon (applies to all item 1 parts)		It is agreed that Dublin City Council will participate in finalising any monitoring regime
	6) 12.2.3	There needs to be clarification submitted in relation to the relocation of bus stops. The listed 4 proposals do not explain what is proposed. In addition it should be noted that the relocation needs to be agreed between the relevant bus companies the Gardai and the scheme proposer. Dublin City Council does not have a statutory role in location of bus stops.		It is agreed that the relocation of bus stops in the city centre needs to be agreed between the relevant bus companies the Gardai and RPA.
2		**Part 2 Rotunda Hospital**		
	1)	The powers of the Construction Team Representatives to vary works times, methods and impacts are not specified.		The PPP Contractor (InfraCo) will be bound to comply with the requirements of the RPA Construction & Maintenance Requirements, the Environmental Impact Assessment and the Railway Order.
	2)	It is noted that the HARI unit is to be relocated to avoid unacceptable construction phase noise and vibration levels.		Noted

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
	3)	It would be preferable if agreement on absolute maximum levels for acceptable noise and vibrations levels could be reached with the Hospital Authorities, to avoid expressions such as "noise levels from the station do not disturb the hospital" leading to arguments later as to what constitutes "disturbance"		The mitigation measures required at the hospital with respect to noise and vibration are agreed between RPA and the Rotunda Hospital under cover of a separate agreement.
	4)	Again it is noted that much will depend on the InfraCo's chosen construction methodologies and his Stage 3 Settlement Assessments		Noted
3		**Part 3 Mater Hospital**		
	1)	In Section 8.2.3 it is noted that actual mitigation measures for noise will be determined by the InfraCo, to achieve the limits set out in Table 7.6 (Note: There is no Table 7.6, so it is assumed that this should read Table 8.6)		Noted Table 7.6 should read Table 8.6
	2)	Section 9.2.1, last paragraph, calls for the unresolved issue of the effects of vibration on clinical equipment to be independently validated. It is not stated whether or not the MPH agrees with or accepts that opinion.		Noted
	3)	Appendix 'B', Fig 2.19 to 27 shows very high noise levels predicted at the rear of the residences on the western side of Leo Street. While this report concerns itself with impacts on the hospital, it is not clear what mitigations measures are proposed for the Leo St. houses.		As noted by DCC the report deals with MPH for which the limiting levels of airborne noise (as they apply to patients in hospital wards) are less than those for the houses on Leo Street. The mitigation measures necessary for Leo Street will be determined by the contractor to ensure that the specified limiting airborne

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
				noise levels for residential property are met and those measures may include some or all of those detailed in the report.
	4)	Appendix 'B' Recommendations – it is DCC's opinion that these should be incorporated into the CMR's for the InfraCo contract.		Potential mitigation measures outlined in Part 3 are being discussed with the Mater Private Hospital. Any obligations arising from these discussions will be reflected in the Metro North Construction & Maintenance Requirements.
	5)	Appendix 'C@ Arup acoustic metro North, Mater Private Hospital, Noise & Vibration issues Reports, Doc. No. AAc/1244 23-0/R01 (14/10/08):-		
		i) it is not stated if the RPA & MPH have agreed to the suggested Course of Action set out in Section 5.		Potential mitigation measures outlined in Part 3 are being discussed with the Mater Private Hospital. Any obligations arising from these discussions will be reflected in the Metro North Construction & Maintenance Requirements.
		ii) Have the potential impacts of night-time working been examined for the nearby Leo Street houses.		The recommendation relates to tunnelling at night such that vibrations do not affect sensitive clinical equipment in use during the day. Discussions have continued with MPH to determine more precise vibration limits for each individual item of equipment. These discussions have substantially concluded and mitigation measures other than tunnelling at night are favoured.

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
	6)	It is noted from Mr. Rupert Taylor's Report (Rev. 8/4/08), Doc. No. ERMMNMPH/2, Section 5, page 12 that the construction phase vibration limit will be exceeded during the passage of the TBM. At a 10m/day conservative advance rate this implies an exceedance for each TBM passage of 35 to 40 working days. It is not stated if the MPH have accepted the necessity to seek alternative arrangements for sensitive equipment for such durations.		Potential mitigation measures outlined in Part 3 are being discussed with the Mater Private Hospital. Any obligations arising from these discussions will be reflected in the Metro North Construction & Maintenance Requirements
	7)	Appendix 'E', MPH – Revised Scope of Indicative Stage 3 Analysis (Doc No. M000384/243231/VAR-24-2C- July 09 by MMD Ltd.,) Section 7, conclusions, refers to the RPA study into impacts and remedial measures to be undertaken in the event of the north-south construction joint, between the Day Therapy Extension and the adjoining MPH building, opening. It is not stated whether the results of that study will be available before the construction work start.		Potential mitigation measures outlined in Part 3 are being discussed with the Mater Private Hospital. Any obligations arising from these discussions will be reflected in the Metro North Construction & Maintenance Requirements
		Part 4 (12 St. Josephs Avenue)		
	1)	It is noted that even after mitigation measures are deployed, noise impacts will remain high. It is not specifically explained what additional special		Section 7.2.4 concludes that with the application of special mitigation measures, the periods in which the noise impact assessment criteria noise levels are

