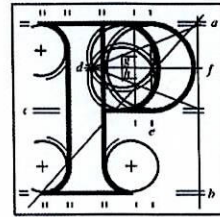


Our Case Number: ABP-314724-22

Your Reference: Charlemont and Dartmouth Community Gro
(CDCG)



**An
Bord
Pleanála**

MacCabe Durney Barnes
20 Fitzwilliam Place
Dublin 2
D02 YV58

Date: 24 January 2023

Re: Railway (Metrolink - Estuary to Charlemont via Dublin Airport) Order [2022]
Metrolink. Estuary through Swords, Dublin Airport, Ballymun, Glasnevin and City Centre to
Charlemont, Co. Dublin

Dear Sir / Madam,

An Bord Pleanála has received your recent submission (including your fee of €50) in relation to the above-mentioned proposed Railway Order and will take it into consideration in its determination of the matter.

The Board will revert to you in due course with regard to the matter.

Please be advised that copies of all submissions/observations received in relation to the application will be made available for public inspection at the offices of the relevant County Council(s) and at the offices of An Bord Pleanála when they have been processed by the Board.

More detailed information in relation to strategic infrastructure development can be viewed on the Board's website: www.pleanala.ie.

If you have any queries in the meantime, please contact the undersigned. Please quote the above mentioned An Bord Pleanála reference number in any correspondence or telephone contact with the Board.

Yours faithfully,

PP EM

Niamh Thornton
Executive Officer
Direct Line: 01-8737247

Tell	Tel	(01) 858 8100
Glao Áitiúil	LoCall	1800 275 175
Facs	Fax	(01) 872 2684
Láithreán Gréasáin	Website	www.pleanala.ie
Ríomhphost	Email	bord@pleanala.ie

64 Sráid Maoilbhríde	64 Marlborough Street
Baile Átha Cliath 1	Dublin 1
D01 V902	D01 V902

20 Fitzwilliam Place t: + 353 1 6762594
Dublin 2 f: + 353 1 6762310
D02 YV58 e: planning@mdb.ie
w: www.mdb.ie

MACCABE DURNEY BARNES

PLANNING | ENVIRONMENT | ECONOMICS

Our Ref: 2093 Dartmouth Road Submission

An Bord Pleanála,
64 Marlborough Street,
Dublin 1,
D01 V902

16th January 2023

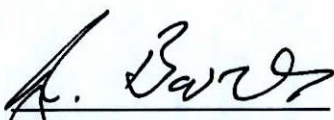
Re: Railway (Metrolink-Estuary to Charlemont via Dublin Airport) Order 2022

Dear Secretary,

We wish to make a submission for our client Charlemont & Dartmouth Community on behalf of Dartmouth Road residents of properties 26-28 and 32-35 Dartmouth Road, Ranelagh, Dublin 6, in respect of the public consultation for the Railway (MetroLink-Estuary to Charlemont via Dublin Airport) Order [2022]. Please find enclosed a copy of our client's submission and prescribed fee of €50.

We trust all is in order. Please do not hesitate to contact us should you have any queries.

Yours sincerely


Jerry Barnes
Director
MACCABE DURNEY BARNES

AN BORD PLEANÁLA
LDG- 060528-23
ABP- _____
16 JAN 2023
Fee: € 50 Type: degre
Time: 16.33 By: havel

Charlemont & Dartmouth Community Group MetroLink Submission

Dartmouth Road Submission

13 January 2023



MACCABE DURNEY BARNES



20 Fitzwilliam Place, Dublin 2,
D02YV58, Ireland



Phone. +353 1 6762594



planning@mdb.ie



www.mdb.ie

Document status					
Job Number: 2193					
Job Title: MetroLink Rail Order					
Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
0	For Client Review	JB	RH	JB	22/11/22
1	Revision	JB	RH	JB	09/01/23
2	Final	JB		JB	13/01/23

© Copyright MacCabe Durney Barnes Limited. All rights reserved.

The report has been prepared for the exclusive use of our client and unless otherwise agreed in writing by MacCabe Durney Barnes Limited no other party may use, make use of or rely on the contents of this report. The report has been compiled using the resources agreed with the client and in accordance with the scope of work agreed with the client. No liability is accepted by MacCabe Durney Barnes Limited for any use of this report, other than the purpose for which it was prepared. MacCabe Durney Barnes Limited accepts no responsibility for any documents or information supplied to MacCabe Durney Barnes Limited by others and no legal liability arising from the use by others of opinions or data contained in this report. It is expressly stated that no independent verification of any documents or information supplied by others has been made. MacCabe Durney Barnes Limited has used reasonable skill, care and diligence in compiling this report and no warranty is provided as to the report's accuracy. No part of this report may be copied or reproduced, by any means, without the written permission of MacCabe Durney Barnes Limited.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
1. INTRODUCTION.....	4
1.1 Background	4
1.2 Strategic Planning Issues	4
1.3 Structure of Submission	4
2. KEY PROJECT ELEMENTS.....	5
2.1 Overall Project.....	5
2.2 Charlemont Station, Turnback Tunnel and Intervention Tunnel	5
3. AREA CONTEXT.....	15
3.1 Immediate Surroundings	15
3.2 Properties Subject of Submission.....	15
3.3 Carrolls Building Planning History.....	17
4. CONSTRUCTION IMPACTS.....	20
4.1 Introduction.....	20
4.2 Noise and Vibration	20
4.3 Settlement & Subsidence	28
4.4 Hydrogeology.....	30
4.5 Construction of Intervention Tunnel	30
4.6 Phasing & Programme.....	30
4.7 Hours of Operation	36
4.8 Construction Compounds.....	36
4.9 Traffic and Transport	38
4.10 Impact on Utilities.....	41
4.11 Human Health	41
4.12 Interactions of Effects.....	41
5. OPERATIONAL IMPACTS.....	42
5.1 Introduction.....	42
5.2 Noise and Vibration	42
5.3 Hours of Operation	50
5.4 Traffic and Transport	50
5.5 Anti-Social Behaviours	53
5.6 General Impacts.....	53
6. PROPERTY ISSUES.....	54
6.1 Introduction.....	54
6.2 Compulsory Purchase Order.....	54
6.3 Properties	54
6.4 Devaluation of Properties	54
6.5 Temporary Relocation	55

6.6 Costs.....55

7. CONCLUSIONS.....56

APPENDIX 1 -LIST OF RESIDENTS.....57

APPENDIX 2 -LIST OF RESIDENTS.....58

LIST OF TABLES

Table 1: Properties the Subject of Submission	16
Table 2: Charlemont Station – Potential Significant Construction Noise Impacts (Table 13.68 of EIAR)	24
Table 3: Air borne noise condition limits (Condition 15 of Metro North Railway Order 2010	27
Table 4: Duration of Effects as defined in the EIAR Guidelines (EPA 2022).....	32
Table 5: Service Operational Headway to Meet Demand – Monday to Friday.....	45
Table 6: Service Operation Headway to Meet Demand – Saturday	46
Table 7: Service Operational Headway to Meet Demand – Sunday and Public Holidays	46
Table 8: Groundborne Noise Impacts	47

TABLE OF FIGURES

Figure 1: Charlemont station Surface Layout	6
Figure 2: Railway Order Charlemont Station Ground Level Layout.....	7
Figure 3: Railway Order Cross Section	7
Figure 4: Railway Order Longitudinal Section (Dartmouth Road highlighted in red)	8
Figure 5: Actual Relationship of development with houses on Dartmouth Road	9
Figure 6: Construction Compound	13
Figure 7: Draft Dublin City Development Plan 2022-2028 Objectives Map.....	15
Figure 8: Book of Reference	16
Figure 9: Proposed Station Box (Drawing No.162123-8104)	18
Figure 10: As Built Sketch.....	19
Figure 11: Construction Noise Receivers	22
Figure 12: Blasting Contours PPV (Figure 14.4)	22
Figure 13: Blasting Air Overpressure Contours (Figure 14.5)	22
Figure 14: Boring Contours (Figure 14.2).....	23
Figure 15: Settlement Contours (Dartmouth Road highlighted with red oval)	28
Figure 16: Construction Programme (Figure 5.4 of EIAR)	30
Figure 17: EIAR Construction Sequence	37
Figure 18: Charlemont Traffic Management (Figure 7-58 of Appendix A9.5).....	39
Figure 19: Ground Borne Noise during Operational Phase	42
Figure 20: Ventilation and Exhaust System (outline in red).....	43
Figure 21: Surface and Traffic Layout	51
Figure 22: Pedestrian Heat Map from Traffic and Transport Assessment	51

EXECUTIVE SUMMARY

The main points of this submission can be summarised as follows:

Policy and Procedure

- The submission is fully supportive of the CDCG General Area Submission which seeks the removal of the Tara Street to Charlemont section of the rail order.
- Specifically the Charlemont station should not form part of the rail order as it will severely and demonstrably adversely affect the residential amenities of the Dartmouth Road residents both during the construction phase and the operational phase.
- The reliance on an element of the railway works in the form of the station box previously constructed as part of the office development fundamentally prejudices the entire process and is non-compliant with the EIA Directive.
- As is described in detail in the CDCG General Area Submission, the Charlemont Station Box is an unauthorised development that also required an EIA. Clearly Charlemont Station is an integral part of the Metrolink proposal and the subject Rail Order Application. The Board, therefore, cannot grant the current Rail Order as to do so would a) facilitate the circumvention of the EIA Directive by the splitting of projects and b) amount to a retention permission which it is compelled to refuse. Effectively, Charlemont Station cannot be considered as usable for the Metrolink project because it will remain legally unsafe.
- The documentation and in particular the drawings submitted are misleading and do not illustrate the relationship between the proposed station works and the houses on the southern side of Dartmouth Road. The deep construction required immediately adjacent to residential houses is wholly inappropriate and will result in a very severe loss of amenity and devaluation of property.
- The lack of detail in the Rail Order documentation is in no small part due to the procurement method adopted by the Applicant, which is a 'design and build'. The first component is 'design' which should be undertaken prior to submission for a Railway Order consent. By following a 'design and build' approach NTA/TII is failing to provide the required level of detail under which a) affected residents can adequately understand the implications of the proposals and b) a Rail Order could be granted by An Bord Pleanála (ABP).

Inadequate EIAR

- Noise and vibration impact assessment have been deferred until after consent is issued.
- The impacts of construction noise and vibrations on internal dwelling environments has not been assessed.
- There has been no night-time impact assessment of construction noise.
- The blasting impacts of tunnelling directly under the houses on Dartmouth Road has not been assessed in terms of amenities, noise, vibration and human health.
- A traffic impact assessment of local junctions has not been undertaken.
- The EIAR fails to properly assess the settlement impacts of the tunnelling upon the houses on Dartmouth Road and there may be settlement of between 35mm and 45 mm which would severely affect these protected buildings.

- The hydrogeological impact assessment is inadequate as it has not been based upon local bore hole logs and no local impact assessment has been undertaken around the Charlemont station.
- The impact of ventilation systems has not been assessed.
- The ground borne vibration/noise impacts of the train operations upon the houses of Dartmouth Road have not been assessed.

Construction Phase

- The construction noise impact assessment is wholly inadequate as it fails to consider the internal noise impact over a 9 year period, defers assessments to the design and construction stage, fails to properly assess night time impacts, incorrectly categorises impacts as very significant as opposed profound
- Construction vibration impact assessment fails to assess the evacuation tunnel. This element of the project is likely to have a significant effect upon the Dartmouth Road residents. It will not be possible to meet airborne noise condition limits that may be reasonably set by An Bord Pleanala.
- Construction of the Intervention tunnel will give rise to significant noise and disturbance, 24/7 during the period of its construction.
- The construction phase on Dartmouth Road, assuming no delays, will last 8.5 years (102 months). This is a medium-term effect which has not been properly considered in the EIAR. This may be termed "medium-term" from a broad community perspective, but in the lives of the residents of Dartmouth Road the impact is profound. Especially when the cumulative effect of the ongoing construction of the Office Building at 2 Grand Parade that will last for 4-5 years is considered. The residents of Dartmouth Road will have to endure almost a decade and a half of major scale construction within metres of their houses in an area zoned as residential.
- The hours of construction proposed include 12 hour working days and significant element of 24 hour working during certain periods of the contract.
- The alternative construction compound has not been properly assessed and given the impacts of that proposed, it is incumbent upon TII to properly assess this and propose it as a mitigating measure.
- Additional traffic will be generated during construction and the diverting of traffic will have an adverse effect upon the local road network. HGV traffic on quiet residential roads will have a severe impact upon amenities.
- No local traffic modelling has been undertaken as part of the assessment and the impact upon pedestrians has not been properly assessed.
- There will be a severe impact upon human health which has not been properly assessed.

Amenity Impacts

- The operation of the trains and associated ventilation systems has the potential to adversely affect the amenities of the residents and has not been properly assessed.
- The post completion permanent arrangement will result in significant rat running between Ranelagh Road and Grand Parade to the detriment of the residents on Dartmouth Road. No adequate drop-off pick up facilities, taxi ranks, or interchange with other services are proposed. There will be an inevitable loss of parking on Dartmouth Road.

- The overall impact of the both the construction and operational phases of the project, in terms of noise, vibration, visual impacts, traffic, HGV movement, construction activity, operational emissions, anti-social behaviour and general activity around the station will be such as to severely and permanently adversely affect the residential amenities of the residents listed in this submission. The impacts will be so severe as to evidently be in material contravention of the Dublin City Development Plan zoning objective for the area, which is Z2: "to protect and/or improve the amenities of residential conservation areas."

Property Issues

- Houses 32-35 are the subject of sub-stratum CPO
- The development will inevitably impact upon the value of retained land/property
- The owners of no.35 Dartmouth Road have not been properly served with the relevant papers (to confirm)
- There will be a significant devaluation in property and the Board must refuse this element of the railway order. Owners' costs of engaging in the process should be borne by TII.

1. INTRODUCTION

1.1 Background

This submission is made on behalf of the Charlemont and Dartmouth Community Group (CDCG) c/o 33 Dartmouth Road, Ranelagh, D06 HY79 in relation to the MetroLink Railway Order application, which was submitted to An Bord Pleanála and is available for inspection from 07/10/2022 until 16/01/2023. The application is made by the National Roads Authority (operating as Transport Infrastructure Ireland) for the (Metrolink-Estuary to Charlemont via Dublin Airport) Order [2022]. The submission is made on behalf of the residents of properties 26-28 and 32-35 **Dartmouth Road** and these residents listed in Appendix I are all supportive of this submission. It should be noted that all of those listed in Appendix I are also fully supportive of the general submission relating to general policy and strategic matters.

This is one of three submissions made by CDCG, which relate to different aspects concerning the MetroLink project. The submissions are as follows:

- Submission 1 (General) – The submission relates to general policy and strategic matters and area wide concerns.
- Submission 2 (Dartmouth Road) – **This subject submission** relates to the concerns of the residents on Dartmouth Road relating to impacts during the construction and operational phases of the project.
- Submission 3 (Dartmouth Square West) – This associated submission relates to the concerns of the residents on Dartmouth Square West relating to impacts during the construction and operational phases of the project.

1.2 Strategic Planning Issues

The strategic planning issues are covered in the associated general submission by CDCG. The submission concludes that the link between St. Stephens Green and Charlemont cannot be justified in planning terms. Furthermore, it undermines the business case for the entire project. For this reason the associated submission requests that the section between Tara Street and Charlemont be omitted from the Railway Order and that a new railway order application for the section between Tara Street and St. Stephens Green be submitted.

1.3 Structure of Submission

The submission has been structured in the following manner:

- Section 1 Introduction: This section
- Section 2 Key elements: Considers the development as it relates to Dartmouth Road
- Section 3 Project History: In so far as it relates specifically to Dartmouth Road.
- Section 4 Submission Points: Highlights the key points of this submission
- Section 5 Summary of Points and Requests: Summarises main points, details amendments sought

2. KEY PROJECT ELEMENTS

2.1 Overall Project

The main elements of the project are detailed in the EIAR and summarised in the associated CDCG general submission. However, the key overall project related elements that are of importance to the subject submission are:

- Charlemont Station
- In the opening year operations, there will be 20 trains operating per hour at a frequency of three minutes between trains;
- The proposed Project is designed for a maximum of 20,000 passengers per hour per direction (pphpd) in the peak hour;
- Operation of services for 19 hours per day, 365 days per year
- The predicted construction period of 9.25 years. The construction phase on Dartmouth Road, assuming no delays, will last 8.5 years (102 months).

2.2 Charlemont Station, Turnback Tunnel and Intervention Tunnel

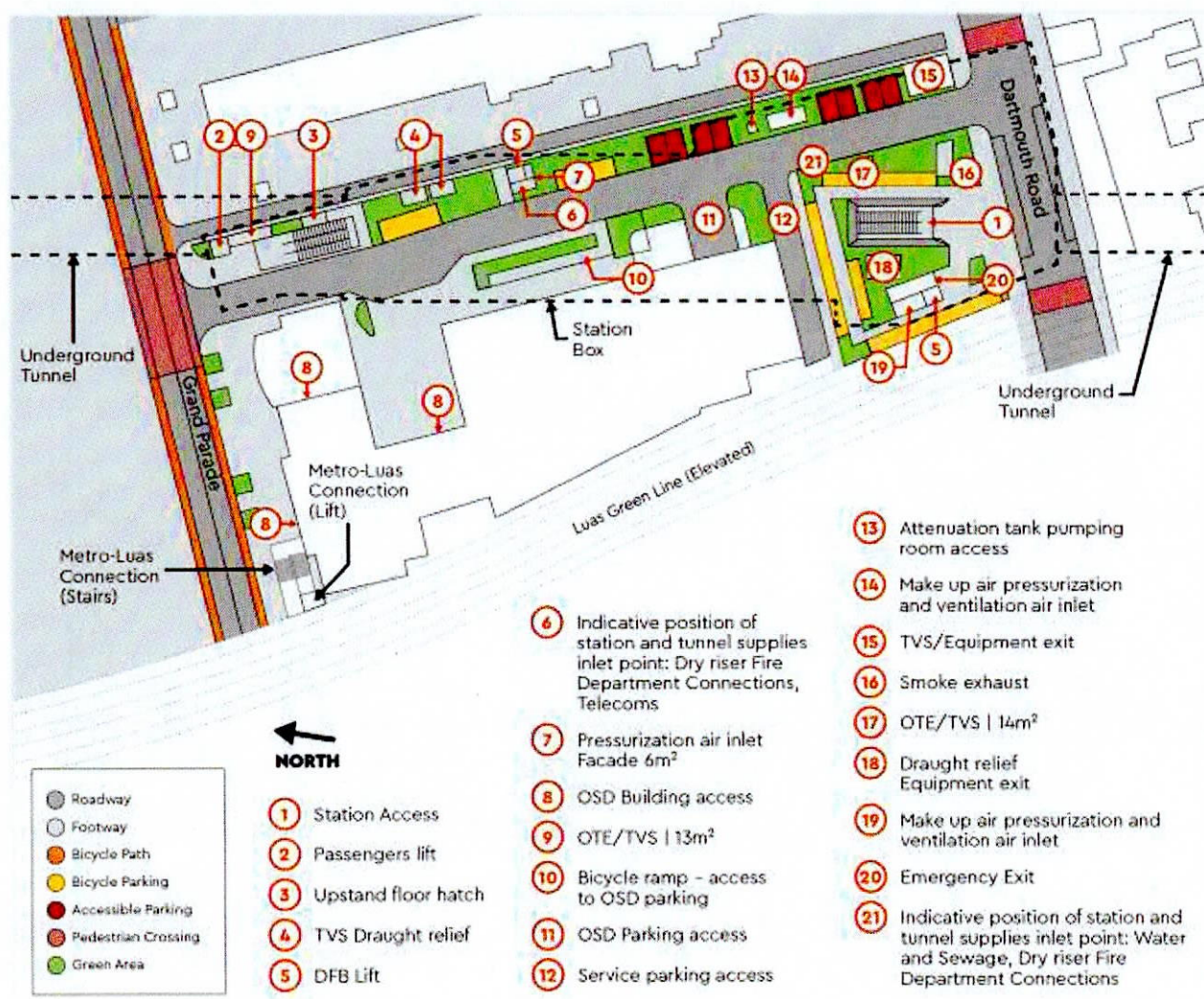
2.2.1 Operational Phase

Station Design

The rail line from the north would pass through a single bore tunnel and would curve southwards and pass under Harcourt Terrace and the Grand Canal before reaching Charlemont Station located on a site south of the "Carroll's Building" on Grand Parade and bounded on the west side by the Luas Green Line. This site, currently under development by a third party, is where Charlemont Station is proposed to be built. Charlemont Station would provide a connection with the Luas Green Line and a pedestrian link to the Charlemont Luas Stop. The roof slab of the station would project under Dartmouth Road.

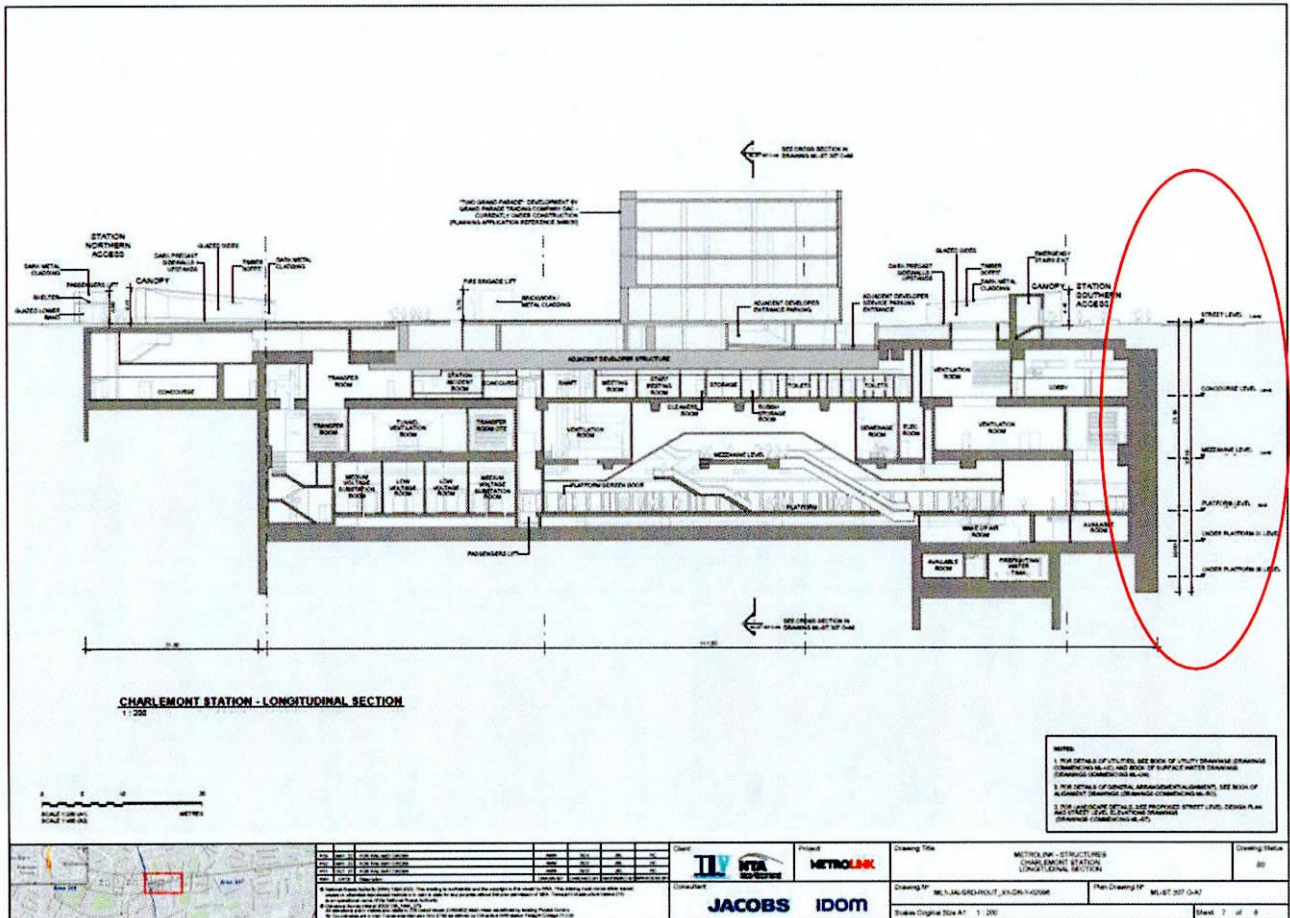
Two entrances are proposed, one at the northern end onto Grand Parade and the other at the southern end onto Dartmouth Road. An escalator would serve each of the entrances. There would be three levels to the station, including a concourse, mezzanine and platform level. One lift accessing the surface, concourse and platform and street levels is proposed at the northern end of the site. Two Dublin Fire Brigade (DBF) lifts are proposed. The track level is at 22m below ground level and platforms will be 65m long and 6.5m wide. The overall footprint of the Charlemont station is approximately 133 metres in length (including the concourse projection or approximately 118 without), and approximately 31 metres in width although not of rectangular shape (source RINA). A total of 162 bicycle parking spaces are proposed, most of which are at the southern entrance.

Figure 1: Charlemont station Surface Layout



It can be seen that there are pedestrian crossing zones on Grand Parade, a stairs in front of the Carrolls Building (a protected structure) which will provide stair access to Luas, and further pedestrian crossings on Dartmouth Road.

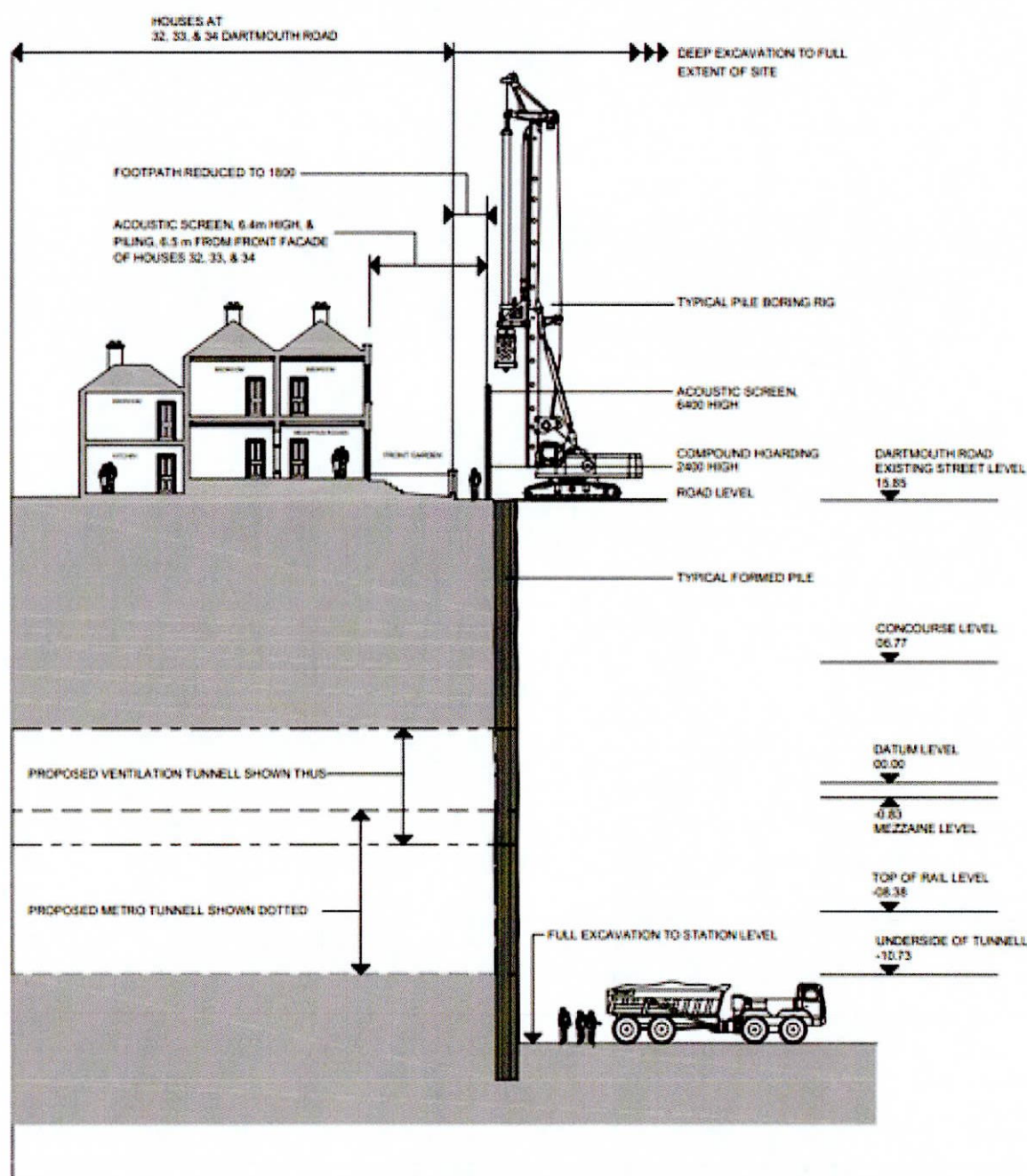
Figure 4: Railway Order Longitudinal Section (Dartmouth Road highlighted in red)



The longitudinal section is illustrated below. We contend that the submitted drawings are inadequate as they do not clearly illustrate the above ground elements. For example, the ground level drawing ML1-JAI-SRD-ROUT_XX-DR-Z-02090 illustrates the underground element of the station box extending up the southern carriageway of Dartmouth Road. Yet the longitudinal drawing no. ML1-JAI-SRD-ROUT_XX-DR-Y-02096 shows that the station box is on the northern side of the Dartmouth Road carriageway. This is wholly **misleading** and does not illustrate the proper relationship between Dartmouth Road and the station box. Furthermore, the Dartmouth Road houses are not illustrated on this section drawing.

The sectional drawing below, which has been prepared by our clients, illustrates the true relationship between the houses 32-34 Dartmouth Road and the excavations associated with the station box. It also illustrates the intervention tunnel under these houses.

Figure 5: Actual Relationship of development with houses on Dartmouth Road



The City Tunnel continues southwards, terminating 360m beyond Charlemont Station to provide for a turnback facility for trains going back in a north bound direction. The reason for this 0.3km length of tunnel is not explained in the documentation. A parallel evacuation and ventilation tunnel will also be constructed alongside this section of tunnel that will connect back to Charlemont Station. Again, the rationale and justification is very limited in the documentation submitted with the Rail Order application. The full costs and benefits of alternatives, including an emergency exit emerging at the southern end of the turnback facility, is not considered.

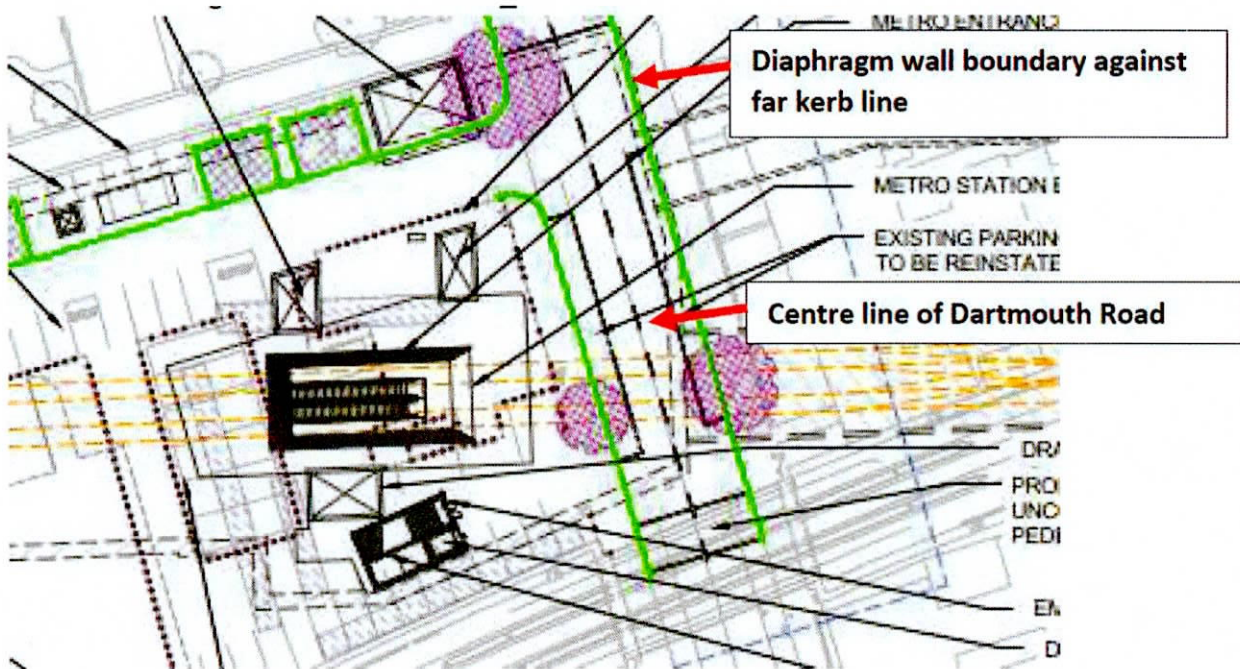
View of the Independent Engineering Expert (IEE) - RINA

Our clients have been in correspondence on this, and a number of other, matters with the IEE, appointed by TII, who are the international firm RINA. RINA's brief technical note in response is included in Appendix 2. The relevant response is extracted below:

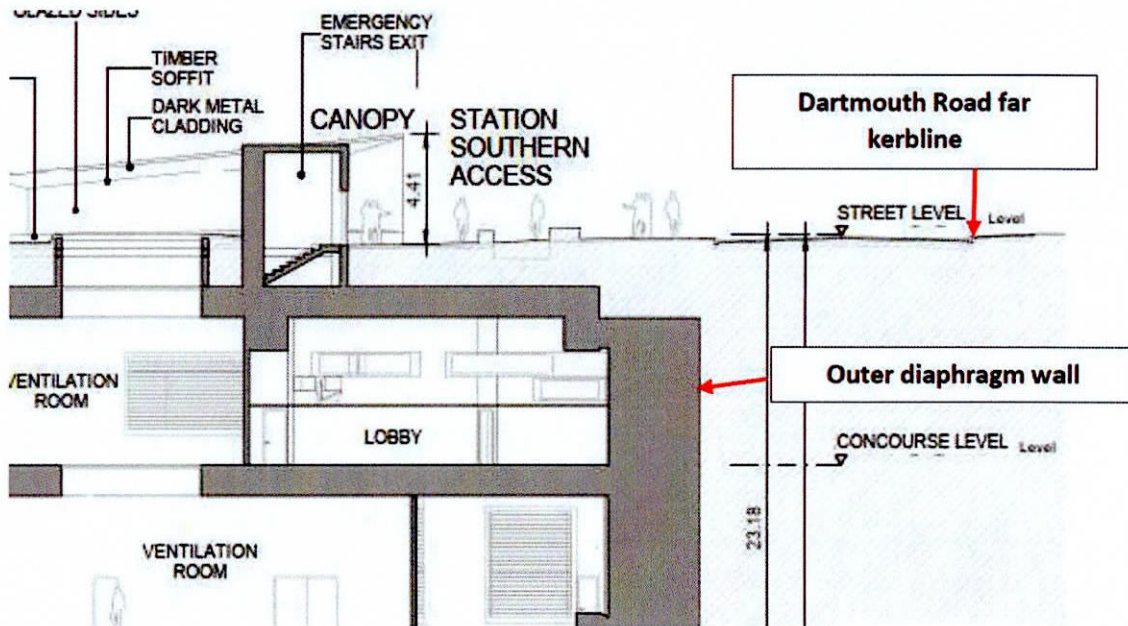
"2. Size of Charlemont Station Box

From what we can determine from the alignment and structures drawings included within the EIAR submission, the overall footprint of the Charlemont station is approximately 133 metres in length (including the concourse projection or approximately 118 without), and approximately 31 metres in width although not of rectangular shape.

The alignment drawings do seem to indicate that the outer diaphragm wall boundary will extend under Dartmouth Road with the walling extending up to the far kerb line, as shown here in drawing ML1-JAI-ARD-ROUT_XX-DR-Y-03096:



The Structures drawings, especially drawing ML1-JAI-SRD-ROUT_XX-DR-Y-02096 however are less clear on this however, as the following extract shows:



This drawing however is contradicted by figure 5.10 in EIAR Appendix A7.9, which clearly shows the D-walling near the far kerbline shown below:

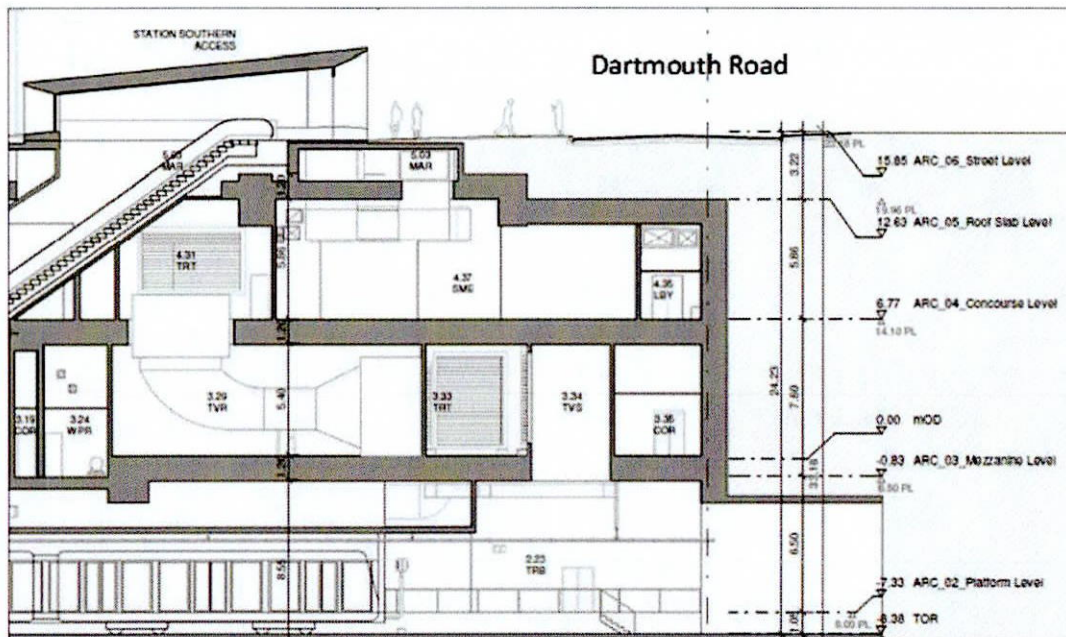


Figure 5-10: Vertical Extent of Works at Dartmouth Road

Looking at the other drawings in the pack, it seems to be the case that Charlemont station box is by far the longest underground station box if the concourse extension is considered, or second longest (after O'Connell) if the extension is not considered.

Quite why the station needs to be this long is not clear to the IEE. While Appendix A7.9 Figure 3.2 does indicate that Charlemont will be as busy as Tara Street, hence the joint second busiest station on the network, the station box shown is far longer than that shown for Tara Street (shown as being only 105 metres in

length). This is even more the case when considering that the trains themselves are planned to be of the order of 65 metres in length. It is the view of the IEE that TII should make efforts to produce a somewhat more compact station design with less of an impact on Dartmouth Road as a travel axis.

It is the view of the IEE that TII should make efforts to produce a somewhat more compact station design with less of an impact on Dartmouth Road as a travel axis."

As confirmed by RINA analysis, the drawings in the EIAR are inconsistent and inadequate. The Applicant has not justified why Charlemont station, located in a residential area, is "by far the longest underground station box" in the Metrolink project. The IEE suggests that the Applicant should make efforts to produce a "more compact station design with less of an impact on Dartmouth Road".

Potential to reverse the orientation of the Dartmouth Road entrance

The Independent Engineering Expert also investigated the requirement for a second station entrance at Dartmouth Road).

"The EIAR explains the reasoning for the second entrance for Charlemont Station at Appendix A7.9 "Terminus Station at Charlemont compared to St. Stephens Green", Section 5.1.2 on page 18:

The additional southern entrance has been incorporated in the design to:

- improve station accessibility from the south of the station where modelling indicates strong demand from the Ranelagh area;*
- avoid overcrowding on the Grand Parade footpath, which is used for the interchange with Luas;*
- facilitate station access for cyclists and from vehicle drop off; and to,*
- provide additional resilience to passenger evacuation and emergency access in the event of an incident at the station.*

although the likely expected patronage for the second entrance is not provided in the document."

Conclusions

The Independent Engineering Expert also draws some conclusions as follows:

"We are of the view that the design of the station should be optimised to try and reduce the overall size of the station box and therefore reduce the incursion into Dartmouth Road and should this not prove practicable to utilise a construction methodology which minimises the closure time of Dartmouth Road and provides the residents full access to their properties. It is also our view that given the size and potential developments on the site it would be at the very least practicable to reverse the orientation of the entrance to face away from the street and into the site (facing the development), so although footfall might not be reduced, the residents would not at least have to be faced with continual exposure to light and noise such as that which accrues around such station entrances. Some discreet signage would be all that would be required to guide walkers to their destination.

We are also of the view that whilst moving the second entrance, perhaps into Dartmouth Park itself, might be technically feasible it might cause as many problems as it solves."

The conclusion of the IEE clearly demonstrates that the Applicant has not adequately considered alternatives to reduce the impact on the residents of Dartmouth Road and thereby the EIAR is inadequate and incomplete. We support the further investigation of a reorientation of the station entrance away from the road. This may have the potential to reduce some of the Operational Impacts outlined in section 5 below.

2.2.2 Construction Phase

The EIAR indicates that the Charlemont Station is dependent upon the structural deck which is currently being constructed pursuant to the planning permission for a commercial development at No.2 Grand Parade under P.A Reg. Ref: 2373/17 (ABP PL29S.300873) and subsequently amended under PA Reg. Ref 4755/19. Section 5.10.13 of the EIAR states that this structure along the bored secant piles *"..will form the central section of the Charlemont station box roof slab."* These enabling works for the station box are illustrated in the section drawings in the figures above. The issue of the failure to comply with the requirements of the EIA Directive in relation to the assessment of this element, and that it does not have any planning permission, has been fully considered in the associated general submission.