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
		mitigation measures will be implemented so as to ensure the noise level exceedance periods will be sufficiently brief to avoid significant impacts.		exceeded will be sufficiently brief to avoid significant noise impacts. The report does not conclude that *even after mitigation measures are deployed, noise impacts will remain high.* The report goes on to state that if night work is required it is possible that concrete placing and setting equipment will create noise impacts, but this is not planned and could occur on a very small number of nights.
	2)	Again much of the mitigation of impacts will be dependent on the InfraCo's chosen construction methodologies.		Noted
	3)	Predicted surface settlement levels (less than 10mm) are as expected.		Noted
5		**Part 5 (71 Ferguson Road)**		
	1)	Predicted vibration, ground and air borne noise limits, are as expected with vibration monitoring to ensure non exceedence to be according to DIN 450		Noted
	2)	It is noted that it is anticipated construction will be possible with negligible effects on the building.		Noted
	3)	DCC have advised the RPA to carefully check any backfilled gravel pits or quarries encountered by the works in this area for their possible unrecorded use, during the 1940's and 1950's, for the disposal of		RPA has carried this out. This includes: • Collation of anecdotal evidence suggesting there are areas of landfill in the area. • Desk-top study. Historical mapping and aerial

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
		municipal solid waste material.		photographs have been reviewed to identify previous land uses • Ground investigation targeting suspected quarried areas identified from historical mapping. • Identified and suspected areas of landfill scheduled in the risk register. • RPA are currently monitoring an excavation being undertaken by DCC for a new sewer along Ferguson Road. • All information regards landfill and the area of Ferguson Road has been collated by RPA and will be passed to the Contractor. If there are persons within DCC who have knowledge of the historical disposal of municipal waste in the area of Ferguson Road, RPA would welcome the opportunity to discuss this further with them as the project progresses.
6		**Part 6 (Corpus Christi Girls National School)**		
	1)	Reference to DIN 450 and non exceedance limits for vibrations and ground borne noise during the construction phase are noted.		Noted
	2)	The Stage 1 Assessment of ground settlements at a very low level (5mm) is noted.		Noted

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
7		**Part 7 (2 Albert College Lawn)**		
	1)	It is noted that it is proposed to vacate the property during the construction phase.		Noted
	2)	The necessity for underpinning the property is noted.		Noted
	3)	It is not clear if either of the above measures will be warranted for adjoining properties. (See also Table 5.1 and general text)		
		i.) There are 30 apartments in the Senior Citizens complex at Albert College Court where the works site hoarding is shown flush with the buildings western façade. It is not clear what if any mitigation measures are proposed for the complex structure or residents.		Some mitigation measures will be required. InfraCo will be required to provide all necessary mitigation measures to ensure full compliance with the Railway Order and EIS.
		ii) The proximity to the work's site boundary of Nos 16 & 31 Albert College Grove would suggest mitigation measures will be warranted for these residents and buildings, similar to those as maybe proposed for the Senior Citizen's complex (and No. 2 Albert College Lawn).		Agreed, InfraCo will be required to provide all necessary mitigation measures to ensure full compliance with the Railway Order and EIS.
		iii) Diverted sewers are shown to run through private property on the east side of the station box. It should be noted that any sewer in private property will not be taken in charge by Dublin City council.		This private connection is being proposed to replace existing connection impacted by the works. Therefore this will be a privately owned infrastructure connected onto DCC sewer as per existing arrangement.
		iv) Three forms of construction are referenced in Part 2 and Part 7 for the cut-off walls/excavation of the stop box, namely, secant piling, diaphragm walling or		No undermining is contemplated. There will be no sloped cuttings at this location and support will be from secant piles or diaphragm walls.

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
		free standing, sloped cutting. The latter would imply the cutting out of ground under existing buildings on the eastern side of the station box. It is not stated how such undermining may be rendered feasible.		
	4)	While it is appreciated that Part 7 is in response to the request specific to No. 2 Albert College Lawn, the above items (3) (i) through (iv) need to be addressed in the same context for other properties which are within metres of the Cut and Cover works e.g. 16 & 31 Albert College Gove and Senior Citizen Apartments at Albert College Court.		Noted
		ITEM 2 – Utilities Diversion Works		
	1)	The Applicant is referred to Dublin City Council' Drainage Division's comments and requirements in their submission to An Bord Pleanála, dated 24 November 2008. No further comments on the Additional Information will be made herein.		Noted
	2)	Section 6.0 (O Connell Bridge)		
		i) DCC has a major concern regarding the proposed works in the vicinity of the GPO Plaza. It is unclear from the information given what the extent of the works will be.		Enabling works on O'Connell Street between Abbey Street and Henry Street include the diversion of utilities and the relocation of the Luas and ESB substations. Initially utilities shall require to be diverted into the left hand side lane of the north bound carriageway. To accommodate these works a temporary northbound

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
				traffic lane shall be provided for over the median. Once complete utility diversion works shall take place within the pavement of both sides of the street. To facilitate these utility diversions; basements on the north corners of Abbey Street shall be required to be infilled. A number of transverse utilities shall also have to be diverted these shall be programmed piece meal to coincide with the longitudinal utility diversion works. Once utility diversions have been undertaken substation works shall commence. The works to accommodate the relocated Luas and ESB substations shall accommodate the whole of the O'Connell Street median between the Abbey Street junction and the Henry Street junction. The median between Princes Street and Henry Street shall be the location of the main site compound for the substation works. To allow the works to be undertaken and safe movement around the box; the worksite between Princes Street and the pedestrian crossing just north of the statue of Gray shall take a lane of traffic either side of the median. To ensure that the commitment made to DCC, of two lanes of traffic north and south bound on O'Connell Street is met, the pavements on both sides of the street shall temporarily accommodate one lane of traffic. These temporary traffic lanes shall be between the Abbey Street junction

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
				and the front of the GPO/and Clerys. The pedestrian crossing at Abbey Street shall remain however the configuration may change slightly to allow for connections into the Abbey Street chambers under the existing Luas line.
		ii) Both carriageways in the plaza area which extends from just south of Princes Street to just north of Henry Street are composed of high quality modular materials. The integrity and strength of the modular paved carriageways depend on the structural integrity being maintained throughout their entire length and width. DCC's preference would be that the carriageways and kerbs remain totally intact. If this is not possible then the modular material from either or both carriageways, if so affected, should be totally removed, cleaned and safely stored during the works. The carriageways shall then be reinstated to the original specification.		The paving over the median between Henry Street and Abbey Street shall be removed and taken to safe storage at the commencement of the enabling works contract. Once the substation is complete and the site compound removed the paving that was in place shall be reinstated to its previous condition. There shall be additional street furniture in the form of benches similar to those at St George's Dock these shall be to disguise the Luas substation vents. The ESB substation vents shall be relocated from the existing substation next to the O'Connell statue. All paving on the west side of O'Connell Street from Abbey Street to Prince's Street North shall be removed at the commencement of the enabling works contract, taken to storage and reinstated once all enabling works are finished. From Prince's Street North northwards all paving shall be replace up to the columns of the GPO, directly outside the GPO the paving from the drainage line to the kerb shall be replaced up to a clean cut off point.

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
				On the east side of O'Connell Street between Abbey Street and Sackville Place all paving between the building line and the kerb shall be removed, taken to storage and replaced once all enabling works are complete. North of Sackville Place the paving between the surface water drainage line and the kerb shall be removed to the same line as the west side (outside the GPO) this paving shall be replaced once the enabling works are complete.
		iii) It is also unclear whether the track works for proposed LUAS line BXD will be carried out in conjunction with the reinstatement of the plaza area following completion of the works.		Any track works carried out on Metro North on behalf of Luas Line BxD will be subject to an enforceable Railway Order being granted for Luas Line BxD.
		iv. All proposals regarding the plaza area will require to be agreed by the RPA or their InfraCo with DCC's Road Design Division, before any works commence on site.		Agreed
	3)	Section 6.8.2		
		Habitat loss is to be identified to the Planning Authority, and any measures to create alternative habitats will be agreed with DCC PLS prior to RPA Enabling Works, A Tree Management Plan is to be agreed with DCC, not OPW, as owners of the existing trees, prior to the utilities works being undertaken. The costs of the services of a qualified arboriculturist for tree survey, management planning and measures		Permanent and temporary landtake is identified as part of the Railway Order (RO) application in the RO property drawings. Such drawings formed the basis of the ecological assessment detailed in the MN EIS. Therefore all predicted habitat loss is detailed in the MN EIS and any subsequent submissions to the Board. The EIS also contains the landscape insertion plans which details the habitat mitigation measures committed to.

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
		shall conform to BS5837:2005 and conditions placed by DCC PLS for the duration of these works. Surveys of bat activity shall be carried out by a licensed bat worker. Works shall conform to the Bat Mitigation Guidelines for Ireland (NPWS, 2006). Construction activities shall be timed with regard to the National Wildlife Acts (1976 and 2000) and shall also have regard to feeding and roosting locations of wild birds. Monitoring shall be by a qualified ecologist.		RPA is in the process of appointing an arboriculturist to work on Metro North. RPA has commissioned bat surveys for the last three years in relation to this project, ERM and Conor Kelliher have carried out this work.
	4)	Section 6.8.3		
		The residual loss of trees has been inadequately assessed. The mature trees planted at the GPO Plaza on O'Connell Street are not assessed in terms of their unique amenity and horticultural attributes. The pleached lime trees are a 'set piece' in terms of urban design, not ordinary, standard street trees which are more readily replaced. The trees were specifically grown on contract for DCC and were procured at 25 years' maturity, having been 'pleached' or trained into the specific shape evident. The selection of these trees was a careful consideration in the original design intent of the O'Connell Street Master Plan. The trees define the edge of the GPO plaza and are uniform in dimensions and appearance. They are		Noted The enabling works for Metro North propose to remove 7 of the pleached limes from the south side of the Plaza planting. It is intended to replace any trees removed from the plaza with trees prepared in advance. Replacement trees will be prepared to ensure trees the same age, size and condition as the existing trees are used for the Plaza planting after Metro North enabling works. The plaza tree pit arrangement will be reinstated to its present form.

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
		intended to form a harmonious boundary to the key central space of the historic Main Street of Ireland. This report fails to acknowledge adequately the unique nature of these trees and their contribution to the design of O'Connell Street, which was intended by DCC to be permanent. If any of the trees defining the GPO Plaza are disrupted and removed, then the entire edge – all of the pleached lime trees - will have to be removed and replaced to ensure the original design intent is met. Furthermore, the location of utilities with regard to the locations of tree pits must be assessed and it must be proven that it will be viable to replace the trees with comparable opportunities for long-term establishment. The design of the paving of the plaza will require the tree pits to be located in a co-ordinated approach, as was originally carried out by DCC. Failure to apply a coherent approach to the replacement of these trees will have a long-term impact on the urban design of O'Connell Street and will be visible from a O'Connell Bridge, Parnell Square and the entire quarter.		Utility diversions around the plaza trees will provide trees with comparable opportunities for long term establishment.
	5)	The Applicant is referred to Dublin City Council's Water Services Division's comment and requirements in their submission to An Bord Pleanála , dated 24th		Noted