The station will be a cut and cover construction along Dartmouth Road and a top down approach for the remainder of the site.

The EIAR also illustrates the extent of the construction compound in Figure 5.1 of the Appendix 5.

Figure 6: Construction Compound



Section 5.10.13 of the EIAR indicates that the proposed construction works site and compound includes the full width of Dartmouth Road from the junction with Dartmouth Place to the junction with Cambridge Terrace. All existing parking bays would be suspended along this section. Initially, during utility diversions works, vehicle access to numbers 32 to 35 Dartmouth will be restricted, but during the full road closure for station construction, vehicle access will not be possible to these properties until the station and roof slab are constructed and the road is reinstated. The principal access and egress to the construction compound will be from the south via

Dartmouth Road. Dartmouth Road will be partially closed (one way traffic only) for 12 to 18 months for utility diversions and fully closed for between 24 and 30 months for the main station construction works. However, Appendix 5.2 of the EIAR outlines construction schedule and it indicates that the Charlemont Station Compound/Deep Station has a 102 month construction period from Q3 of Year 1 to Q4 of Year 9.

3. AREA CONTEXT

3.1 Immediate Surroundings

This submission relates to house nos. 26-28 and 32 to 35 Dartmouth Road. It relates to the section of Dartmouth Road from the intersection with Cambridge Terrace/Dartmouth Square South and the intersection with Dartmouth Terrace. The properties concerned are red brick Victorian houses which are all protected structures.

Figure 7: Draft Dublin City Development Plan 2022-2028 Objectives Map

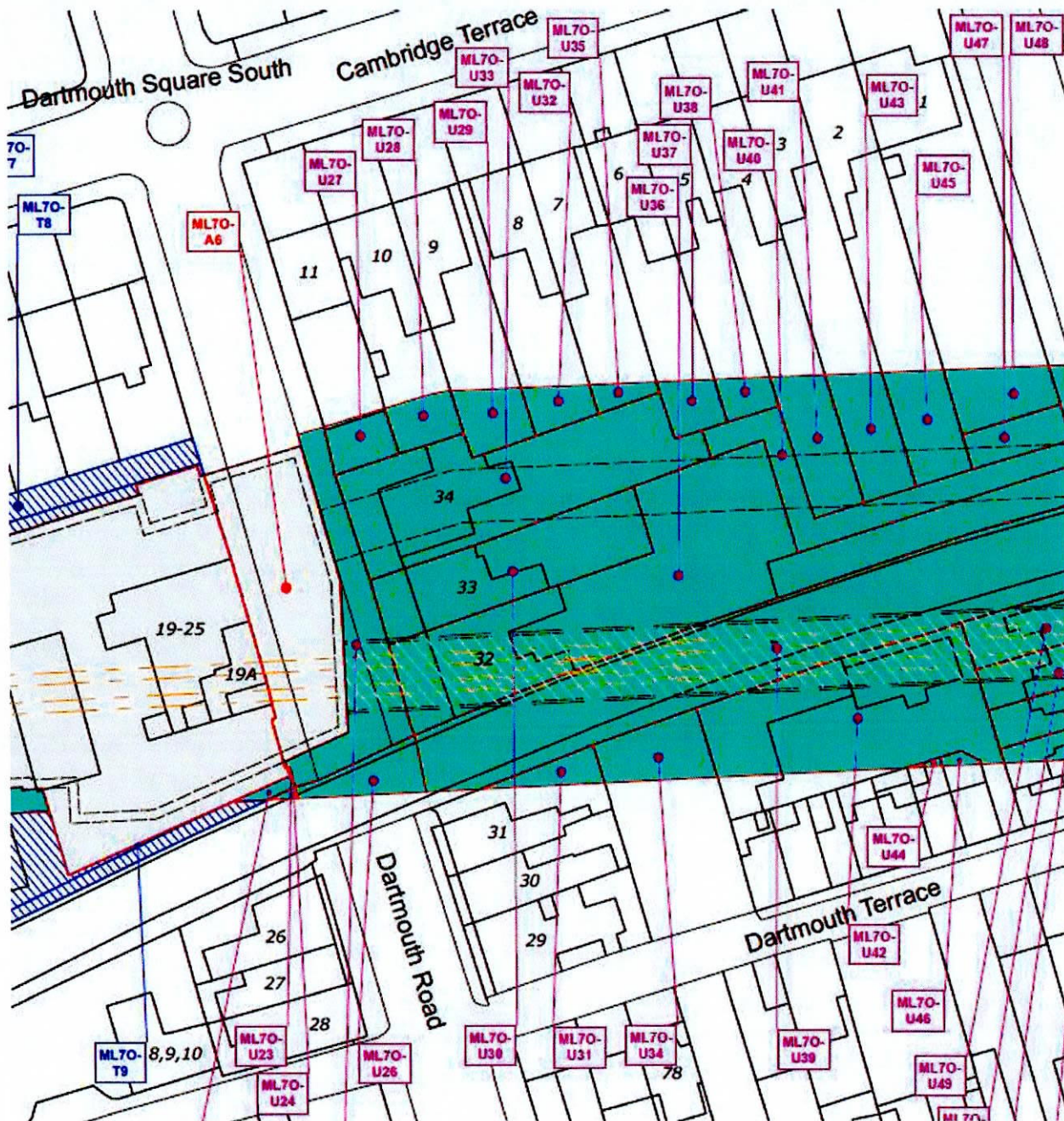


The area lies adjacent to the Dartmouth Square Architectural Conservation Area. The houses on the southern side of Dartmouth Road are covered by zoning Objective Z2: *To protect and/or improve the amenities of residential conservation areas*, and those on the northern side to the Luas elevated line are covered by zoning Objective Z1 *To protect, provide and improve residential amenities* in both the current Dublin City Development Plan 2016-2022 the Draft Plan for 2022-2028. Currently, there is controlled parking on either side of Dartmouth Road, with a total of c35 parking spaces. There are footpaths on either side of the carriageway and four mature street trees, two in each footpath on either side of the carriageway. All of these trees will be lost as a result of the development and no replacements are proposed.

3.2 Properties Subject of Submission

The figure below illustrates the properties affected. The table following categorises the properties in terms of land take and impact zone. Properties are either the subject of a substratum compulsory purchase, or fall within the 50m zoned, which qualifies them for TII's Property Owners Protection Scheme (POPS). All properties are significantly impacted by the proposed project, as detailed in sections 5 and 6 of this submission.

Figure 8: Book of Reference



The following table can be cross referenced with the map in the figure above.

Table 1: Properties the Subject of Submission

Number	Owner	Permanent Take	Temporary Take	Substratum Take	Properties Affected*
26	Caroline Regan & John Ryan	x	x	x	✓
27	Tom & Pauline Harrington	x	x	x	✓

Number	Owner	Permanent Take	Temporary Take	Substratum Take	Properties Affected*
28	Fiona Tonge, Kieron Tonge & Thomas Birks	x	x	x	✓
32	Suzi & Irene Taylor	x	x	✓ ML7O-U36	✓
33	Ciaran Black & Leon McCarthy	x	x	✓ ML7O-U30	✓
34	Michael & Carmel Doyle	x	x	✓ ML7O-U33	✓
35**	John Neary	x	x	✓ ML7O-U27	✓

* This includes those properties within 50m of the project and which fall within TII's Property Owners Protection Scheme (POPS)

** Rear of 10/11 Cambridge Terrace

3.3 Carrolls Building Planning History

3.3.1 (P.A Reg. Ref: 2373/17)

A planning application was submitted for an extension to the rear of the office building at Grand Parade in early 2017 under P.A Reg. Ref: 2373/17 (ABP PL29S.300873). The applicant was unaware of the tie in study, which had identified the site as appropriate location for a station. The planning authority requested further information on the 26th April 2017 in relation to a number of issues, including 2 (ii):

"Consider the points raised within the observation on the application by the NTA which relate to proposals for Metro South and provide response to the issues raised."

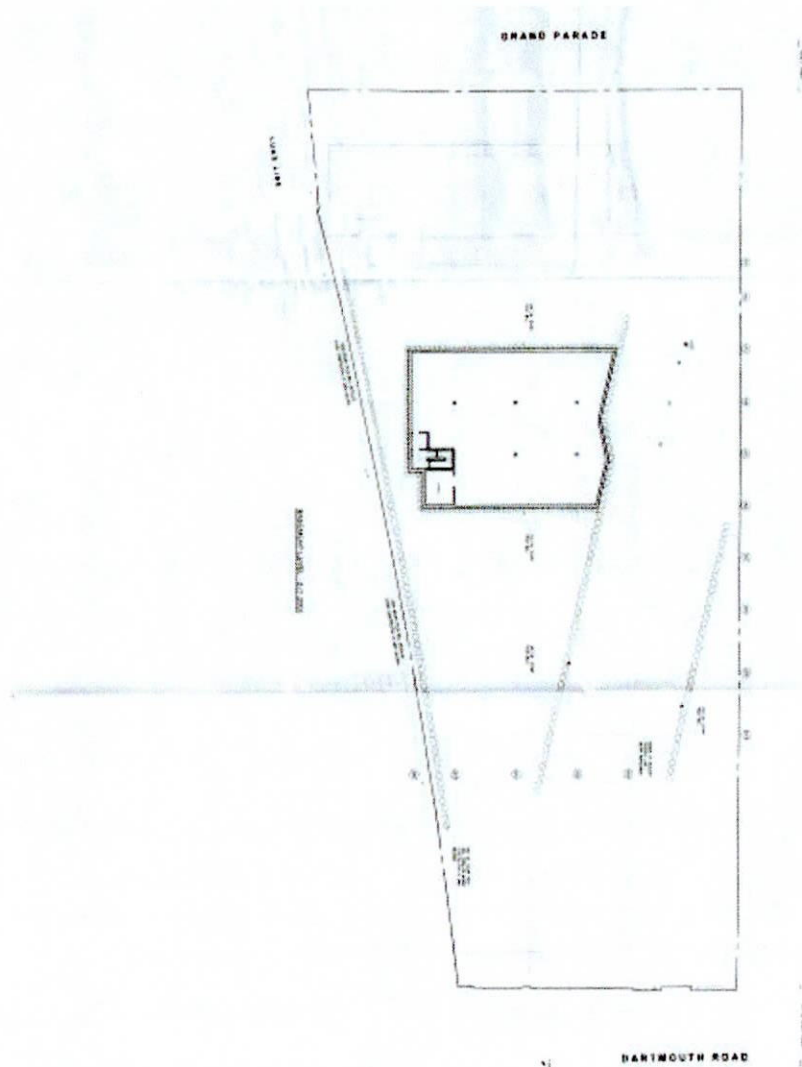
Further information was submitted in August 2017, but the above issue was not addressed to the satisfaction of TII as expressed in a submission on the application dated 1st September 2017. Clarification of further information was requested on the 13th September and which covered the following matter:

"1. The applicant in the response to Further Information received has indicated that agreement in principle has been reached with the NTA and TII regarding issues of concern raised with regard to the proposed development. However, in response to the Further Information submission both the NTA and TII have indicated in writing that while engagement has taken place, issues regarding construction in close proximity to the Luas line and facilitation of Metro South have not been satisfactorily resolved. The applicant is therefore required to clarify the extent of liaison undertaken with the NTA and TII to date and is requested to address outstanding issues raised in the NTA and TII submissions on the Further Information response."

The applicants and NTA/TII proceeded to engage in relation to the station box, which did not form part of the proposed office development. Detailed design was undertaken, and a design for the station box was devised. It also emerged during the course of considering the alignment and required depth of the track, that previous studies had failed to have due regard to the main east west sewer along the Grand Canal, which the top of the tunnel had to pass under.

In a letter to the planning authority dated 11th December 2017, TII confirmed that it was agreeable to the submission of the revised drawings. The resulting station box that was incorporated into the commercial development was also on a different alignment and angled relative to the existing Luas line, passing under houses on Dartmouth Square West. The alignment of the line also meant that any future tie-in with the Luas Green line to the south would have to pass through existing built areas, including a significant amount of demolition within the Ranelagh area (Mander's Terrace), before tying in and replacing the Luas Green line to the south. The revised station box in the planning application is detailed below.

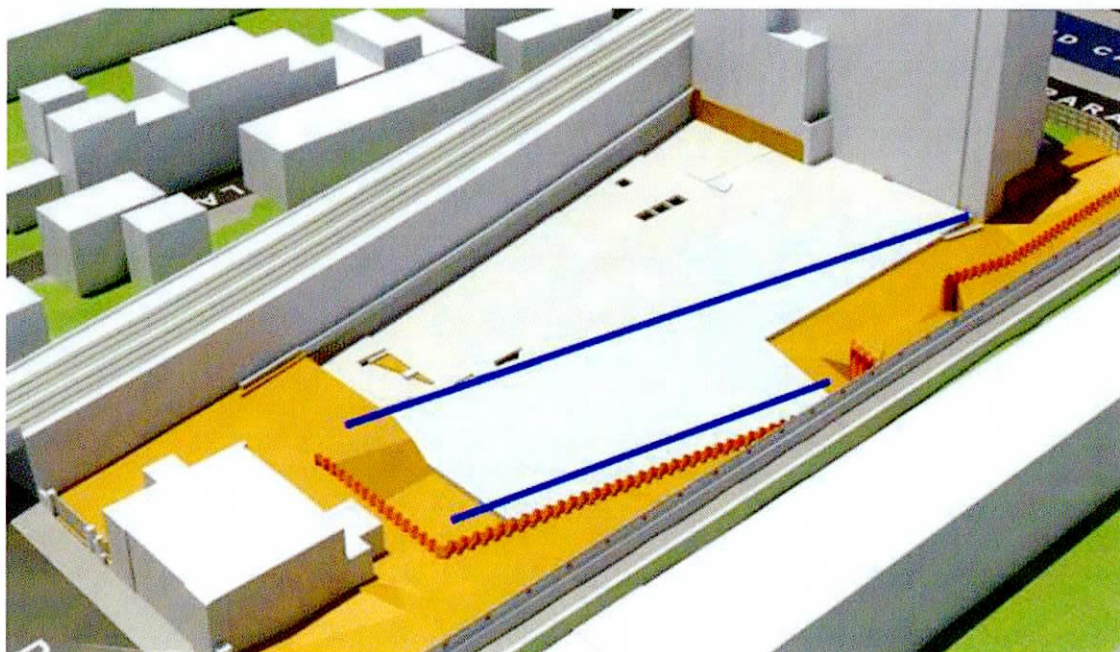
Figure 9: Proposed Station Box (Drawing No.162123-8104)



The revised station box was put at an angle.

The figure below is an "as built" depiction of the station box secant piled walls provided by SISK, the contractor who carried out the works. The contractor states that *"all of the piling is included within this phase of the works. I have marked roughly the line of the deeper piles in blue on the extract below. Other than what is shown in blue there are no further piles to be installed further west of the building line"*. Note that it would appear that line of the piled wall to the east is straight and differs significantly from the revised station box drawing that is contained in the planning application.

Figure 10: As Built Sketch



3.3.2 P.A Reg. Ref: 2380/17

An application for the construction of 4 no. 3 storey over basement, four bedroom houses and demolition of existing building on the site of 0.154 ha at No.19A, and 19-25 Dartmouth Road was made in 2017, but was subsequently withdrawn. This area now forms part of the station complex where it fronts onto Dartmouth Road. The applicant was the same as that for the commercial development at the Carroll's Building.

3.3.3 P.A Reg. Ref: 4755/19

Planning permission was sought and granted for revisions to the parent permission for the office extension at Grand Parade (P.A Reg.Ref:2373/17). It included for revisions to the basement, including omission of certain elements of the commercial development. No reference was made to the Metro enabling works and the construction of the station box in this application.

3.3.4 Judicial Review

Judicial Review proceedings were taken by residents of Dartmouth Square West against the decision of An Bord Pleanala to grant permission [*High Court Record Number 2019/345JR*]. In the planning appeal relating to P.A Reg. Ref: 2373/17. This was subsequently resolved out of court.

More detail on this matter is provided in the CDCG General Area Submission

4. CONSTRUCTION IMPACTS

4.1 Introduction

The construction impacts for the residents who are represented in this submission will be very severe. This will result from

- The extreme depth of the excavations in very close proximity to their houses
- The proximity of construction rigs and piling associated with the construction of the station box
- The proximity of tunnel with TBM passing under houses
- The design and provision of an intervention tunnel
- Restricted width of footpath in front of houses on Dartmouth Road
- Excessive height of the hoarding to a height of 6.5m for the construction period and the impact upon the amenities
- The size and scale of the Charlemont Station (according to the Independent Engineering Expert (RINA), it is the longest underground station box in the Metrolink project).

The issues noted below are not listed in an order of priority or importance, as they are all of comparable importance. While further mitigation is proposed, this is wholly without prejudice to our fundamental point that the Charlemont Station, tunnel for the turnback facility and the intervention tunnel should not form part of the Railway Order. The requested omission of the section of Metro from St. Stephens Green to Charlemont is to safeguard amenities, ensure an economically and cost effective scheme, and provide for the proper strategic planning of public transport, all of which is in the common good.

4.2 Noise and Vibration

4.2.1 Methodology

This issue is covered by Chapters 13 and 14 of the EIAR. Chapter 13 considers airborne noise and vibrations, and Chapter 14 considers ground borne noise and vibrations.

Noise from surface works required to construct Metrolink stations includes:

- Works associated with TBM portals;
- Overground sections of rail and trackwork; (not applicable to Charlemont)
- Utility works;
- Overground structures and buildings including depots;
- Road works; and
- Construction traffic.

In relation to noise impact resulting from the construction compounds, the EIAR states at 13.2.5.1.3:

*"It is important to note that calculation of specific construction noise levels during the Construction Phase is **limited to information available at EIAR stage**. Whilst the phasing of works, location of activities, plant items and work sites have been progressed to detailed stages as part of this EIAR, the **nature of the source is dynamic in nature and will vary over the course of the proposed Project at any one location***

subject to site conditions, work scheduling, contractor proposals and potential updated technology and methodologies.

Construction noise levels will fluctuate at any one location over the full duration of the proposed Project given the variations in the items above on a week to week or month to month basis. The approach undertaken therefore is to review the likely significant effects across the proposed Project based on the extent of information that is available.....It is important to note on the basis of the above, the construction noise calculations undertaken as part of the assessment are used to identify the **likely significant effects** and inform the requirement for noise mitigation and the approach for controlling and managing significant effects. Should the project be approved, prior to the commencement of any construction works, **a detailed noise assessment for each work site will be undertaken based on the most up to date information for each.**

We consider this to be a serious inadequacy in the methodology adopted for the purposes of the EIAR, particularly at the Charlemont construction compound, given its very close proximity to residential properties. It appears as though the EIA is being the subject of a further assessment, which the applicant is suggesting be undertaken post determination of the Railway Order application (i.e. get permission first and fill in the details later). We contend that this is inappropriate and that the EIAR does not properly assess the impacts of the development. There are numerous impacts which are not assessed as part of the application, and assessments are deferred until post decision and the pre-construction phase. Loose and often unimplementable mitigation measures are proposed. Third parties will not be party to any mitigation measures which are required under conditions attached to any railway order. These matters need to be determined at this stage.

Describing the significance of the effects within the EIA process is critical. The EIAR Guidelines (EPA 2022) defines the key effects that are of relevance to the subject assessment:

- **Moderate Effects** - An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
- **Significant Effects** - An effect which, by its character, magnitude, duration or intensity, alters a sensitive aspect of the environment.
- **Very Significant** - An effect which, by its character, magnitude, duration or intensity, significantly alters most of a sensitive aspect of the environment.
- **Profound Effects** - An effect which obliterates sensitive characteristics.

The assessment of the effects of upon residential amenities is different between the construction stage and the operational phase. In the construction stage, there is no assessment upon the **internal noise levels**. The construction noise thresholds (CNTs) have only been applied to the facades of buildings (section 13.2.6.1.3. of the EIAR)

The construction noise receivers are illustrated in the figure below.

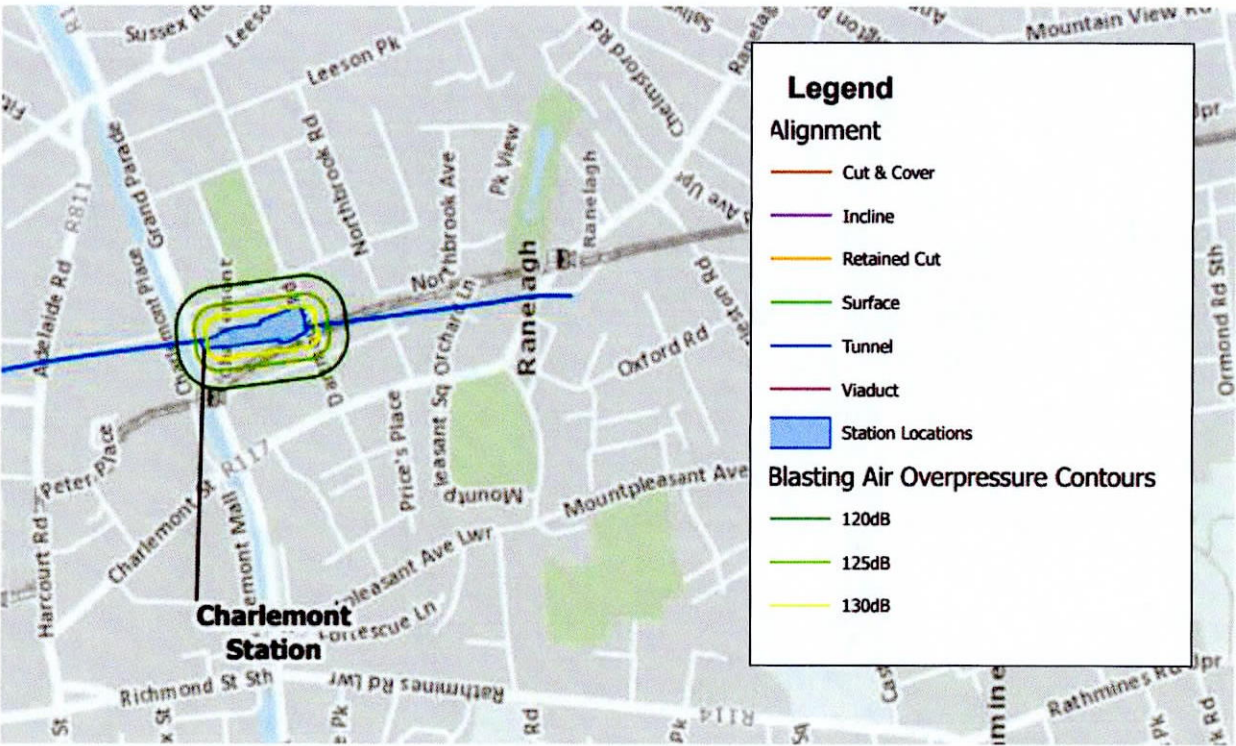
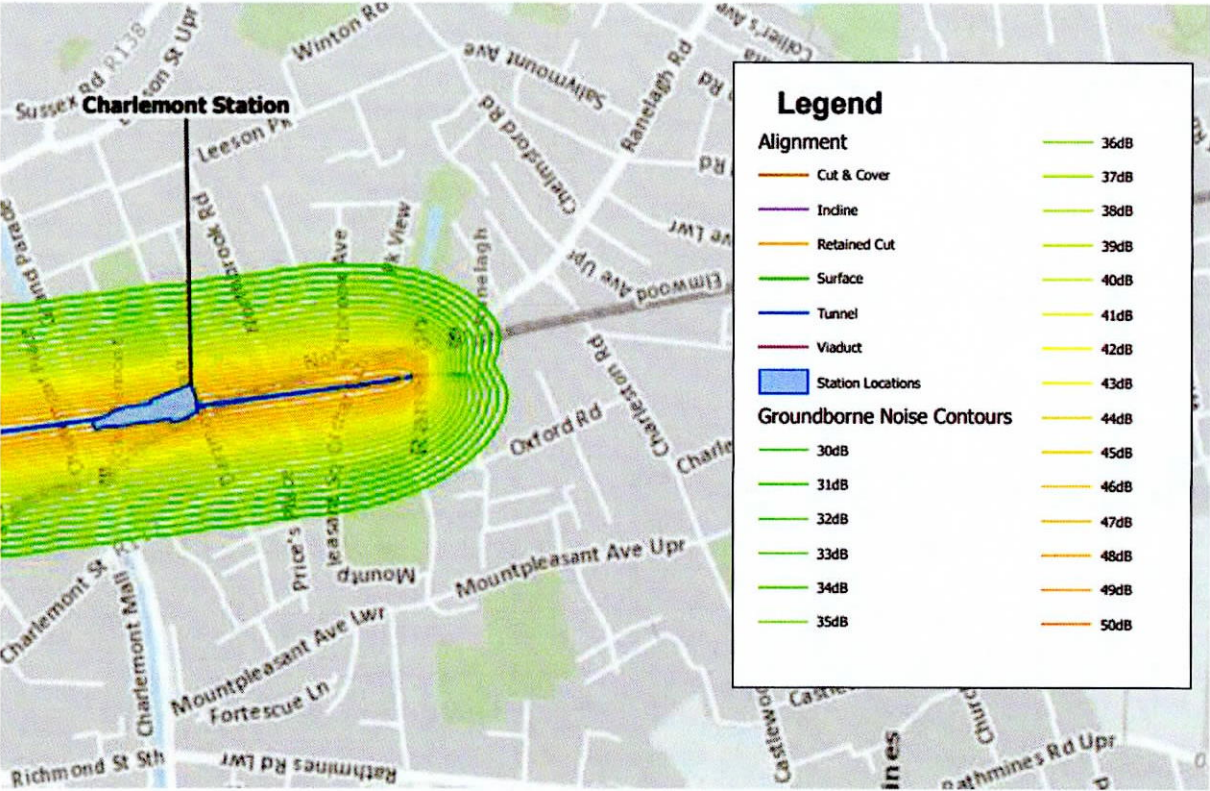


Figure 14: Boring Contours (Figure 14.2)



4.2.2 Airborne Noise and Vibrations

The airborne noise and vibrations is assessed in the EIAR and section 13.5.2.6. highlights that Charlemont Station is going to be major focus for construction, as it will be the location of a major surface construction compound catering for above and below ground works. It states:

*"Six scenarios have been modelled relating to works associated with constructing this mined station from advanced enabling, utility and site preparation works, piling & D-wall construction, excavation above and below the slab including blasting and finishing works. These works will be undertaken during daytime standard working hours. This compound will also be used as a compound for the intervention tunnel to be constructed between Charlemont Station, 320m southwards, and will connect to the end of the main City Tunnel. Whilst the works in the tunnel will be fully underground (assessed in Chapter 14), a support compound will be located within the Charlemont main site compound for concreting and materials handling. **This compound will be in operation on a 24/7 basis for the duration of this construction phase.** During the station fit out (MEP works) which will be undertaken on a 27/4 basis within the station. This will necessitate an element of surface activity to support these works at this location which will occur at night as discussed in Section 13.5.2.2."*

There are a number of sources of noise impacts, and these are considered in relation to the noise receptors identified in the EIAR. These are summarised in the table below.

Table 2: Charlemont Station – Potential Significant Construction Noise Impacts (Table 13.68 of EIAR)

Activity	Property	Construction Level (CNL)	Noise	Magnitude of Impact
Enabling Works	32-34 Dartmouth Rd	76-80	Significant	to Very Significant
	26-31 Dartmouth Rd	71-75		Moderate to Significant
Station Piling South	26-34 Dartmouth Rd	71-80 (Appendix A13.7 states 78-83)	Significant	to Very Significant
Station Works – Excavation and Batching Plant	26-34 Dartmouth Rd	76-85	Significant	to Very Significant
South Station Works below Slab	26-34 Dartmouth Rd	76-85	Significant	to Very Significant
Finishing & Fitout	26-34 Dartmouth Rd	71-75		Moderate to Significant

British Standard BS 5228 – 1: 2009+A1:2014 – sets out the ABC Method of classifying the noise thresholds. We would query the categorisation of these properties as falling within Category B, 70dB (LAeq,T). Furthermore, from the documentation, it is unclear as to where the monitoring was undertaken for Dartmouth Road in the baseline report. In the case of station piling, there is a significant discrepancy between Table 13.68 of the EIAR and Appendix 13.7. The former gives a predicted impact of 71-80 dB, while the actual appendix indicates significantly higher levels of between 78 and 83.

Notwithstanding the above issues raised in relation to the assessment, it is evident that the EIAR itself identifies very significant effects. BS 5228 indicates that for residential receptors: Upper noise limits for construction noise of 75dB (LAeq,12hr) during the day; 65dB (LAeq,4hr) during the evening; or 55dB (LAeq,8hr) during the night, or above the existing ambient if this is higher. We would contend that the impacts identified above on very sensitive residential receptors are **profound** and not merely **very significant**. We submit that, with reference to the EIAR Guidelines definitions, the noise effects would be profound as an effect which "...obliterates sensitive characteristics" (residential amenity), rather than merely a very significant which by "...its character, magnitude, duration or intensity, significantly alters most of a sensitive aspect of the environment."

Critically, the EIAR does not assess the night time impacts of the construction compound, notwithstanding the fact that the EIAR itself as highlighted above, indicates that it will be operating on a 24/7 basis. This in itself would trigger a profound impact which has not been assessed. **The EIAR is therefore fundamentally inadequate.**

Generic mitigating measures are proposed in section 13.6. These measures include:

- Contractors to control noise at source
- Selection of quiet plant
- Limiting construction hours (The mitigating measures are contradictory, as the EIAR also acknowledges that 24/7 working at site compounds will be required, yet at the same time it indicates construction hours will be limited)
- Acoustic screening (a 4m high acoustic screen is proposed at Dartmouth Road). The other impacts relating to visuals and daylight have not been assessed).
- Liaison with the public
- Monitoring during the construction phase and compliance with noise limits
- Noise insulation, temporary rehousing and temporary relocation (Appendix 14.6)
- Construction traffic

The mitigation measures were remodelled on the basis of localised screening as applied to surface level breakers and drills; and enclosures to compressors, generators, pumps, motors and ventilation fans. Table 13.90 of the EIAR refers to the impacts upon certain properties including ID 34-35 (10-11 Cambridge Square). This reference to this property is wholly misleading. This mews house at 35 Dartmouth Road was constructed in the rear garden of Nos.11 Cambridge **Terrace** (not Cambridge **Square**). The Eircode for 35 Dartmouth Square is D06 P6Y1. This property is not properly referenced in the EIAR. This has been very confusing and led to delays in interpreting the documentation.

In relation to the residual effects for this property, the EIAR states:

"Construction noise levels at No.s 10 to 11 Cambridge Square are calculated to exceed the NI trigger value for a number of phases associated with this construction compound and a very significant residual effect is determined without further mitigation intervention. In this instance, NI or temporary relocation is proposed in accordance with the TII Airborne and Groundborne Noise Mitigation Policy. The residual effects are determined to be negative, moderate and short-term."

The EIAR goes on to state: "At all other locations construction noise impacts are not significant to moderate to significant". No details of the outputs of this assessment are given in the main EIAR or the appendices. Just broad parameters are given and no details of the precise location of the hoardings, or details of the enclosures

are provided. This is a critical issue for our clients, given the potential impacts. The mitigating measures in the EIAR must be deemed inadequate in relation to the detail provided. It is inconceivable that the properties next door (i.e. nos. 32, 33 and 34 Dartmouth Road) would not experience the same or very similar residual impacts, given they have effectively the same relationship with the site compound and the station works as no.35 Dartmouth Road (specified as 10-11 Cambridge Square)

4.2.3 Ground-borne Noise and Vibration

Groundborne noise and vibration, which is dealt with in Chapter 14 of the EIAR, are essentially one physical phenomenon which has effects in two different ways. Blasting (air overpressure), boring, secant piling, D-wall, and excavation all contribute during the construction phase. Operational impacts are considered in section 5 below. The principal elements of the project that generate ground borne noise and vibration that are of relevance to Dartmouth Road relate to:

- Tunnel with a 8.5m inside diameter and constructed by a Tunnel Boring Machine (TBM)
- Charlemont Station Underground station
- Charlemont Intervention Tunnel: The City Tunnel will extend 360m south of Charlemont Station. A parallel evacuation and ventilation tunnel is required from the end of the City Tunnel back to Charlemont Station to support emergency evacuation of maintenance staff and ventilation for this section of tunnel.
- Construction compound

The EIAR takes Dartmouth Square West as the location for this element of the assessment. However, the tunnel and works associated with it, do not pass under the houses on Dartmouth Square West. The main tunnel and indeed the intervention tunnel do however, pass under directly 32 to 34 Dartmouth Road. **This is a significant inadequacy in this part of the EIAR.** Effectively, the EIAR fails to assess the very significant potential impacts upon our clients' properties, amenities and human health.

The impact of ground borne noise and vibration for each of the project elements listed above was assessed, but only in relation to Dartmouth Square West. The threshold and predicted levels are specified in relation to LAmax,s dB. The threshold levels of 40 and 45 were given for residential.

- TBM *noise* impacts (table 14.28) – Predicted level of 49. A significant impact with a high adverse magnitude. It is noted that where the tunnel passes under 20 Earlsfort Terrace the impact would be significant with a very high adverse magnitude. This is comparable to 32-35 Dartmouth Road.
- Mechanical *noise* excavation impacts (Table 14.30) – There was a predicted level of 38. A non-significant impact with a low magnitude. However, it is evident that the houses on Dartmouth Square are a distance from the main station box excavation in comparison to the properties on Dartmouth Road. The EIAR has not assessed these impacts.
- TBM *vibration* impacts (Table 14.32) – No significant impact identified. This maybe so, but the machine does not pass under the Dartmouth West properties concerned in the way that they do under the Dartmouth Road properties.
- Mechanical *vibration* excavation impacts (Table 14.33) – No significant impact identified for Dartmouth Square West. Dartmouth Road properties not assessed.
- Blasting vibration impacts (Table 14.34) - No significant impact identified for Dartmouth Square West. Dartmouth Road properties not assessed.

We consider **the assessment of the impacts of the intervention tunnel have not been undertaken**. Table 14.13 assumes that the construction methodology for the intervention tunnel will be "Drill-and-blast". The impacts associated with either blasting or drilling of this 360m tunnel, which passes under the properties at Dartmouth Road, have not been assessed. Table 14.11 of the EIAR indicates that the construction of the intervention tunnel is assessed under airborne impacts in Chapter 13, notwithstanding that the construction method would be blasting (i.e. Air overpressure). Both Figures 14.4 and 14.5 (extracts above) clearly do not assess the impacts of this intervention tunnel on any properties on Dartmouth Road or further south into Ranelagh.

4.2.4 Mitigation

Given the deficiencies in the EIAR, it is impossible to judge whether the mitigation measures are adequate. There is little that can be done in terms of mitigation to render the impacts non-significant, particularly where these have not even been identified in the first instance. The impacts upon human health is considered below. In addition, the interaction of noise effects will be significant. Only 6 locations have been identified for pre-construction surveys in relation to noise and vibration arising from project. While the Charlemont station new oversite development is identified, the properties on Dartmouth Road are not.

We have reviewed the conditions appended to schedule 14 of the original Metro North Railway Order. The Development Management Guidelines (DHLGH, 2009) indicate that planning conditions should be necessary; relevant to planning; relevant to the development to be permitted; enforceable; precise; reasonable. Condition 15 of the previous metro north railway order specified that the following airborne construction noise levels should be applied at the facade of any residence.

Table 3: Air borne noise condition limits (Condition 15 of Metro North Railway Order 2010)

Day	Period & Limit (dB)	Notes
Monday to Friday	75 LAeq 0700-1900 Hours 65 LAeq 1900-2200 Hours 45 LAeq 1Hr (2200-0700 Hours)*	*Non tonal, non impulsive
Saturdays	70 LAeq 0800-1630 Hours 55 LAeq 1630-2200 Hours 45 LAeq 1Hr (2200-0800 Hours)*	*Non tonal, non impulsive
Sundays, Bank and Public Holidays	60 LAeq 0800-1630 Hours 50 LAeq 1630-2200 Hours 45 LAeq 1Hr (2200-0800 Hours)*	*Non tonal, non impulsive

From the evidence submitted, it is apparent that it will not be possible to achieve these thresholds, particularly when the cumulative impacts of noise and vibration, both air borne and ground borne, are taken into account.

Condition 12 and 13 of the aforementioned Metro North relate to vibration impacts. They reference German Standard DIN 4150-3:2016 "Vibrations in buildings – Part 3: Effects on structures". The ability of the project to comply with any such standard needs to be fully explored by the Board and at any oral hearing held.

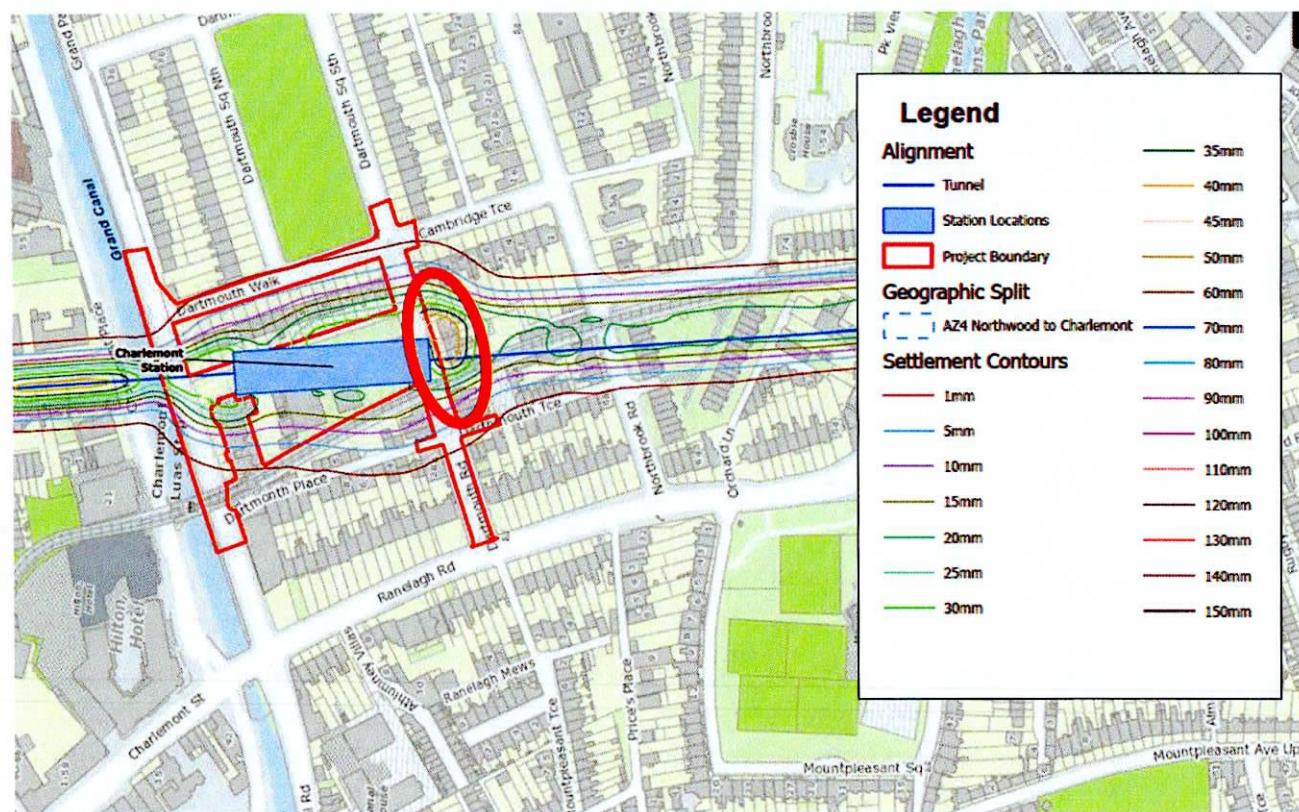
For this reason, we request that the Board appoints specialist noise and vibration consultancy advice in order to assist it in conducting this element of the assessment.

4.3 Settlement & Subsidence

4.3.1 Methodology

This matter is covered in Chapter 21 Soils and Geology and Appendix A5.17 (Building Damage Report).

Figure 15: Settlement Contours (Dartmouth Road highlighted with red oval)



From a review of the EIAR and associated appendices, it is evident that a very limited assessment of settlement and subsidence has been carried out. It can be seen from the above diagram that the houses directly over the tunnels on Dartmouth Road fall within the 35mm to 45mm settlement zone. This is defined as "slight" risk category. We would query this classification as "slight". However, given that all bar one of the buildings covered by this submission are protected structures, they should be classed as damage category risk 3 (moderate). A phased system of assessment is proposed

- Phase 1 – the assessment of the greenfield settlement contours using generic ground parameters and the identification of buildings that are
 - a) enclosed by the 10mm contour or with a ground settlement slope > 1:500 and
 - b) those buildings enclosed by the 1mm contour subject to 'special' considerations.
- Phase 2 – all the buildings identified in Phase 1 are assessed using the greenfield ground movement profile making credible foundation assumptions and are classified into Damage Categories 0 – 5; those buildings placed in Damage Category 3 or above, and those subject to 'special' considerations (see below) are carried through to Phase 3.
- Phase 3 – each identified building is considered individually to determine its behaviour using detailed information and assessment methods; this may include a refined ground model, detailed

structural surveys, refined construction methodology and use of sophisticated soil-structure interaction analysis such as finite element analysis.

Section 4.1 of Appendix A5.17 indicates "In the context of building damage assessment, 'special' considerations refer to buildings (hereafter referred as 'special' buildings) in proximity of the excavation, with deep basements, or those identified as designated Protected Structures...". However, the protected buildings on Dartmouth Square West and on Dartmouth Road are excluded.

Appendix A5.17 provides an assessment of 'representative' buildings. It is unclear why these buildings were selected. There is no map illustrating the location of reference numbers/properties. The presentation of the information is opaque and unclear and does not facilitate a full and proper examination of the true impacts upon the houses on Dartmouth Road. Again, this is a significant inadequacy in the EIAR.

The assessment effectively defers most of the assessment of subsidence and settlement to a further assessment. Such an assessment if undertaken after the railway order is issued, removes property owners' rights to review the actual impact of the development on their properties. This is wholly contrary to the principle of protecting third party rights.