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
		November 2008. No further comments on the Additional Information will be made herein.		
		ITEM 2 Appendix 'A' – Risk Register (MN Enabling Works)		
	1)	Represents a standard project management best practice approach for a pre-contract phase.		Noted
	2)	DCC are of the opinion that many statutory approvals should rate a higher score, if for no other reason but to alert all parties of the necessity to prioritise their processing at the earliest possible date.		Noted
	3)	Likewise for potential delays by Utilities Undertakers in undertaking their own works associated with diversion/replacement works resulting in serious programme slippages and cost over runs, where the Utility Undertaker's own internal budget cycles and works programmes will invariably not be in sync with those of this project		Noted
		ITEM 2 Appendix C – Utility Diversion Works (Drawings)		
	1)	MN – 160 – 5111 (ch 12274) This drawing shows the existing 750 North Fringe Foul Sewer located right on the edge (RHS) of the excavation for the main works. The potential for damage or undermining of this sewer is very high		RPA will review the relevant plan and cross section to clarify the existing 750 North Fringe Foul Sewer location and consult with DCC Drainage Division on necessary mitigation measures.

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
		and therefore this section of the sewer will need to be diverted from the tunnel excavation.		
	2)	MN- 160-5112 (ch 12349) The existing 1050 Surface Water Sewer that is shown in 5111 & 5113 has been omitted from this cross section. It is not understood why		Drafting error which will be rectified.
	3)	MN – 160 – 5113 (ch 12423) The existing 1050 SW Sewer is shown directly below the proposed 800 Watermain and this detail is repeated in the following Sections 5114 (Ch 12498) and 5115 (Ch 12580). Having one major pipeline laid directly above another over a substantial distance clearly contravenes DCC Drainage Division standard requirements, and appropriate remedial measures will be need to be agreed.		RPA has revised water main design to address this issue. Combined utility design drawings will be issued to DCC within the next three weeks.
	4)	MN – 160 – 45114 (ch 12498) The proposed 750 Foul Sewer is shown very close to the edge of the tunnel excavation, with possibly only 600mm clearance. Further consultations with RPA will be necessary to agree an acceptable solution.		RPA will consult DCC Drainage Division to agree acceptable measures to close out this issue
	5)	MN – 160-5116 (ch 12665) i. The proposed 750 Foul Sewer is shown adjacent and to the right of the 1050 SW Sewer, at more or less similar level. However, in the previous cross		RPA has revised design on this area to address this issue. The RPA will issue a revised set of drainage drawings for DCC drainage consideration.

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
		section drawing 5115 (Ch 12580) the situation is identical except that the position of the sewers is reversed, 750 Foul Sewer is on the left side of the 1050 Surface Sewer. Obviously, it is not possible to lay pipelines across one another as depicted on the cross sections provided and clearly some revision of the current design will be necessary. Also, there is a proposed 800 Watermain shown alongside and to the right of the 750 Sewer. Both pipelines are shown being laid at similar levels, but this layout presents a major problem for the 750 as it will have to cross the route of the 800 to make it's way into the nearby Ballymun Pump Station. Again, appropriate revision of the current design will be required to resolve this clash.		
		ii. On the opposite side of the tunnel excavation, there is a proposed 600 SW sewer shown just 417mm away from the edge of the excavation. Further consultations with RPA will be necessary to agree an acceptable solution.		RPA will consult DCC Drainage Division to agree acceptable measures to close out this issue.
	6)	MN-160-5117 (ch 12708) The 2x500 Pumped Sewers and the 800 Watermain are shown at similar levels. This cross section is located in close proximity to where the 2x500 Pumped Sewers will cross and clash with the path of the 800 Watermain on their departure from the		RPA will amend the 800 Water main to facilitate 2x500 pumped sewers construction.

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
		Ballymun Pump Station.		
	7)	MN-170-5101 (ch 12782) The proposed 1200 SW (WAD) is shown practically on the edge of the tunnel excavation (approx 200mm clear) which is not acceptable. Further consultations with RPA will be required to agree an acceptable solution.		RPA will consult DCC Drainage Division to agree acceptable measures to close out this issue. RPA is revising design on this area to find ways mitigating this scenario.
	8)	MN-170-5102 (ch12858) The existing 750 SW on LHS of the tunnel excavation is shown as being abandoned, as this reflects the fact that it is intended to divert it over the tunnel to connect to the proposed 1200SW (WAD) on the RHS. The drawing indicates a 900 pipe laid over the tunnel, but is shown below both SW pipelines, probably a drafting error.		Design proposes to divert impacted 750mm SW from east to west crossing the proposed cut/cover tunnel culvert using a 900mm Pipe connecting to the diverted WAD culvert.
		ITEM 3 – (a), (b), (c), (d) Archaeology & Architectural Heritage		
	1)	The majority of new information prepared relates to sites outside DCC area (Item 3) with the exception of some geophysics results at Hampstead Park and the archaeological assessment of the River Liffey. The impact and mitigation strategy for these and that outlined in the Utility Diversion works (Item 2) is		Noted

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
		broadly in line with the recently updated and agreed archaeological strategy document. DCC therefore have no further comment to add to their previous submission An Bord Pleanála, dated 24th November 2008.		
		ITEM 4 Flood Risk Assessment		
	1)	The Applicant is referred to Dublin City Council's Drainage Division's comments and requirements in their submission to An Bord Pleanála, dated 24th November 2008. No further comments on the Additional Information will be made herein.		Noted
		ITEM 9 Independent Assessment of DCU Metro Stop Location		
	1)	Atkins report and conclusions are noted.		Noted
	2)	In relation to the various options for the location of the DCU stop, the Planning Authority's preference is for the current proposal, in view of the adverse impacts which the alternatives would have on Albert College Park.		Noted
	3)	Section 1.5 i The four alternative options proposed for the DCU Stop will all necessitate a greater take within		Noted. An Bord Pleanála however requested RPA commission an <u>independent</u> examination of the feasibility of the construction of the DCU station in the