4.3.2 Tunnel Driving and Secant Walls

An excavation of unprecedented size, for Victorian Dublin, is proposed in a very tightly restricted site. Stretching the whole length of the Charlemont site, the excavation will be up to 50m wide and approximately 30m deep. It is proposed to advance this excavation within a containing secant wall construction, following which will be constructed the station box for the proposed MetroLink Charlemont station.

The 30m deep piled wall has been already been constructed in the region of the north east corner on the site, continue along the line of the lane boundary wall directly to Dartmouth Road, continue across the road to the footpath at the new mews building behind No 11 Cambridge Terrace (No.35 Dartmouth Road), turning west along the edge of the footpath outside No 34, 33 and 32 Dartmouth Road, and turn north along the boundary formed by the Luas embankment.

The 30m deep excavation will be within the boundary thus described. This secant wall, and very deep excavation proposed, will be within 14m of the rear walls of three storey Victorian houses on Dartmouth Square West, and within 8m of the front elevations of Victorian two/three storey houses on Dartmouth Road. **It is a mere 2m from the front elevation of No.35 Dartmouth Road.**

Following the completion of the station box, it is proposed to drive a TBM through the north east end of the box, and, exiting through the south west corner, continue the tunnel boring activity for 350m further south, to behind Ranelagh Village.

Ground settlement following the construction of both secant walls and TBM tunnelling is inevitable. It is unavoidable, and it will occur. It will occur, to varying degrees, across a settlement zone around the excavation of the tunnel centre line, and behind all the secant walls.

Compounding the alarming settlement projections of between 35mm and 45mm caused by the deep secant wall, and subsequent excavations, wall deformations, and disturb the water table, the whole of the residential stock within the established slump zone will be subjected to further compounding settlement disruptions with the arrival, and departure, of the TBM tunnelling process, some two years later.

Engineering research experience has shown that projection of accurate expected settlement is usually unreliable, and results usually fall within certain ranges above or below the expected. This is an important point in the consideration of settlement impacts associated with the proposed development.

4.4 Hydrogeology

The impact upon hydrogeology can be significant and given the depth of the works and proximity to older buildings they are likely to be impacted. No detailed specific localised groundwater modelling has been undertaken as part of the EIAR. Water depth reading from boreholes some 550m from the proposed station are used in the broad assessment (Table 19.15). The data on which the assessment is undertaken does not relate to the site concerned. It is a requirement of the EIA process to provide relevant up-to-date and accurate information in relation to the impacts of any aspect of the development. As such, relying on bore hole data which is some considerable distance from the area of the works, has resulted in a wholly inadequate assessment. Hydrogeological information along the line of the underground elements should have been collected, particularly in an around a major intervention such as the Charlemont Station.

4.5 Construction of Intervention Tunnel

The Charlemont Evacuation and Ventilation Tunnel at the southern end of the City Tunnel, is a parallel evacuation and ventilation tunnel that extends for 360m from the end of the City Tunnel back to Charlemont Station. This parallel tunnel is incorporated to support emergency evacuation of maintenance staff and ventilation for the tunnel section south of Charlemont. The construction of this tunnel is by mechanical excavation and by blasting. As noted above the blasting impacts are not assessed. The use of hydraulic breakers will be required, although for limited periods of time. As the tunnel advances reinforced mesh in conjunction with sprayed concrete lining is required. Section 5.5.5.1.1 states:

"The intervention tunnel route will be subject to a settlement and vibration monitoring regime which will ensure that settlement is in line with predictions and, subsequently no damage will be incurred to sensitive receptors and third-party assets along the alignment."

Of particular concern for the residents in the area is the SCL nighttime support works (i.e. concrete mixing) will be required on the compound site at Charlemont. A steel clad building is required to provide for acoustic attenuation, but details of this building are not provided and no actual modelling or assessment is undertaken of this operation.

4.6 Phasing & Programme

The construction programme is set out in figure 5.4 of the EIAR. See figure below, which is an extract. It can be seen that the construction period for Charlemont Station is **102 months, or 8.5 years**.

Figure 16: Construction Programme (Figure 5.4 of EIAR)

Description	Estimated Construction Programme (Months)	Y1				Y2				Y3				Y4				Y5				Y6				Y7				Y8				Y9				Y10				
		Quarter				Quarter				Quarter				Quarter				Quarter				Quarter				Quarter				Quarter				Quarter				Quarter				
A24 Compounds / Logistics / Other Structures		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Northwood Portal	90																																									
Northwood Station Compound/Deep Station	84																																									
Ballymun Station Compound/Deep Station	99																																									
Collins Avenue Station Compound/Deep Station	99																																									
Albert College Park Shaft Compound/Deep Station	63																																									
Griffith Park Station Compound/Deep Station	105																																									
Glasnevin Station Compound/Deep Station	102																																									
Mater Station Compound/Deep Station	105																																									
O'Connell Street Station Compound/Deep Station	99																																									
Tara Station Compound/Deep Station	105																																									
St Stephens Green Station Compound/Deep Station	103																																									
Charlemont Station Compound/Deep Station	102																																									

Section 5.10.3 of the EIAR indicates that part of the commercial development at Two Grand Parade involves ".....constructing a structural deck founded on bored secant piles **which will form the central section of the Charlemont station box roof slab.**" It is quite clear that this station box, which has already been constructed

constitutes main works that forms part of the first stage of the MetroLink project. They do not relate to the commercial office development.

This section of the EIAR further states:

*"At this station location, the proposed construction works site and compound includes the full width of Dartmouth Road from the junction with Dartmouth Place to the junction with Cambridge Terrace, and existing parking bays will be suspended along this section. Initially, during utility diversions works, vehicle access to numbers 32 to 35 Dartmouth will be restricted, but during the full road closure for station construction, vehicle access will not be possible to these properties until the station and roof slab are constructed and the road is reinstated. The utility diversions work and subsequent station construction work in Dartmouth Road is anticipated to take up **to four years**. Number 35 Dartmouth Road and Number 11 Cambridge Terrace will have no driveway or garage access during this period. Pedestrian access will be maintained."*

Added to this will be the ongoing works after this four year period to support the construction of the main tunnel to the south and then the intervention/evacuation tunnel.

The length of time that the residents of Dartmouth Road have to endure is not temporary with reference to the EIAR Guidelines (EPA 2022). The EIA Directive requires a project to describe the likely significant effects, including the duration and frequency of effects. Table 3.4 of the EIAR Guidelines sets out definitions, which the introduction and project description suggests have been used. See table below.

It is clear that the duration of the impacts fall within a medium term effect as they last between seven to fifteen years. This is length of time is intolerable for any resident on Dartmouth Road.

We also contend that this is a significant inadequacy in the EIAR. The duration of the effects in accordance with the guidelines are not given in any of the relevant chapters in so far as they relate to Dartmouth Road.

Table 4: Duration of Effects as defined in the EIAR Guidelines (EPA 2022)

Describing the Duration and Frequency of Effects "Duration" is a concept that can have different meanings for different topics – in the absence of specific definitions for different topics the following definitions may be useful.	Momentary Effects Effects lasting from seconds to minutes.
	Brief Effects Effects lasting less than a day.
	Temporary Effects Effects lasting less than a year.
	Short-term Effects Effects lasting one to seven years.
	Medium-term Effects Effects lasting seven to fifteen years.
	Long-term Effects Effects lasting fifteen to sixty years.
	Permanent Effects Effects lasting over sixty years.
	Reversible Effects Effects that can be undone, for example through remediation or restoration.
	Frequency of Effects Describe how often the effect will occur (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually).

View of the Independent Engineering Expert (IEE) - RINA

Our clients have been in correspondence on this, and a number of other, matters with the IEE, appointed by TII, who are the international firm RINA. RINA's brief technical note in response is included in Appendix 2. The relevant response is extracted below:

"3. Length of Closure of Dartmouth Road

TII have indicated a likely length of closure of Dartmouth Road for between 2 and 5 years (3 and 4 years in EIAR Appendix A7.9 page 20 Section 5.1.5), with a hoarding line up to the far kerb of the road, extinguishing not only the use of the road as a traffic axis, but also residential parking and equally importantly any realistic prospect of providing reasonable removal or delivery access for the residents (although the section 5.1.5 says that Residential Access will be maintained it does not detail what kind of access) in that section of the road for possibly many years. Combined with the proximity of the heavy construction works the residents not unreasonably find this prospect extremely unpalatable and have no wish to relocate (at TII's considerable expense) for the duration of the works.

It is the view of the IEE, that even if it proves impossible or impracticable to move back the D-wall line from the far kerblines (see above) in any event there is no good engineering or planning reason to close Dartmouth Road for this extremely extended period. There are a number of alternative construction approaches, widely used, which would enable Dartmouth Road, which is quite narrow, to reopen after a matter of several weeks or a very few months two of which we outline below:

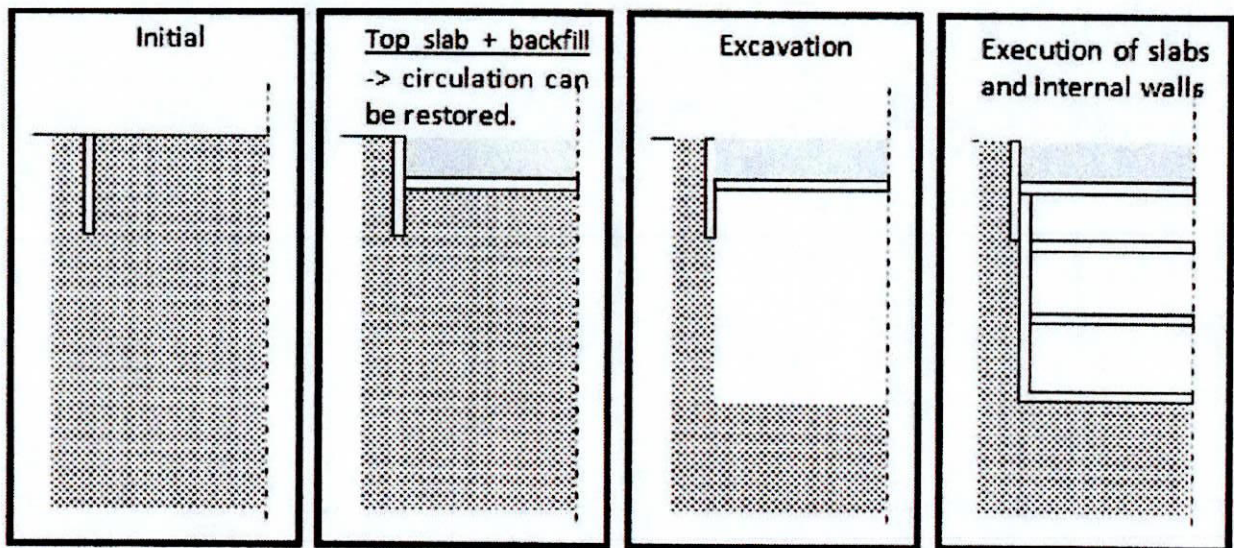
i) Top Down Construction

Likely to be used for the station construction in any event, the provision of the D-walling and top slab beneath Dartmouth Road would easily (and is commonly used for) allow the road surface to be re-instated. The actual length of this process will need to be discussed with the contractors but our proposal of several weeks to a very few months is very much possible, based on our international experience.

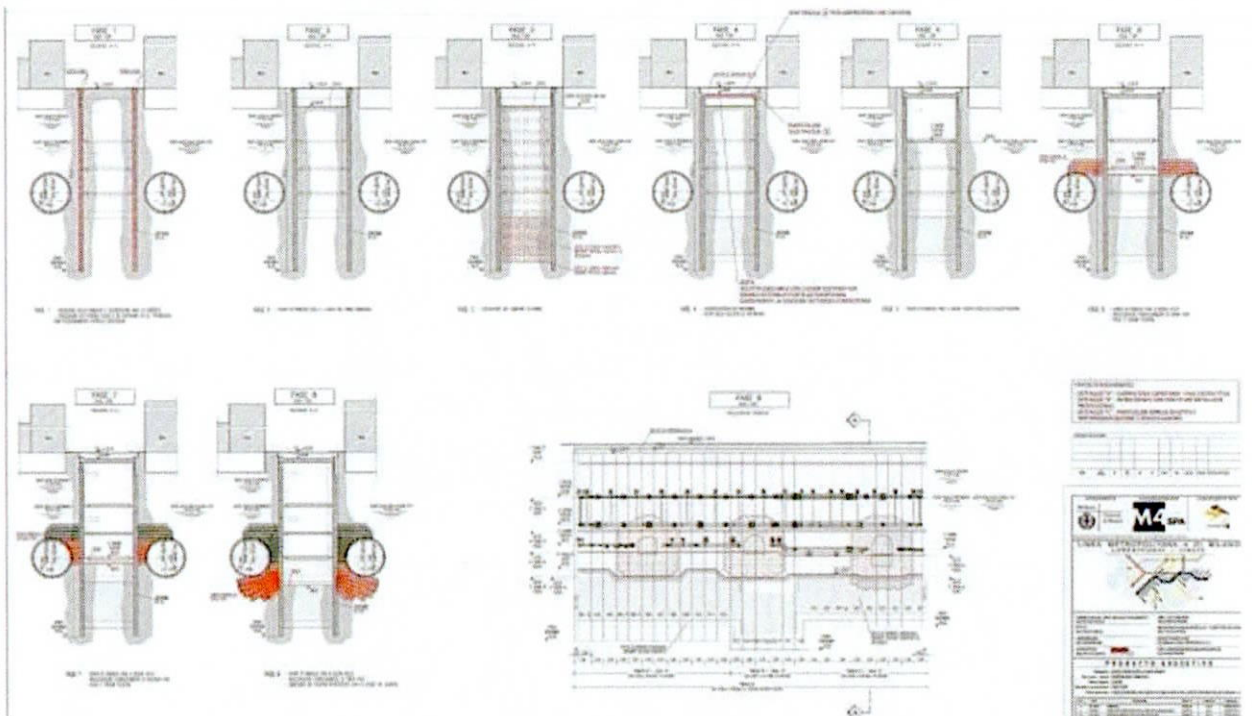
The main advantages of the top-down method are the following:

- Reduction of worksite space outside the station footprint;
- Limited traffic diversion during works;
- Reduced impact on neighbouring in term of noise during works since work are executed under the top slab;
- Reduced risk of instability of the retaining system since the stiffness guaranteed by horizontal slabs is higher than those of temporary propping system;

The methodology is shown schematically below:



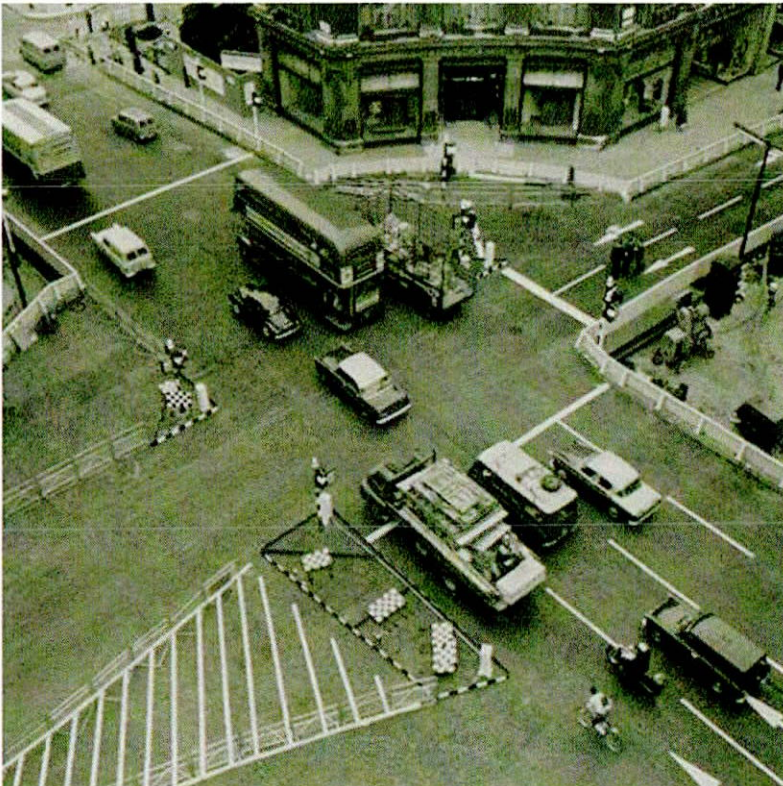
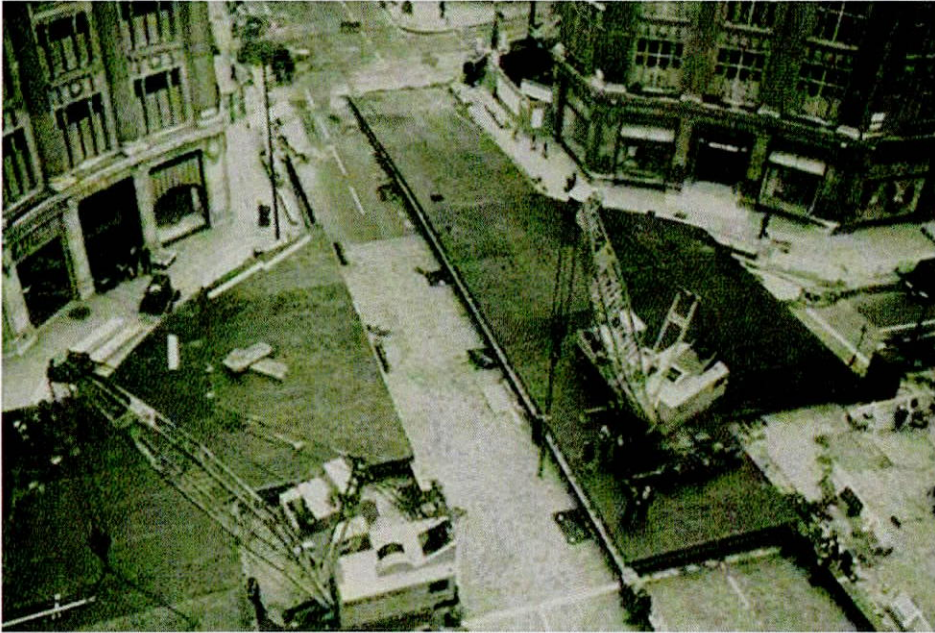
This method has been adopted for the Milan M4 Sant' Ambrogio Station in 2019 as from the picture and drawing with the phases of excavations below:



ii) Temporary overdecking with a steel 'umbrella' or bridge.

Also widely used and even more rapid re-instatement is simply to insert the D-walling and start the excavation for the top slab, but overdeck this with steel bridging elements for a short period, which then are

removed and the road surface restored. The technique is widely used and famously so in the case of the reconstruction and expansion of Oxford Circus Underground station in London in the mid-1960s;



We are aware that TII propose to use Dartmouth Road as the exit for construction trucks, but there is no reason to close the road for this purpose. In any event it is unreasonable to suggest such a long closure in our view, and unnecessary."

As confirmed by RINA analysis, there is no good engineering or planning reason to close Dartmouth Road for this extremely extended period. There are a number of alternative construction approaches possible that the Applicant has failed to present or consider in the EIAR. The Applicant also proposes to use Dartmouth Road as the exit for construction trucks, but, in the IEE's view, there is no reason to close the road for this purpose. Overall, we agree with the Independent Engineering Expert opinion that it is unreasonable for the Applicant to suggest such a long closure and that it is unnecessary. Again, the EIAR does not adequately consider alternatives and does not go far enough to minimise negative impacts on residents.

4.7 Hours of Operation

Charlemont is designated as a main construction compound. The hours of operation are summarised in Appendix 5.1 and illustrated in the figure below.

Construction Compound	Local Authority	Standard Working 5.5 days	7- days working (Dayshift only)	7- days working (24 hours)
Charlemont Station	Dublin City	√	<ul style="list-style-type: none"> • Station construction • Civils and architectural works • Clear site and reinstate 	<ul style="list-style-type: none"> • TBM traverse through station • SCL Evacuation & Ventilation Tunnels • MEP station works

It can be seen that there will be significant 24 hour working 7 days a week involving the TBM activities, construction of the evacuation tunnel and associated SCL lining and station works themselves. There will also be weekend working, which is all in addition to the standard 5.5 day working week. This standard working day is Monday to Friday 07:00 hrs to 19:00 hrs (12 hours) and on Saturdays 07:00 hrs to 13:00 hrs (6 hours). It is quite evident that the works undertaken outside of this standard work week is going to be extensive and ongoing given the extent of works required in relation to the station construction, site clearance, tunnel construction and MEP station works. This is effectively going to a 24/7 construction for a significant period of time over the 9 years of the project.

Given that the development is within a settled residential neighbourhood and very close to all the houses on Dartmouth Road, this will be an intolerable level of interference in amenities with a loss of sleep, general disturbance and psychological impacts resulting in a detriment to human health.