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
		Hampstead Park than the current proposal, causing temporary and permanent loss of vital community amenities and recreational facilities, including trees, footpaths, GAA and soccer pitches. Furthermore, the options as presented in Figure 1.3 are a misrepresentation of the ultimate length of the station. DCC have determined this to be approximately 250 metres as compared to the park length of 30 metres. Therefore, the proposed options will all potentially cause severance of the main avenue through Albert College Park, irreversibly altering the design and spatial coherence of the Park. Thus, the current proposal is preferred over the alternatives. However, a detailed analysis of these options follows below.		corner of Albert College Park. RPA cannot therefore comment on the observations put forward by Dublin City Council.
		ii DCC request that, prior to further consideration of alternative locations, the details of the environmental considerations taken into account (p. 12) be provided. Furthermore, DCC note that assessment of the four options on cost criteria is incomplete as it apparently does not include for costs of the purchase of the lands within the Park or loss of amenity. The need for acquisition of public lands is acknowledged (p. 24) with no cost analysis. The four proposals must include costs for: • Purchase or lease of additional lands		Noted. An Bord Pleanála however requested RPA commission an <u>independent</u> examination of the feasibility of the construction of the DCU station in the corner of Albert College Park. RPA cannot therefore comment on the observations put forward by Dublin City Council

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
		elsewhere for provision of playing pitches • Construction of new playing pitches • Loss of additional trees – temporary and permanent • Loss and re-instatement of paths, furniture and lighting • Loss of amenity permanently in severance of park layout • Construction of new park boundary railings and gates		
		iii It should be noted that, should An Bord Pleanála direct that one of the four alternatives be the location, the amount of any compensation will have to increase beyond that as has previously been agreed between DCC and the RPA, to reflect the severe impacts and permanent loss of amenity lands. The proposal to change the boundary of the Park would require consent of DCC's Parks Division.		Noted. An Bord Pleanála however requested RPA commission an <u>independent</u> examination of the feasibility of the construction of the DCU station in the corner of Albert College Park. RPA cannot therefore comment on the observations put forward by Dublin City Council
		iv. Option A: Its DCC's view that, contrary to the report, this option still results in significant permanent disruption to the Park, due to the siting of the Stop further to the interior on the Park. The permanent impacts on the playing pitches and walks (3.4) would be affecting a significant local population.		Noted. An Bord Pleanála however requested RPA commission an <u>independent</u> examination of the feasibility of the construction of the DCU station in the corner of Albert College Park. RPA cannot therefore comment on the observations put forward by Dublin City Council

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
		v. Option B: DCC note that this option is assessed as most favourable of the four in terms if minimising long term impacts to the Park. Therefore, DCC do not fully understand the brief explanation for its dismissal, particularly on cost grounds.		Noted. An Bord Pleanála however requested RPA commission an independent examination of the feasibility of the construction of the DCU station in the corner of Albert College Park. RPA cannot therefore comment on the observations put forward by Dublin City Council
		vi. Option C This proposal appears to minimise land take to the Park's interior at the expense of the Park's boundary. As it would limit opportunities for future tree planting and change the landscape character irreversibly, it is not acceptable to DCC's Parks Division. The dual entry aspect has further impacts within the Park, and it is ruled out.		Noted. An Bord Pleanála however requested RPA commission an independent examination of the feasibility of the construction of the DCU station in the corner of Albert College Park. RPA cannot therefore comment on the observations put forward by Dublin City Council
		vii Option D: This appears to have the same degree of impacts as Option C, but is a single entry. It is undesirable in terms of long term boundary impacts.		Noted. An Bord Pleanála however requested RPA commission an independent examination of the feasibility of the construction of the DCU station in the corner of Albert College Park. RPA cannot therefore comment on the observations put forward by Dublin City Council
		viii. If alternatives to the current proposal must be sought by ABP, then in that case Option B would have to be preferred alternative in terms of its compatibility with the existing design and conditions of the Park.		Noted. An Bord Pleanála however requested RPA commission an independent examination of the feasibility of the construction of the DCU station in the corner of Albert College Park. RPA cannot therefore comment on the observations put forward by Dublin

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
				City Council
	4)	Section 3.4		
		The preference for a dual entry station in the interests of pedestrian safety would increase the required land take within the Park. There is no description of any benefits to the safety of Park users nor passengers in selection of the Proposed Alternative Design, according to the report. In fact, the siting of the Stop within the Park raises concerns for passenger safety. Any proposal to bring a Stop into the Park will have health and safety concerns regarding emergency services, future events and works in the Park. Were such a proposal to eventuate DCC would require a Health and Safety Management Plan for the Park to be prepared by the RPA or their InfraCo, for agreement with DCC.		Noted. An Bord Pleanála however requested RPA commission an independent examination of the feasibility of the construction of the DCU station in the corner of Albert College Park. RPA cannot therefore comment on the observations put forward by Dublin City Council
	5)	Section 4.2		
		DCC question the calculation that the Current Station Design is of a lower land take than the Proposed Alternative Design. However, if this is the case, DCC would assert that the quality of the open space lost to the community in terms of amenity and recreational value is significantly greater in the Albert College Park than at the rather non-descript public open space at Ballymun Road and Albert College		Noted. An Bord Pleanála however requested RPA commission an independent examination of the feasibility of the construction of the DCU station in the corner of Albert College Park. RPA cannot therefore comment on the observations put forward by Dublin City Council

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
		Grove and Crescent. An open space audit of the current and alternative proposals, had it been provided, would have, using standard methods of landscape assessment, clearly quantified this to assist the Board in its decision.		
	6)	Section 4.3		
		i.It is the responsibility of the DCC Parks and Landscape Division to provide for the pitches and the DCC Sports Section administers their usage by the community. The report does not include data from the Sports Section on usage levels and consultation with those affected. In the event that the playing pitches were to be permanently lost, DCC would seek to reach an agreement with the RPA similar to that proposed as an agreed position (Final – 21/04/09) in respect of Requested Condition No. 53 of DCC's submission of 24th Nov '08 to An Bord Pleanála. ii. DCC and the RPA or their InfraCo will be required to agree a monitoring regime for the groundwater levels within the Park, to ensure that the station box construction methodology and ground water control systems, as may be deployed, do not give rise to temporary or permanent adverse impacts on mature trees. iii. Assessment of impacts of the Proposed		Noted. An Bord Pleanála however requested RPA commission an <u>independent</u> examination of the feasibility of the construction of the DCU station in the corner of Albert College Park. RPA cannot therefore comment on the observations put forward by Dublin City Council

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
		Alternative Design, should they eventuate, on flora and fauna should not be confined merely to protected species, but should estimate impacts on habitats and on quality of the park's ecology. Biodiversity should be measured in terms of local importance, not just nationally designated species. iv. It appears that the main purpose of the alternative options is in response to local residents' concerns about antisocial behaviour in the vicinity of the DCU Stop (pp. 28, 30) and that, because nobody lives within the Park, it's a viable option. DCC Parks Division would be concerned that location of the Stop within the public park would serve to increase potential for this to occur at the Stop. The Metro North line and the DCU Stop will continue to operate outside of normal park opening hours, and this is of concern where Parks Division will have no staff presence while the stop is in use. The lack of visibility of the Stop could foster further antisocial behaviour. The report cites this (3.4), but does not fully explain how this will be resolved to protect passengers nor threats to the park and its users.		
	7)	Section 5.2		
		The report does not assess the impacts of using a greater area of the Park as a work zone.		Noted. An Bord Pleanála however requested RPA commission an <u>independent</u> examination of the

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
				feasibility of the construction of the DCU station in the corner of Albert College Park. RPA cannot therefore comment on the observations put forward by Dublin City Council
	8)	Section 5.6		
		The Current Design is the preferable option in terms of cyclists. The report does not detail the requirement to bring cyclists to the Park.		Noted. An Bord Pleanála however requested RPA commission an independent examination of the feasibility of the construction of the DCU station in the corner of Albert College Park. RPA cannot therefore comment on the observations put forward by Dublin City Council
	9)	Section 6.3		
		The report suggests that greater areas of the Park may be affected by the Proposed Alternative Design as it is assumed within the report that there is 'more space [within the Park] to undertake utility diversions'. This could affect potentially greater numbers of trees and sterilise a larger area of the Park from planting. This has not been adequately explained nor assessed in the report.		Noted. An Bord Pleanála however requested RPA commission an independent examination of the feasibility of the construction of the DCU station in the corner of Albert College Park. RPA cannot therefore comment on the observations put forward by Dublin City Council
		ITEM 10 Tunnel Launch at Albert College Park		
	1)	Section 2.3		
		It should be stated that the re-instatement of the Park		It is agreed that the plans for the re-instatement shall be

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
		will be by contract, not DCC, to DCC Parks and Landscape Services Division's specifications. Subject to the location of the DCU Stop, the current form is to be retained. Modifications to path layouts and boundaries may be required if the Proposed Alternative Design for the DCU Stop is selected. The plans for the re-instatement shall be as per DCC Condition 47 of their 24th Nov '08 submission to An Bord Pleanála.		as per RPA Response to DCC submission to An Bord Pleanála – Agreed Position document dated 21 April 2009.
	2)	Section 2.4.3		
		The viability of storage of topsoil for 3-4 years is questionable. The topsoil removed from the Albert College site should be made available for the use of DCC Parks and Landscape Services Division. Topsoil for the reinstatement works should be provided by the RPA or their InfraCo, subject approval by DCC Parks and Landscape Services Division of selected source and sampling. Samples shall be taken both at the source of the topsoil material and at arrival to the Albert College Park to verify consistency.		RPA agrees that the storage of topsoil for 3-4 years is questionable. Topsoil to be used in the works will be subject to specifications provided by DCC and procedures for verification of conformity will be agreed in advance with DCC.
	3)	Section 2.5		
		With respect to the loss of playing pitches, arrangements as explained in DCC's above response to Item 9, Section 4.3 (paragraph 6 (i) shall apply.		It is agreed that RPA will assist DCC in discussions with sports clubs but responsibility for providing alternative pitches will remain with DCC. The RPA will

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
				negotiate an appropriate fee with DCC in respect of the temporary loss of amenity, resulting from this displacement, as a contribution to the provision.
	4)	Section 3.2.1		
		The RPA and/or their InfraCo are requested to agree with DCC Parks Division any mitigation measures, as may be required, to minimise impacts arising from the works on the DCC Parks Division's Hampstead Park depot, its staff, seasonal operations, park services, vehicular accesses and health and safety issues as may arise.		The PPP Contractor (InfraCo) will be bound to comply with the requirements of the RPA Construction & Maintenance Requirements, the Environmental Impact Assessment and the Railway Order.
	5)	Section 3.3.1		
		It is noted that the report states that the Albert College Park site has 'very high' sensitivity to air quality. It is not stated if air quality monitoring will be carried out at the Park.		Section 4.2.3 states: Air quality monitoring will be undertaken where there is a risk of adverse environmental impacts, pollution or deterioration of air quality due to construction activity, such as the construction compound at Albert College Park. This monitoring will include total dust and PM10 monitoring where appropriate. Air quality monitoring and analysis will be undertaken by a suitably qualified and competent specialist.