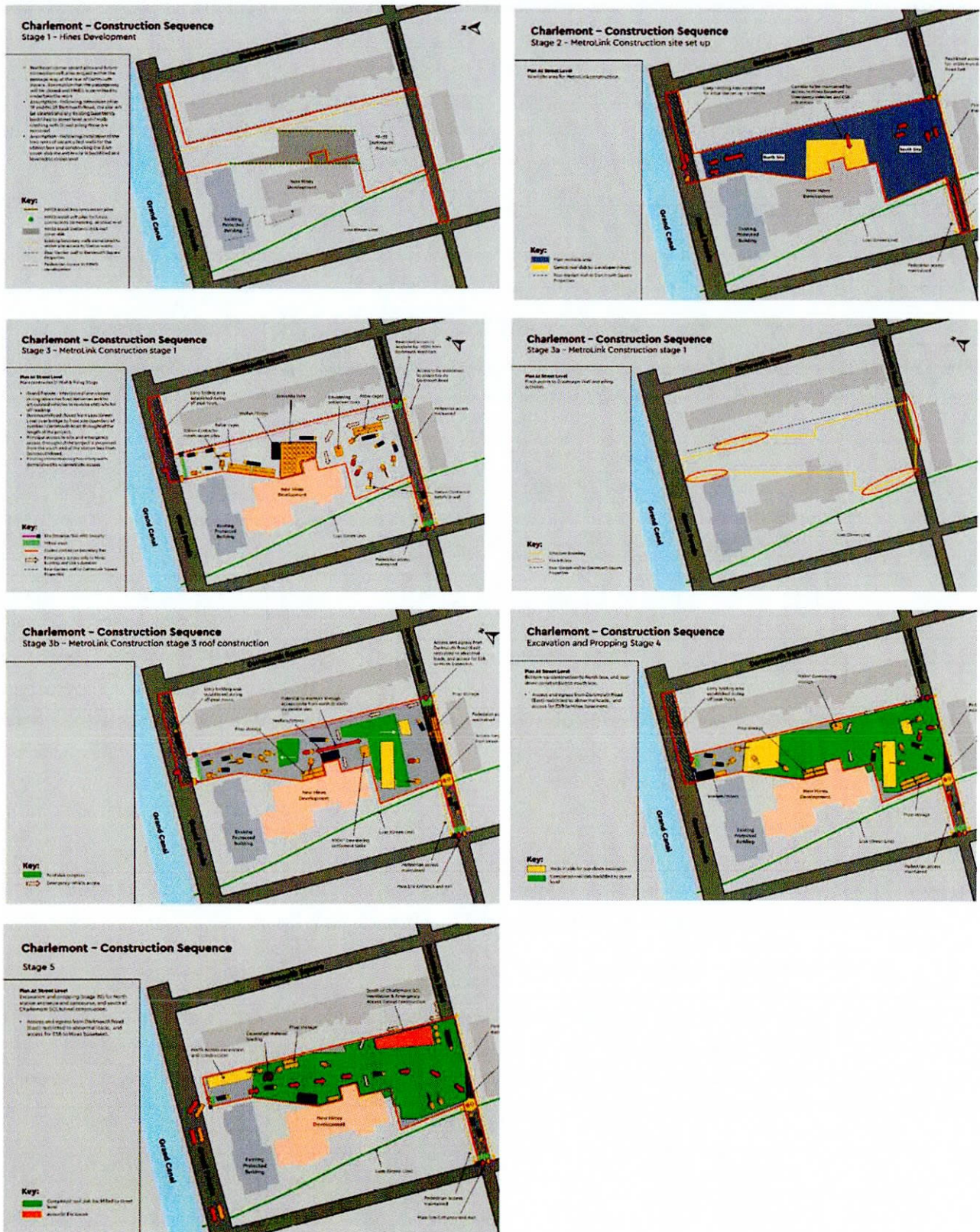
4.8 Construction Compounds

A significant construction compound in this residential area is proposed at Charlemont. It totals 4,200 sqm. It would perform the following key functions over the 102 month construction period and would act as a strategic hub for core project management activities (i.e. engineering, planning and construction delivery) and for office-based construction personnel. They will include:

- Offices and welfare facilities;
- Workshops and stores;
- Storage and laydown areas for materials and equipment (e.g. aggregates, structural steel, steel reinforcement); and
- Limited parking for construction vehicles.

The construction sequencing is provided in Appendix A5.3. It is summarised in the figures below.

Figure 17: EIAR Construction Sequence



There are a number of important points to highlight in relation to the proposed sequencing. The project accepts that the station box constructed as part of the Two Grand Parade development (Hines Stage 1) is an integral

and essential part of the project. Issues in relation to legality of this are considered in further detail in the General Submission prepared on behalf of Charlemont and Dartmouth Community Group.

Access to the houses on Dartmouth Road is going to be severely restricted for 9 years. All on-street parking is removed.

A "Developer Alternative" for the sequencing is outlined in Appendix A5.3. This is evidently much better than the main sequencing presented in the Appendix, as it allows for Dartmouth Road to be retained as a functioning road for a longer period of time and the construction compound is set back from the nos.32-35. However, it is unclear what the status of this alternative is. It is not referred to in Chapter 7 relating to Alternatives. The only reference to alternative assessment of compounds is in Table 7-19 where it indicates that no alternatives were considered as the compound had to centre on the station box. Indeed, this is a further demonstration of how the commercial development at Two Grand Parade has prejudiced the entire EIA process, as it has not been possible to properly consider alternative construction compounds and station locations as this was previously determined by TII in advance of any rail order application.

4.9 Traffic and Transport

4.9.1 Modelling and Assumptions

Section 9.4.4.3 outlines the methodology in relation to impact assessment for the construction phase. It indicates that a strategic modelling exercise was undertaken using the NTA's Eastern Regional Model (ERM). It further indicates that local modelling of specific junctions was undertaken using LinSig and Junction 9. Appendix A9.5 sets out the construction period

- Overall construction – 102 months
- Access – 1 month
- Enabling Works – 13 months
- Civils – 71 months
- Fitout – 9 months

The figure below illustrates the traffic management arrangements around the site.

Figure 18: Charlemont Traffic Management (Figure 7-58 of Appendix A9.5)

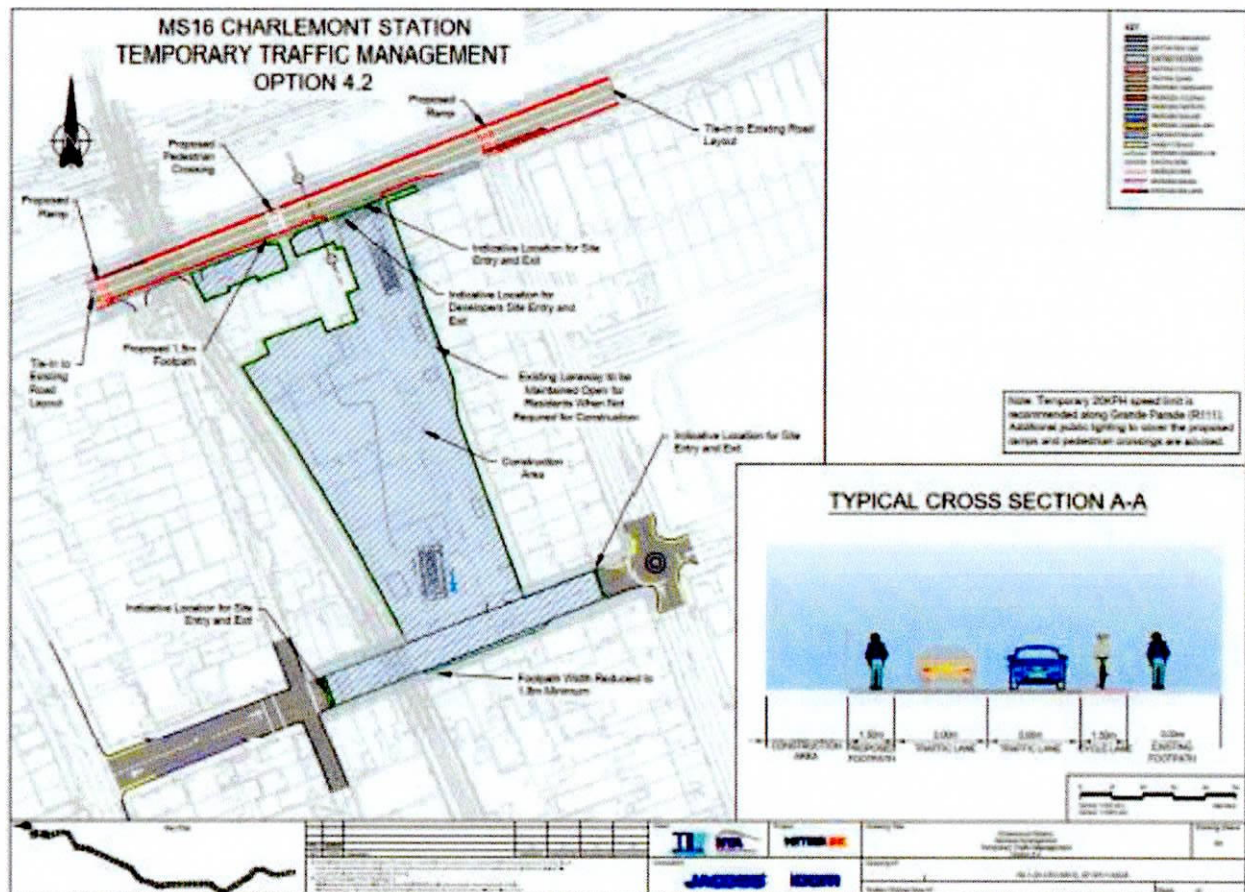


Figure 7-58: Proposed Traffic Management

It is stated that the site boundary for the main works will remain the same throughout all sub-phases. The main haulage route is via the South Circular and along the Grand Canal from the M50. HGV movement will be 20 to 50 per day, with a maximum of 210 per day. Dartmouth Road would be closed to through traffic and traffic would be routed via Northbrook Road and Ranelagh Road.

From a review of Appendix D of Appendix A9.5 local impact assessments of junctions around the stations using LinSing modelling was undertaken **with the exception of Charlemont Station**. Effectively, it appears as though the entire assessment was reliant on the strategic modelling exercise at this location. Notwithstanding this significant deficiency, certain conclusions can be drawn from the limited assessment which was undertaken.

4.9.2 HGV and General Traffic

The assessment indicates increased traffic on Grand Parade and Northbrook Road. On Grand Parade there is an 8% increase in traffic on the eastbound lane in the AM peak and 11% during the PM peak in the westbound lane. This is deemed severe in Table 7-129 of Appendix A9.5.

4.9.3 Access, Loading and Parking

Appendix A9.5 suggests that the impact upon loading, parking and access is either slight or moderate. This in our opinion under-estimates the impact upon the residents of the properties listed in this submission. There will be a very severe impact upon access to their properties which is reflected in the loss of parking, no access for deliveries or bin collection. **Critically, no assessment has been undertaken in relation to fire, ambulance**

and other emergency access. The entire stretch of Dartmouth Road will be closed off to traffic, with a hoarding positioned to the back edge of the pavement preventing access in the case of emergency.

4.9.4 Pedestrian Movement

Pedestrian movement in and around the construction compound will be severely constrained. A narrow footpath will be retained in front of the houses on Dartmouth Road. Pedestrian and HGV conflicts will be inevitable, particularly at the entrance and exit to the compound, which is immediately in front of the houses.

4.9.5 Summary of Assessment

The assessment provided in Appendix A9.5 in section 7.11.7.2 highlights that in relation to the main works the impacts are as follows:

- Severe impact upon traffic volume redistribution
- Moderate impact from HGV volume increase
- Moderate impact upon cyclists caused by diversions.

This does not accurately consider the impact as detailed above in relation to access, loading and parking.

View of the Independent Engineering Expert (IEE) - RINA

Our clients have been in correspondence on this, and a number of other, matters with the IEE, appointed by TII, who are the international firm RINA. RINA's brief technical note in response is included in Appendix 2. The relevant response is extracted below:

"Use of Dartmouth Road by Heavy Construction Trucks

One of the proposals of TII appears to be possibly proposing to use a 'drive through' approach to construction traffic into the site at Charlemont. That is to say that heavy construction trucks will enter the site from Grand Parade and exit via Dartmouth Road. This is shown in both the Construction Sequencing report (Appendix 5.3 pp 158) and the Traffic Management Plan (Appendix 9.5 from pages 457 and 509)

Our view is that while this would no doubt be convenient from a construction perspective, the reality is that the impact on the residents of the entire length of narrow Dartmouth Road will be very considerably negative, for a period of some years. The safety of this arrangement on all locals but particularly the elderly and young children and other vulnerable persons should be very closely examined.

Given that 'through flow' construction sites are by no means the norm (most major construction sites will demonstrate the use of the single entrance and exit format), we suggest that TII reconsider this and accommodate both entry to and exit from the site on Grand Parade, which is wider and actually entirely open on one side (facing the canal) with buildings on the other side a considerable distance away."

As confirmed by RINA analysis, the proposal of a HGV "drive through" is done for the convenience of the developer and not to reduce the impact on residents. We agree with the opinion of the IEE suggests that the Applicant should accommodate both entry to and exit of HGVs from the site on Grand Parade.

4.10 Impact on Utilities

It is evident that the diversion of utilities on Dartmouth Road and Dartmouth Square West will have a significant impact upon local access, including pedestrian, cycle and vehicular.

4.11 Human Health

Chapter 10 of the EIAR relates to the impacts upon human health. These arise from noise and vibration during the construction phase principally. It has an impact upon human psychology and human conditions relating to lack of sleep. Section 10.5.1.2 states in relation to Charlemont:

"There are a number of residences which are predicted to have significant adverse effects from construction noise during the day as outlined in Chapter 13 (Airborne Noise & Vibration), particularly in relation to the upper floors. Significant mitigation including 4m high hoarding is proposed. While residual effects are possible, these would be during the day and will not apply to night-time and therefore will not affect the potential for sleep. Consequently no human adverse effects are expected and although limited noise impacts are predicted near this receptor no significant adverse effects to human health are predicted".

This is the only assessment of the impact upon human health. House nos. 32 to 35 Dartmouth Road are not even identified as very highly sensitive receptors. It appears as though this section to the EIAR has not fully reviewed or had regard to the construction phasing with night-time working, ground borne noise and vibrations and other matters raised above. This is considered to be a wholly inadequate assessment of the impact upon human health in so far as it relates to the properties on Dartmouth Road.

4.12 Interactions of Effects

Chapter 29 of the EIAR considers the interaction of effects. Again, we consider it to be wholly inadequate as it fails to adequately address the interactions between air borne noise and vibrations, ground borne noise and vibrations, traffic impacts, visual impacts (e.g. of the hoardings) and human health. All of these effects come together in an interaction which significantly impacts upon the amenities of the residents listed as part to this submission. Moreover, the inadequacies of the assessments of individual effects, as highlighted above, are compounded when considering the interaction of these effects.

5. OPERATIONAL IMPACTS

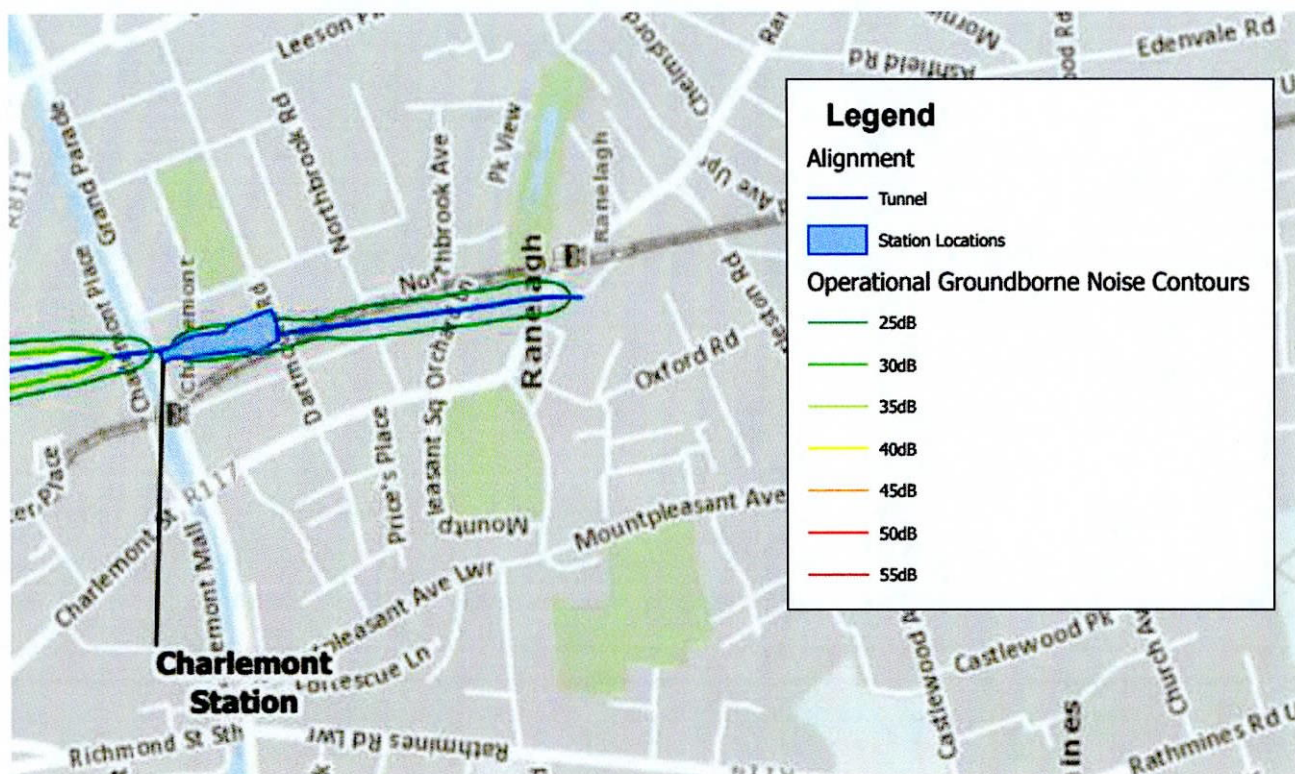
5.1 Introduction

This section considers the operation impact and effects upon the residents of Dartmouth Road. This is some considerable time away, as the operation is not due to commence until after year 10.

5.2 Noise and Vibration

This section reviews noise and vibration impacts at operational stage. Chapter 14 of the EIAR deals with Groundborne Noise and Vibration. In Chapter 13, Table 13.4 identified potential sources of noise for the AZ4 sections. Ventilation systems serving underground station and intervention shaft are noted as the principal noise source for noise in Chapter 13. Table 14.11 addresses potential sources of groundborne noise. The only potential source of noise is indicated as being train operation groundborne noise. However, there are other potential noise sources, including ventilation and PA equipment.

Figure 19: Ground Borne Noise during Operational Phase



5.2.1 Ventilation - Description

Chapter 4 of the EIAR described the proposed development and its various ventilation components. Section 4.12.7 specifically looks at heating, ventilation and air conditioning. Tunnel ventilation has been designed 'to operate during normal conditions and in the event of a fire'. It comprises of ventilation shafts, over-track exhaust systems and tunnel jet fans. The shafts will be placed at each end of all underground stations. Each shaft includes three reversible axial fans, one of them on stand-by and that inject air or extract air out of the tunnel. The fans are fitted with silencers to attenuate operational noise.

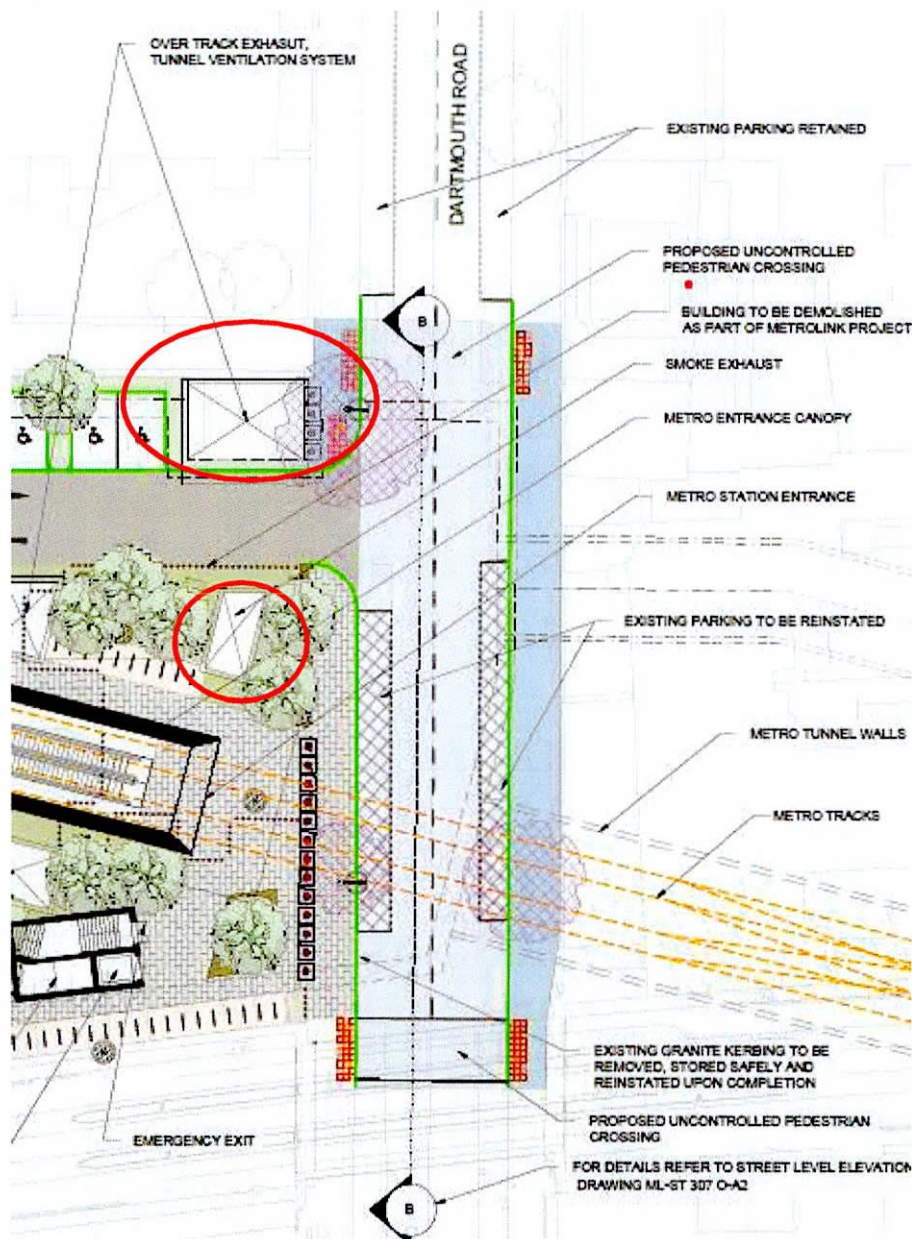
In relation to ventilation systems, section 13.5.3.2.3 – Ventilation Systems, the EIAR states:

'Tunnel ventilation shafts are located at both ends of each underground station: AZ2: Dublin Airport and AZ4: Northwood, Ballymun, Collins Avenue, Griffith Park, Glasnevin, Mater, O'Connell Street, Tara, St Stephens Green and Charlemont.'