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
	6)	Section 3.6.1		
		See previous comment on Item 9, Section 4.3; at paragraph 6 (ii). *DCC and the RPA or their InfraCo will be required to agree a monitoring regime for the groundwater levels within the Park, to ensure that the station box construction methodology and ground water control systems, as may be deployed, do not give rise to temporary or permanent adverse impacts on mature trees.*		Agreed
	7)	Section 3.7.2		
		While the replacement of topsoil is proposed, there will potentially be a requirement to remediate and replace areas of subsoil, due to the severe impacts of the proposed works and the long-term land use of the public park. These areas are to be agreed between the RPA and/or their InfraCo landscape architect and DCC PLS, as per the DCC/RPA agreed positions in respect of the Requested Conditions 47 to 52 of DCC's submission of 24th Nov '08 to An Bord Pleanála.		It is agreed that the plans for the replacement of topsoil shall be as per RPA Response to DCC submission to An Bord Pleanála – Agreed Position document dated 21 April 2009.
	8)	Section 3.7.3		

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
		It is re-iterated that loss of recreational facilities and open space is likely to be at least 5 years, barring any delays in the proposed project. This should be noted and may not be considered short-term with regard to community requirements. Loss of trees which may have low individual value but as a group present a uniform defined boundary to the Park should be noted as such in terms of visual amenity, screening and shelter aspects. The proposal that existing trees will mitigate visual impact should consider seasonal change in mitigatory potential.		Noted
	9)	Section 4.2.6		
		DCC request that 'arboriculturist' be substituted for 'specialist' with regard to monitoring of trees.		The term "Specialist" is used in section 4.2.6
		ITEM 11 – Treatment of Spoil		
		No Comments.		Noted
		ITEM 12 – Electromagnetic Interference		
		Refers to possible impacts on sensitive equipment in hospitals – Not pertinent to DCC's area of responsibility.		Noted

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
		ITEM 13 – Construction Traffic Impacts		
		(Note: References the introduction of the College Green Public Transport Priority Scheme)		Noted
	1)	It should be noted that the College Green Public Transport Priority Scheme (CGPTS) has been in the contemplation of Dublin City Council (DCC) for a very long period, well before the advent of any proposals for a Metro North scheme. It's potential to greatly enhance public transport priority, by removing non-essential, private car, commuting through-traffic from the city centre and thus relieve chronic congestion at this location, recommended the scheme to DCC. It should be further noted that the introduction, hours of operation and any amendments to the scheme are an executive function of the Local Authority, not a Reserved function.		Noted
	2)	Dublin City Council have implemented a peak hour bus corridor in College Green. Following the November '09 City Council meeting it has been decided to remove the facility for a limited period of time. At the moment it is anticipated that this will be re-instated before the Utilities Diversion Works would begin.		Noted

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
		ITEM 14 Dust (Air Quality)		
	1)	Ambient Nox Sox and VOC emissions will not be impacted on in any degree save for areas of increased congestion and re distribution of traffic flows. However this will not cause any significant increase in ambient levels.		Noted
	2)	Issues in relation to air quality during the construction and operational phases relate mainly to dust generation including the risk of increased Aspergillus levels in air due to the construction processes.		Noted
	3)	Baseline monitoring for dust is not as yet complete. i. On the completion of the baseline studies of dust, a copy of the report should be sent to DCC. ii. Any subsequent Dust monitoring should be carried using the same method as used by TMS Environmental Ltd. (Dust report item 15) i.e Bergerhoff type dust deposit gauges in accordance with German Standard Method for determination of dust deposition rate, VDI 2119, or any other method that can be shown to be equivalent.		Noted
		iii. Various dust emission assessment levels have been mentioned in the Impact Assessment reports. Should complaints arise during the construction phase it is imperative to know what standard is being used.		Noted

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
		It is recommended that dust measurement results are compared with the guideline value of 350 mg/m²/day that is defined in the German TA luft Air Quality Regulations for protection against impairments to property or amenities.		
	4)	The mitigation measured for dust suppression and control of Aspergillus as outlined in the various additional reports are acceptable. However DCC would recommend some additions to these protocols. They are i. Along with the wheel washing facilities a power hosing facility should be provided in order to remove caked on dirt from all vehicles exiting the various construction sites. ii. On site logs be kept and made available for inspection by DCC which should include, at least, information in relation to vehicle registration, type of load and whether the load was completely sealed or not when departing the construction site.		Agreed
		ITEM 15 – Airborne Noise		
	1)	The various additional reports outline 'Noise criteria		Noted

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
		during the construction phase (at 1m from the façade)' DCC view is that a criteria of LAeq 12Hr of 75dB(A) weekdays, and LAeq 8.5Hr of 65\60dB on Saturday/Sunday and bank holidays are quite high criteria. Setting these thresholds does not necessarily mean that any lower sound levels will not cause a nuisance or disturbance. In most locations mentioned in the various reports the baseline values are at least 10dB below these values during the week.		
	2)	It is not clear from the paragraph outlined below and in particular the highlighted sentence, as to why the design goal for railway noise **must be** above the road traffic noise as a general guidance (taken from the Further Information Request, Item 1, Part 8, Impact Assessment report on Céim Dearg) *8.3.2 Limit values* *In line with National Roads Authority (NRA) guidelines a design goal for free field metro vehicle noise at residential buildings has been adopted for Metro North. However, it is recognised that the 24 hour distribution of noise from the proposed scheme may be different from traffic noise in the adjacent roads; in particular, it may be comparatively noisier at night. Hence, the condition for the design goal to be applied to railway noise shall be the following:* ***Railway noise must be above road traffic noise as***		Road traffic noise dominates the environment at present and therefore only if the rail noise is above the road noise will mitigation associated with the railway be considered.