It is understood that air will circulate between the tunnel and the shaft using jet fans which are located inside the tunnels. These fans drive the air horizontally toward the shaft before it exits vertically toward surface level.

The proposed overtrack ventilation system and smoke exhaust gives rise to impacts that have not been properly assessed in terms of noise and air emissions. These systems are directly opposite nos. 34 and 35 Dartmouth Road and are highlighted in the extract from drawing no. ML1-JAI-SRD-ROUT_XX-DR-Z-02090.

Figure 20: Ventilation and Exhaust System (outline in red)



5.2.2 Ventilation - Assessment

Ventilation is an important element of the design and workings of the tunnel, for instance in relation to maintaining adequate levels of moisture in the air and to air quality. Yet it does not appear that it was subject of a full assessment. In fact, it will be subject to 'further design development'. Section 13.5.3.2.3 of the EIAR indicates that an acoustic study was undertaken to assess the proposed ventilation strategy. This important referenced study is not included as an appendix to the EIAR. It further states:

'This indicates at 10m from the external grille noise levels are below 55dB LAeq with this source in operation in combination with other ventilation sources. For emergency use, this value is acceptable. During day-to-day operations in the absence of the emergency fans this level would pose potential significant noise impacts particularly during night-time periods without specific attenuation.'

It then states:

*'The **specific noise level from ventilation systems will be calculated as part of the further design development**. Specifically, the operational noise level from each shaft and surface grill will be calculated to the nearest sensitive areas and specific attenuation designed for each system to not exceed the relevant design criteria for each location.'* (bold our emphasis)

The same statement is repeated in Section 13.5.3.7. It states:

'Once operational, the Metrolink will be in tunnel within this section of the proposed Project. The primary operational noise sources in this section relate to station and ventilation tunnel systems.

*The **specific noise level from ventilation systems will be calculated as part of the further design development**. Specifically, the operational noise level from each shaft and surface grill will be calculated to the nearest sensitive areas to each and specific attenuation designed for each system to not exceed the relevant design criteria for each location.*

As part of the design development of the station plant and ventilation systems, the background noise level at the nearest and most exposed NSLs to each fixed item of plant will be determined for day and night-time periods. This data will be used to establish the magnitude above which the operational plants items operate above in accordance with the methodology described in 13.2.5.2.4. All baseline noise values will be confirmed prior to the selection and design of the operational plant items through updated baseline noise surveys.'

We would emphasise here that specific noise levels from ventilation systems have not been assessed as part of this EIAR but rather would 'be calculated as part of the further design development.' **Effectively the impacts upon nos. 32 to 35 Dartmouth Road of the ventilation systems illustrated on the figure above have not been assessed.**

5.2.3 Ventilation - Observation

Annex IV of the EIA Directive is very clear in relation to the information to be included in the EIAR. Under the description of the project, it requires:

*'b) a description of the physical characteristics of the **whole project**, including, where relevant, requisite demolition works, and the land-use requirements during the construction and **operational phases**;*

...

*d) an estimate, by type and quantity, of **expected residues and emissions** (such as water, air, soil and subsoil pollution, **noise**, vibration, light, heat, radiation) and quantities and types of waste produced during the construction and operation phases.'*

It Annex IV requires a description of the reasonable alternatives which may include '*project **design, technology, location**, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.*'

It should be noted that ventilation is also not an element considered under the alternatives chapter. There are different technologies that could be used for ventilation, the location of fans and vents could be different, yet no alternative was considered.

It is queried why noise that is continuous is not assessed as part of this EIAR and may be assessed as part of future iteration. There is no indication that this would be subject of a consultation with potentially affected parties unless this is clearly specified in a condition of a potential grant of the railway order.

5.2.4 Train Operations - Description

Under section 6.4.3 Service Pattern, two patterns are considered, these are:

- the Long Loop, which includes all stations from Estuary to Charlemont; and
- the Short Loop, which includes all stations from Dublin Airport to Charlemont.

The EIAR sets out there may be a single loop and a double loop, which is dependent on peak hours. In all variants considered, the Charlemont station is included. Frequency would vary. It notes

"in the case of the double loop, the stations between Dublin Airport Station and Charlemont Station will have twice the frequency as those between Estuary Station and Dublin Airport Station."

The frequency of train under the different patterns is detailed in tables 6.2, 6.3 and 6.4. These are shown below.

Table 5: Service Operational Headway to Meet Demand – Monday to Friday

Timetable	Single Loop Strategy	Double Loop Strategy	
	Operational Headway (seconds)	Operational Headway Dublin Airport – Charlemont (seconds)	Operational Headway Estuary – Dublin Airport (seconds)
05:30 - 07:00 (Opening)	-	200	400
07:00 - 10:00 (AM)	100	-	-
10:00 - 16:00 (Lunchtime and School Run)	-	130	260
16:00 - 20:00 (PM)	120	-	-
20:00 - 22:00 (PM)	-	225	450
22:00 - 00:30 (Closing)	-	300	600

Table 6: Service Operation Headway to Meet Demand – Saturday

Times of the Day	Operational Headway (minutes, seconds) Dublin Airport – Charlemont	Operational Headway (minutes) Estuary – Dublin Airport
05:30-09:30	7 mins 30 sec	15 mins
09:30-23:00	4 mins 30 sec	9 mins

Table 7: Service Operational Headway to Meet Demand – Sunday and Public Holidays

Times of the Day	Operational Headway (minutes, seconds) Dublin Airport – Charlemont	Operational Headway (minutes) Estuary – Dublin Airport
05:30-10:00	7 mins 30 sec	15 mins
10:00-22:00	5 mins	10 mins
22:00-00:30	7 mins 30 sec	15 mins

Section 6.6.3 of the EIAR discusses communication systems, particularly communications with passengers. PAVA is discussed as facilitating “...broadcast of operational, security or emergency messages to passengers at stations, staff in the depot, and people on board the trains. Under normal operating conditions, the pre-recorded messages are announced automatically. When required, messages can be made by an operator at the OCC, at the station incident room, or on a train by a member of staff. The PAVA system is interfaced with the Data Communication Network System and the Central Clock System.” These systems are an integral part of the operation of the train service, yet are not adequately addressed.

5.2.5 Train Operations – Assessment

The EIAR states in section 14.4.2 that potential impacts during the operation phase could arise from rolling stock. It sets the threshold groundborne noise at 40 dB L_{Amax,s} at an approximate distance of 16m from the track centre and at 35dB L_{Amax,s} occurring at approximately 27m from the centre of the track. Table 14.43 sets out the predicted levels as shown below.

Table 8: Groundborne Noise Impacts

Receptor	Groundborne Noise $L_{Amax,1}$ dB		Magnitude	Impact	Description of Potential Impact
	Threshold Level	Predicted Level			
Albert College Court	40	29	Low	Not significant	No significant Impact
Dalcasian Downs	40	31	Low	Not significant	No significant Impact
Cross Gun Quay Apartments	40	33	Low	Not significant	No significant Impact
Berkeley Road	40	33	Low	Not significant	No significant Impact
12/13 O'Connell Street	40	36	Low	Not significant	No significant Impact
35 Pearse Street	40	35	Low	Not significant	No significant Impact
Trinity, Dixon Hall	40	35	Low	Not significant	No significant Impact
Dartmouth Square West	40	21	Low	Not significant	No significant Impact

It comments that there are no occurrences of exceedance in the AZ4 section. While Dartmouth Square West is assessed, it is highlighted that Dartmouth Road is not assessed, notwithstanding that it is opposite the southern station entrance.

5.2.6 Train Operations – Observation

It is queried why only train rolling have been accounted for in the assessment of groundborne noise at operational stage. As demonstrated in the preceding section, there are other elements that should have been assessed, specifically ventilation. Ventilation, train rolling and the use of the PAVA system should be cumulatively assessed in accordance with the requirements of the EIA directive to provide a more accurate picture of operational noise levels.

By way of comparison, we refer to the noise impact assessment¹ prepared as part of the Crossrail Project in London which is now operating under the name of the Elizabeth Line opened in 2022. We note the following project elements were considered as part of the assessment of noise levels arising of the operational phase:

'Section 5.4 Potential Impacts during operation may arise from:

- *noise and vibration from new or altered sections of line (initial, additional or altered works) including power supply facilities;*
- *increases in noise and vibration levels along existing rail corridors where rail services have increased (intensification) or the mix of services has changed;*
- *noise from plant in ventilation shafts;*
- *noise from Public Address (PA) systems in stations and depots;*
- *noise from maintenance depots;*

¹ Crossrail Technical Report – Assessment of Noise and Vibration Impacts – Volume 1 of 8.

<https://www.crossrail.co.uk/about-us/crossrail-bill-supporting-documents/specialist-technical-reports/noise-vibration?folder=/10/365#1>

- *groundborne noise and vibration from trains running in new tunnelled sections of line;*
- *noise from underground train passbys emitted to surface through vent shafts; and*
- *noise from changes in road traffic.'*

We note that in this instance some elements are excluded from the Crossrail assessment because Crossrail forms part of an existing network of underground public transport, which is not the case with MetroLink. We also refer to previous assessments undertaken by TII. For instance, when reviewing the application documentation for the Luas Line A1², we note that cumulative assessment was undertaken to include traffic and tramway.

The inclusion of traffic noise was also undertaken as part of the EIAR for some sections of the new automatic metro network in Paris, which is known as 'Grand Paris Express'³, currently under construction. This assessment is similar to the Crossrail assessment and considered a number of elements which are not assessed by MetroLink, specifically: public announcements, plant and machinery in stations, increased pedestrian activity and increased vehicle traffic.

In summary, there is a variety of potential sources of noise which could arise from the operational phase. Either these were overlooked by the applicants or scoped out. If the latter applies, an explanation should be provided. If the omission is due to lack of information, the EIAR should set out the difficulties encountered in accordance with section 3.7.2 of the Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA, 2022) which states:

"The assessment of effects needs to leave a clear documentary trail of the analysis used to arrive at conclusions. Such documentation would include a description of data and methods used, the reasons for their selection from a range of reasonable alternative means of assessment, together with descriptions of the reliability and certainty of the results as well as the limitations and difficulties encountered."

At a minimum, noise arising from ventilation and traffic should have been considered as these are measurable. Given that underground metro systems are common in Europe, where the EIA Directive also applies, it is hard to comprehend why the operational noise assessment is so scant and includes so little information.

The drawings indicate drop-off points at the metro station and it is evident from drawing no. ML1-JAI-SRD-ROUT-XX-DR-Z-02090 – Proposed Street Level Design that cars dropping off users at the Dartmouth Road entrance of the station will be using the new through route as a means to return to Grand Parade or other drivers as a rat-run to avoid the Ranelagh Road / Grand Parade junction. It is queried why no traffic noise assessment was undertaken and was not considered in cumulation with other operational noise.

We query why the assessment of predicted noise levels at operational stage has been narrowed to include sole consideration for train rolling but no other sources of noise. The results presented by TII are not realistic and do not comply with the requirements of the EIA Directive which require that impacts be assessed cumulatively. We also contend that by excluding much of the potential sources of noise, the results presented are misleading and inaccurate.

5.2.7 Public Address (PA) Systems

Section 13.5.3.2.4 of the EIAR relates to PA systems. The majority of station structures for the proposed Project will be fully underground. Any breakout of noise from the station areas is likely to be via the access stairwells

² Luas Line A1 – Noise & Vibration <https://www.tii.ie/tii-library/railway-orders/luas-line-a1/environmental-impact-statement-eis/LUAS%20LINE%20A1%20EIS%20CHPT%2011%20NOISEandVIBRATION.pdf>

³³ Dossier d'Enquête Préalable à la Déclaration d'Utilité Publique – Grand Paris Express, Ligne 16, Ligne 17, Ligne 14 : http://www.enquetepublique.lignes14-16-17.fr/dossier-enquete-publique/Document_G-2/

and escalators to ground surface. This is a significant concern for the residents of Dartmouth Road as they reside directly opposite the station entrance where PA announcements for 19 hours a day can have the potential to significantly impact their amenities. This is not assessed in the EIAR.

View of the Independent Engineering Expert (IEE) - RINA

Our clients have been in correspondence on this, and a number of other, matters with the IEE, appointed by TII, who are the international firm RINA. RINA's brief technical note in response is included in Appendix 2. The relevant response is extracted below (with some editing for clarity – the full text is in the Appendix):

"Requirement for Second [Dartmouth Road] Entrance [in respect of Extra Noise and Light Pollution]

The EIAR explains the reasoning for the second entrance for Charlemont Station at Appendix A7.9 "Terminus Station at Charlemont compared to St. Stephens Green", Section 5.1.2 on page 18:

The additional southern entrance has been incorporated in the design to:

- *improve station accessibility from the south of the station where modelling indicates strong demand from the Ranelagh area;*
- *avoid overcrowding on the Grand Parade footpath, which is used for the interchange with Luas;*
- *facilitate station access for cyclists and from vehicle drop off; and to,*
- *provide additional resilience to passenger evacuation and emergency access in the event of an incident at the station.*

although the likely expected patronage for the second entrance is not provided in the document.

However residents are concerned that placing a second MetroLink entrance directly on their road will have ... potentially very disruptive side effects [in relation to]:

- Placing the entrance directly on the road will cause considerable extra noise and light pollution to the houses directly facing the entrance for very extended periods every day...

...It is the view of the IEE that the EIAR documentation clearly does not provide assessments that cover the noise that would arise from passenger surface movements, or from the noise of escalators or lifts, PA announcements, local traffic and car parking and not just rail noise or ventilation and this is a serious omission that should be rectified (actually at all of the underground stations, not just Charlemont).

It is not clear if any assessment has been made of the light pollution that might arise from the station entrance itself onto the street, and although EIAR Volume 2 – Book 1: Introduction and Project Description Chapter 6: MetroLink Operations & Maintenance, page 33 says

All lights proposed for the proposed Project utilize LED (light emitting diode) light sources and will have dimmable drivers as future proofing. The lighting design minimises light spill beyond the roads and pedestrian areas wherever possible and uses luminaires with zero upward light in compliance with the Guidance Note 01/21 'The Reduction of obtrusive light' (Institute of Lighting Professionals, 2021) which can be downloaded free of charge from the internet. This is particularly key with the lighting near Dublin Airport due to the requirements to ensure street and amenity lighting does not obscure or get confused with airfield guidance lighting.

It is not clear to us how this might apply to the Station entrance onto Dartmouth Road.

As confirmed by RINA analysis, EIAR documentation clearly does not provide assessments that cover noise and light pollution generated from a wide range of sources. We agree that these are "serious" omissions and must be rectified by the applicant. This fact renders the EIAR Inadequate and incomplete.

5.3 Hours of Operation

MetroLink is planned to operate 19 hours per day, 365 days a year. It is planned that there would 20 trains per hour at a frequency of three minutes between trains. Stations would be opened from 5.30 am to 00.30 every day of the year.

Further to comments on passing traffic, the operating hours mean that effectively, the new metro street running parallel to the station will become some form of thoroughfare at least 19 hours per day. Open access and anti-social behaviour are likely to arise from this arrangement.

The drawing no. ML1-JAI-SRD-ROUT-XX-DR-Z-02090 – illustrates the proposed street level design. It is also not clear how the station concourse and area will be physically closed to the public outside of operating hours. Metallic rolling shutters are noisy. Both of these could affect the residential amenities of nearby neighbours.

We would also note that the Luas Green Line with which the Charlemont station interfaces closes at 11 pm on Sunday. Yet, it is proposed that Metro Link will operate until 00.30. There is no justification to operate the interchange for an extra hour when there is no Luas to interchange to. The inevitable result is that cars will pick up passengers between 23.00 and 00.30 on Sundays. This increase in traffic is not assessed.

5.4 Traffic and Transport

5.4.1 Modelling and Assessment

No local area modelling in undertaken of the impact upon the road network around the Charlemont Station. The assessment done as part of the EIAR (Appendix A9.2-B Traffic and Transport Assessment- Charlemont Station) fails to have regard to the most up-to-date bus connects plans. As with the construction phase, the assessment relies on a strategic assessment that does not take into account the local impacts. Figure 21 below illustrates the road layout upon completion. The development creates a significant new link in the road network through the site linking Grand Parade with Dartmouth Road and Ranelagh Road. This creates a rat-run which will effectively bypass the Ranelagh Road/Grand Parade signalised traffic junction. This traffic movement has not been assessed. Indeed, the aforementioned appendix states at 4.1 that

"There will be no vehicular access to the Charlemont Station during the Operational Phase, with the access road to the east of the station facilitating access to the office development parking areas. Charlemont Station proposal will not provide car parking facilities within the development area."

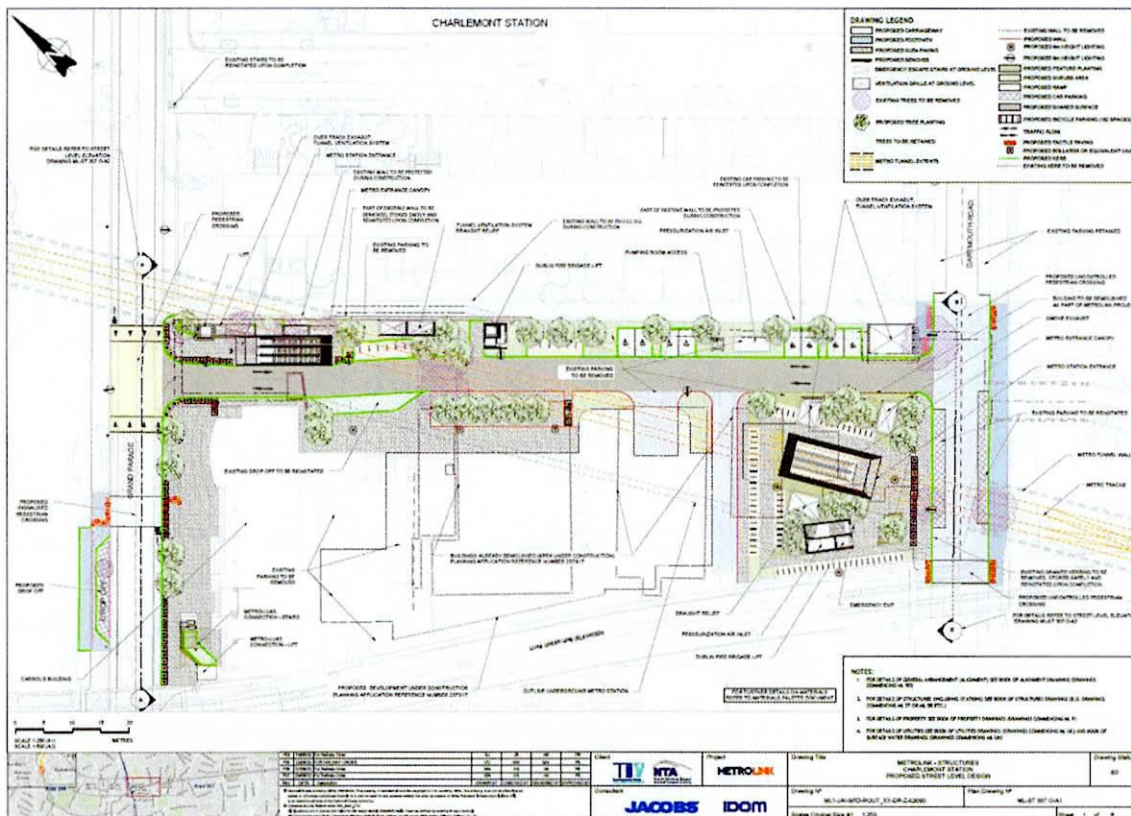
This is not however borne out by an examination of the submitted drawing no. ML1-JAI-SRD-ROUT_XX-DR-Z-02090.