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
		measured in any hour of the day or night, in terms of LAeq 1 hour. *This is the adopted railway noise design goal. In such cases, the resultant LAeq 1 hour noise level would increase by at least 3dB, and the railway noise Lden would be above 60dB.*		
	3)	Notwithstanding the times and levels at which the criterion are set, DCC believe the mitigation measures as outlined in the various reports are reasonable. However DCC would recommend further addition to these protocols to aid clarity, in the area of complaint verification. These are: - i Assessment as to compliance with the Noise Criteria outlined in the various report should be based on any 15 minute continuous sampling period during day or evening times and any 5 minute continuous sampling period during night times, measured at least one metre away from the façade on the complainants dwelling. ii Assessment as to compliance with the Noise Criteria should be based on the total (combined) sound levels from all sound sources within the vicinity of the complainant i.e. background sound + traffic sounds + construction sound etc.		This comment is taken to be directed to construction noise levels only as the above comment is in relation to operational noise only. i) Assessment as to compliance with noise criteria will be as per the construction noise monitoring procedure and BS5228: 2009 ii) not accepted, assessment as to compliance will be based on the construction sound as this sound can be managed. Background and traffic sound is outside the control of the project.

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
		ITEM 15 (g) (Elmhurst Convalescent Home)		
		This document was only received on 11th Nov '09. It deals specifically with an assessment of the predicted construction noise levels at the Elmhurst Convalescent Home. Its contents are noted. DCC have no comments on the report.		Noted
		ITEM 16 (a) & (c) – Assessment of Environmental Risks		
	1)	Section 4.2 appears to correctly cross reference the major receptors under the 13 chosen headings.		Noted
	2)	It is noted that the management of risk will be undertaken in accordance with "A Code of Practice for Risk Management of Tunnel Works", Jan 2006, prepared by The International Tunnelling Group (ITIG)		Noted
	3)	The underlying philosophical basis and strategy adopted is representative of international best practice, now the normal for most large, complex projects. It is to be assumed that overall responsibility for the construction phase moves from the RPA to the InfraCo and from thence to the operator on handover of the construction project.		This is a correct assumption in so far as InfraCo will not ultimately operate the railway. InfraCo will however continue to maintain the infrastructure and rolling stock for a period of 25 years after construction is complete.

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
		ITEM 16 Assessment of Environmental Risk (Areas 104, 105, 106, 107)		
	1)	Register represents a reasonable range and assessment of risks at this early reference design and EIS stage of the scheme's development.		Noted
	2)	The template used is a reasonable spectrum, amended as required to include for items additional to the basic or specific to each area, as necessary.		Noted
	3)	It is worth noting the high score attributed to traffic and access issues for all areas.		Noted
		ITEM 17 – Geotechnical & Geotechnical Aspects		
	1)	DCC welcome the identification and application of the Code of Practice for Risk Management of Tunnel Works, prepared by the International Tunnelling Insurance Group.		Noted
		ITEM 17 Appendix 'B' – Pre Contract Risk Register		
	1)	All areas – (example) item 103-T/025 – is it possible to maintain flexibility in location of underground structures if Railway Order interpreted prescriptively.		Section 6.3.14 of Volume 1 – Book 1 of 1 - Limits of Deviation included in the Environmental Impact Statement allow a limited degree of flexibility in the design and construction to react to changing circumstances which are unforeseeable at this stage.

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
	2)	Areas 104/107 – Importance of Stage 3 Settlement and Building Response Assessments highlighted.		Noted
	3)	Template and content consistent with good international project management practice and standards required at Reference Design, EIS and pre-Contract stage of the scheme's development.		Noted
	4)	Potential planning and statutory processes, legal, contractual and political risks are not included in this register.		Noted
		ITEM 18 Vibrations and Ground Borne Noise		
	1)	The guiding standard to be DIN 450-1 and the derivation of TBM vibration contours from the formula therein is noted.		Noted
	2)	The translation of the Dublin Port Tunnel vibration data is correctly queried, with the TBM diameter and face area differences in scale highlighted. (Note: The peak in the DPT TBM spectrum was at 16Hz – see Section 5.0).		Noted
	3)	The vibration contours plotted are as expected.		Noted
	4)	The operational ground borne noise levels compare well with the average urban area's night time background level 45db.		Noted
	5)	No Further comments at this time.		Noted

Part	Sub No.	Condition Description	Relevant Part of CMR	RPA Response
		ITEM 19 Groundwater and Geohydrology		
	1)	Negligible effect on groundwater conditions of permanent underground structures was as expected, given the scale effect (e.g. less than 0.2m at Parnell Square East).		Noted
	2)	The results of analyses at Parnell Square (E), using the U.S. Geological Survey's (USGS) Processing MODFLOW for Windows (PMWIN) finite difference based groundwater model, are as expected and confirm the common sense assessment of scales adopted.		Noted

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