5.4.2 Drop-Off and Pick Up

Figure 21 below illustrates the operational road and street layout around the station. General drop-off and pick up this major interchange has been further considered in the associated general submission. The focus of this submission relates to Dartmouth Road. There is a major station entrance onto Dartmouth Road. It has no drop-off or pick facility and inevitably there will be a loss of parking for residents along this section of Dartmouth Road as the requirement for a drop-off and pick-up facility becomes evident. Given the very low level of integration with bus services in this suburban location, there will be a significant demand for such a drop-off

facility. No assessment has been undertaken of the demands, requirements and impacts of such a significant interchange element. This will result in a significant loss of amenity for local residents.

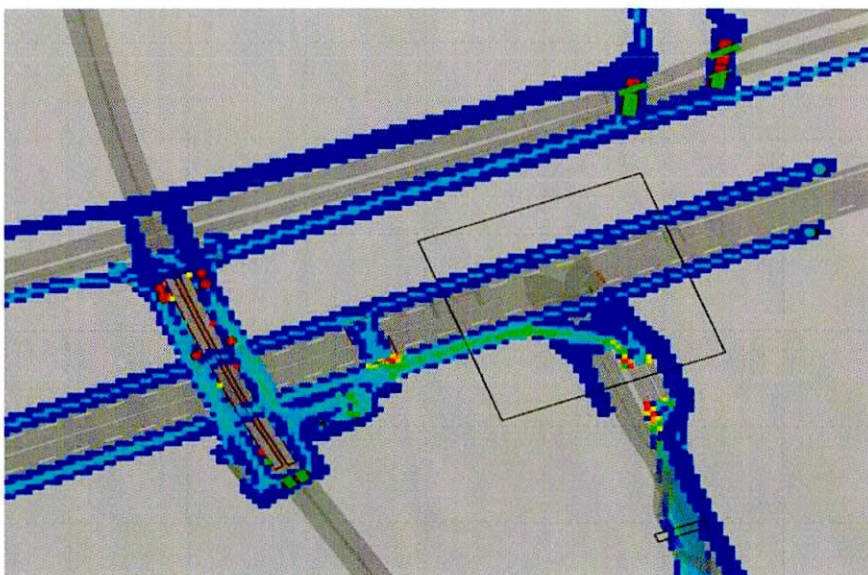
Figure 21: Surface and Traffic Layout



5.4.3 Pedestrian Movements on Dartmouth Road

Given that a major station entrance is proposed on Dartmouth Road, a significant volume of pedestrian movements is likely to be generated. However, there is a complete failure to assess this in the application and Appendix A9.2-B only assesses the northern entrance to the station. It does not illustrate the station entrance on Dartmouth Road. See figure below.

Figure 22: Pedestrian Heat Map from Traffic and Transport Assessment



View of the Independent Engineering Expert (IEE) - RINA

Our clients have been in correspondence on this, and a number of other, matters with the IEE, appointed by TII, who are the international firm RINA. RINA's brief technical note in response is included in Appendix 2. The relevant response is extracted below (with some editing for clarity – the full text is in the Appendix):

"5 Requirement for Second Entrance

The EIAR explains the reasoning for the second entrance for Charlemont Station.....although the likely expected patronage for the second entrance is not provided in the document.

However residents are concerned that placing a second MetroLink entrance directly on their road will have 2 potentially very disruptive side effects [in relation to]:

- a) Placing the entrance directly on the road will cause considerable extra noise and light pollution to the houses directly facing the entrance for very extended periods every day*
- b) It will give rise to the likelihood of travellers from a wide area of south Dublin to use the entrance as a drop off and pick up point for their journeys to the Airport, there not being viable alternatives from South Dublin for so doing.*

.....We have examined the EIAR Traffic Analysis and we cannot find any evidence of this issue having been explicitly considered, although we note from the EIAR that one of the main objectives of the Metrolink Project is improve the connectivity for national and international visitors using Dublin Airport (Appendix A9.2 Overall Project Traffic & Transportation Assessment, page 8).

Appendix A9.3 Transport Modelling Plan, page 12, states:

The ERM (Eastern Regional Model, developed by NTA) includes 3 special zones, one of these is Dublin Airport.

In addition to the forecast growth associated with the typical land use patterns, Dublin Airport is a key growth driver in the corridor and has a different growth associated with flight travel demand. Within the ERM, growth in landside demand is determined for passengers, staff and freight, applied to the Dublin Airport Special Zone. Freight and staff numbers are forecasted on a scaling factor, which will be aligned with passenger growth forecasts. The Department of Transport, Tourism and Sport (DTTAS) report "Review of Capacity Needs at Ireland's State Airports - August 2018" outlines forecast passenger growth to 2050 for Low, Central and High growth scenarios. There is a working group with NTA, TII, FCC and DAA where use of this aspect of the model is to be discussed to ensure consistent application of this tool. It will be assumed that the growth rate from 2050 will continue until the 2065 forecast year.

The NTA will provide trip end forecasts for Dublin Airport and all other special zones. These will be used within the model.

Consequently while it may be the case that the passengers to/from the airport have been thoroughly evaluated and considered at a strategic level in the overall modelling and high level design of the metro system, this particular issue of quite important detail may well not have been expressly addressed, and it is our view that the concern of the residents in these respects is quite reasonable and at the very least should have been explicitly assessed as part of the EIAR."

As confirmed by RINA analysis, EIAR documentation does not include a local model of the extra vehicular and pedestrian traffic generated from the use of the Dartmouth Road entrance as the drop off and pick up point for

passenger journeys to the Airport. This is major omission in the EIAR. We agree with the Independent Engineering Expert's view that the concern of the residents in these respects is quite reasonable and at the very least should have been explicitly assessed as part of the EIAR.

5.5 Anti-Social Behaviours

The residents have significant concerns that this major interchange station will attract anti-social behaviour for up to 19 hours a day during its operational times, and also when the station is closed. This is common with many European capital interchanges. This currently is a relatively quiet residential area that benefits from amenities, but the potential for late night arrivals, taxi pick-ups, drop-offs and anti-social behaviour would disturb these amenities and alter the nature of the area.

5.6 General Impacts

The overall impact of the both the construction and operational phases of the project, in terms of noise, vibration, visual impacts, traffic, HGV movement, construction activity, operational emissions, light pollution, anti-social behaviour and general activity around the station will be such as to severely and permanently ***adversely affect the residential amenities of the residents listed in this submission.*** The impacts will be so severe as to evidently be in material contravention of the Dublin City Development Plan zoning objective for the area, which is Z2: *"to protect and/or improve the amenities of residential conservation areas."*

6. PROPERTY ISSUES

6.1 Introduction

This section considers issues in relation to land take and property.

6.2 Compulsory Purchase Order

The subject railway order will give TII the right to initiate the compulsory purchase order (CPO) procedure. The parties to this submission who have been identified in the Book of Reference are detailed in Table 1 above. The current railway order is therefore part of the CPO process. In relation to substratum acquisition, Rule 17 applies

"The value of any land lying 10 metres or more below the surface of that land shall be taken to be nil, unless it is shown to be of a greater value by the claimant."

The assessment of compensation will generally fall under a number of headings of claim which can include the following:

- Value of land acquired
- Diminution in value of retained lands,
if any
- Costs resulting from acquisition
- Disturbance
- Loss of profits or goodwill
- Loss or depreciation of stock in trade
- Professional fees necessary for acquisition

The amount of the claim will follow the notice to treat. We accept that submissions in relation to compensation will not be considered by the Board as part of the RO application. We would point out that this submission highlights that there will be a significant loss of amenity of the properties which are the subject of the CPO and hence there will be a diminution in the value of retained land.

6.3 Properties

This submission has highlighted that No.35 Dartmouth Road has not been identified in the Book of Reference. It appears to be referred to as 11 Cambridge Terrace. The owners of no.35 Dartmouth Road did not receive relevant papers from the Applicant and this is, therefore, an error in the Rail Order.

6.4 Devaluation of Properties

During the construction stage, there will be a severe impact upon property values. Section 21.3.5.1 of the EIAR states:

"The value of the properties may be impacted upon by various existing external forces which contribute to the degradation of that property. These can include high levels of noise, vibration, traffic or air pollution."

There is no assessment of the impact upon value of properties. Section 10.13.4 of the Non-Technical Summary merely states:

"Existing and planned future properties will benefit from being located in close proximity to a new permanent public transport system. Experience of the effects of the Luas Red and Green Lines on property prices along these lines would indicate that generally residential property values and land values in the study area will increase."

However, there is no evidence in the documentation to support this and we strongly reject the general conclusion that property values will increase. This is due to all of the reasons outlined in this submission. The Planning and Development Act specifically links the loss of amenity and the devaluation of property as a reason for refusal. It is only properties that are purchased as a result of the CPO associated with the Rail Order that can benefit from compensation. The State is not in a position to grant permission for development which will devalue property, as there is no mechanism for compensation in these circumstances. To grant permission where there is a loss of amenity, and an associated devaluation of property, would be impinge upon individual property rights which are protected under the Constitution.

6.5 Temporary Relocation

Effectively some, or all of the residents listed in this submission may have to be temporarily relocated at TII's expense. Indeed, given the 9 year duration of the construction programme, this would effectively be a permanent relocation.

6.6 Costs

Representation and the costs of this submission by a land-owner affected by a CPO will be a legitimate cost incurred.

7. CONCLUSIONS

This submission supports the request made in the general area submission to omit from the Railway Order the section from Tara Street Station to Charlemont Station and associated onward tunnel extension and intervention tunnel. In addition to the strategic planning reasons for the omission of this section of MetroLink, this submission clearly highlights that the EIAR fails to adequately assess impact of the development upon the houses on Dartmouth Road. The project would seriously affect the residential and other amenities of the residents of Dartmouth Road both during the construction and operational phases.

Appendix 1-List of Residents

Dartmouth Road (luas side)	Caroline Regan & John Ryan	26 Dartmouth Road
	Tom & Pauline Harrington	27 Dartmouth Road
	Fiona Tonge, Kieron Tonge & Thomas Birks	28 Dartmouth Road
	Suzi & Irene Taylor	32 Dartmouth Road
	Ciaran Black & Leon McCarthy	33 Dartmouth Road
	Michael & Carmel Doyle	34 Dartmouth Road
	John Neary	35 Dartmouth Road

Appendix 2- Technical Note from Independent Engineering Expert (IEE) – RINA

IEE Notes on Charlemont Station Construction and Design Issues – Dartmouth Road

January 2023

Rev 2

1. Overview

Residents particularly in the Dartmouth Road area have expressed several areas of great concern to the IEE in relation to the proposed design and construction of Charlemont Station. These issues include:

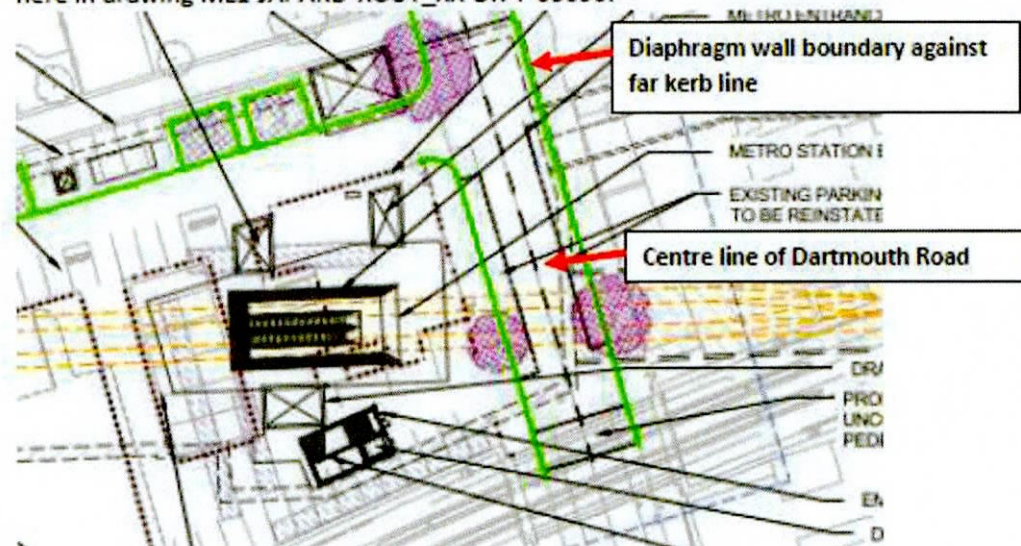
- a. The overall size of the station box footprint, and its incursion into Dartmouth Road
- b. The potential length of closure proposed for Dartmouth Road during construction, which TII have stated will likely be between 2 and 5 years.
- c. The use of Dartmouth Road for Heavy Construction Trucks
- d. The need for and positioning of the Charlemont second entrance on Dartmouth Road and its environmental impact on the area
- e. The potential traffic impact of travellers from the South of Dublin using the Dartmouth Road entrance as a 'drop off' (or informal 'kiss and ride') or pickup from taking Metro to the Airport or similar destinations

This brief technical note addresses these issues for the residents.

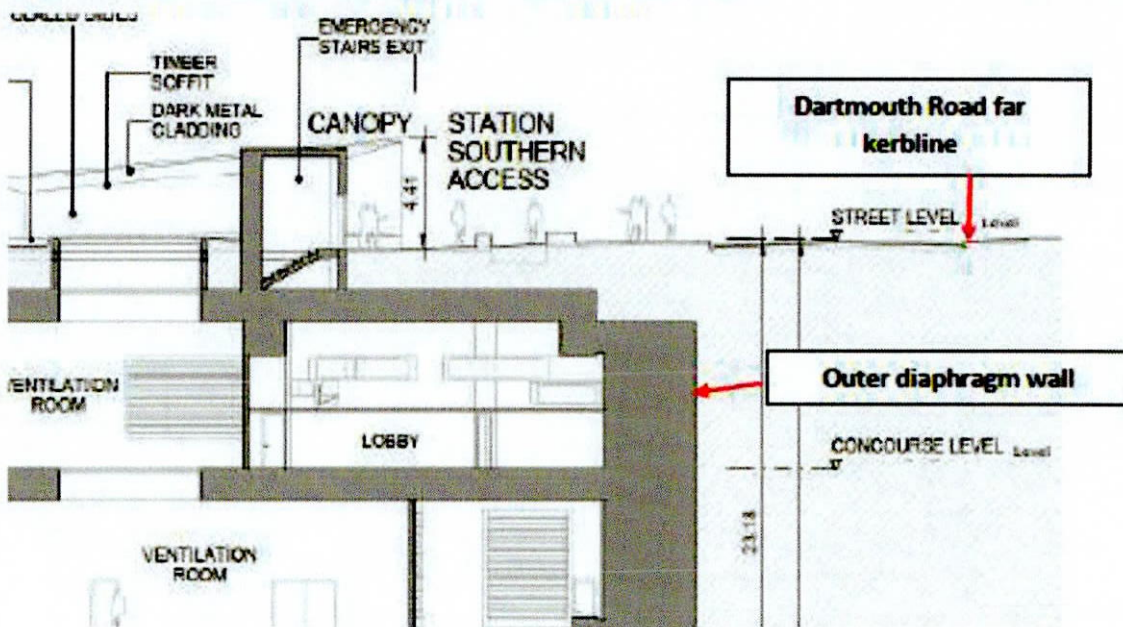
2. Size of Charlemont Station Box

From what we can determine from the alignment and structures drawings included within the EIAR submission, the overall footprint of the Charlemont station is approximately 133 metres in length (including the concourse projection or approximately 118 without), and approximately 31 metres in width although not of rectangular shape.

The alignment drawings do seem to indicate that the outer diaphragm wall boundary will extend under Dartmouth Road with the walling extending up to the far kerbline, as shown here in drawing ML1-JAI-ARD-ROUT_XX-DR-Y-03096:



The Structures drawings, especially drawing ML1-JAI-SRD-ROUT_XX-DR-Y-02096 however are less clear on this however, as the following extract shows:



This drawing however is contradicted by figure 5.10 in EIAR Appendix A7.9, which clearly shows the D-walling near the far kerbline shown below:

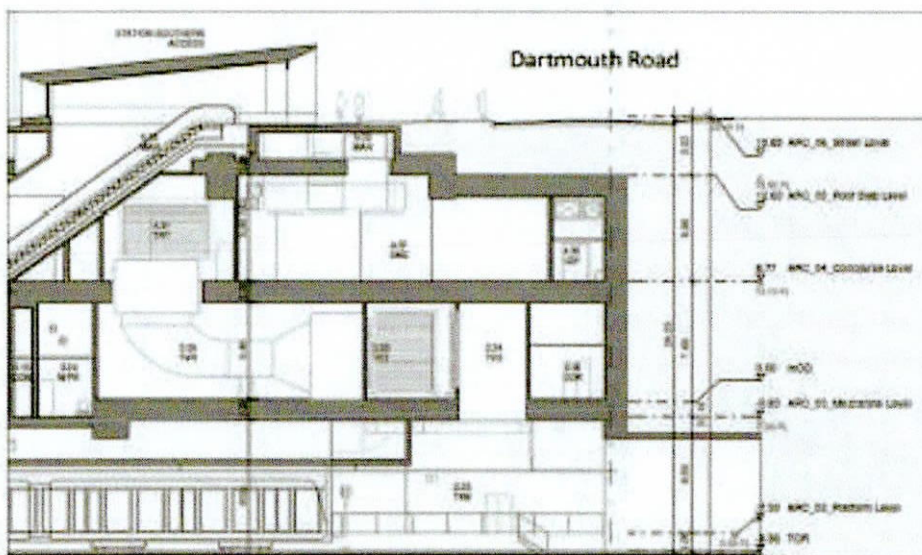


Figure 5-10: Vertical Extent of Works at Dartmouth Road

Looking at the other drawings in the pack, it seems to be the case that Charlemont station box is by far the longest underground station box if the concourse extension is considered, or second longest (after O'Connell) if the extension is not considered.

Quite why the station needs to be this long is not clear to the IEE. While Appendix A7.9 Figure 3.2 does indicate that Charlemont will be as busy as Tara Street, hence the joint second busiest station on the network, the station box shown is far longer than that shown for Tara Street (shown as being only 105 metres in length). This is even more the case when considering that the trains themselves are planned to be of the order of 65 metres in length.

It is the view of the IEE that TII should make efforts to produce a somewhat more compact station design with less of an impact on Dartmouth Road as a travel axis.

3. Length of Closure of Dartmouth Road

TII have indicated a likely length of closure of Dartmouth Road for between 2 and 5 years (3 and 4 years in EIAR Appendix A7.9 page 20 Section 5.1.5), with a hoarding line up to the far kerb of the road, extinguishing not only the use of the road as a traffic axis, but also residential parking and equally importantly any realistic prospect of providing reasonable removal or delivery access for the residents (although the section 5.1.5 says that Residential Access will be maintained it does not detail what kind of access) in that section of the road for possibly many years. Combined with the proximity of the heavy construction works the residents not unreasonably find this prospect extremely unpalatable and have no wish to relocate (at TII's considerable expense) for the duration of the works.

It is the view of the IEE, that even if it proves impossible or impracticable to move back the D-wall line from the far kerbline (see above) in any event there is no good engineering or planning reason to close Dartmouth Road for this extremely extended period. There are a number of alternative construction approaches, widely used, which would enable Dartmouth Road, which is quite narrow, to reopen after a matter of several weeks or a very few months two of which we outline below:

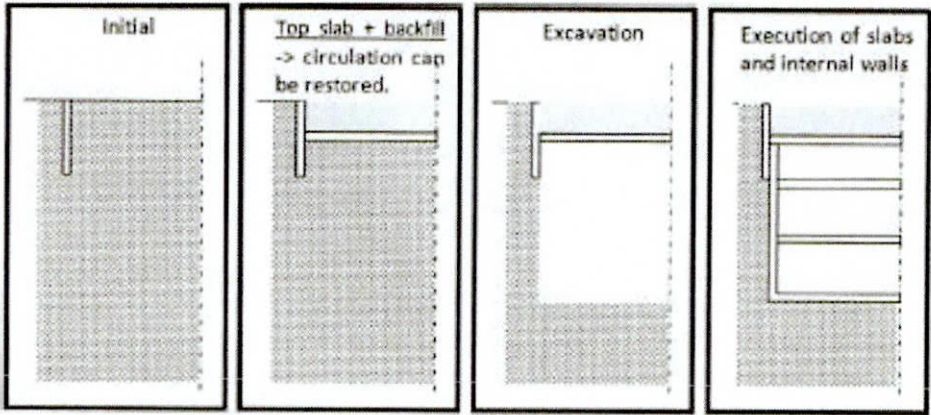
i) Top Down Construction

Likely to be used for the station construction in any event, the provision of the D-wall and top slab beneath Dartmouth Road would easily (and is commonly used for) allow the road surface to be re-instated. The actual length of this process will need to be discussed with the contractors but our proposal of several weeks to a very few months is very much possible, based on our international experience.

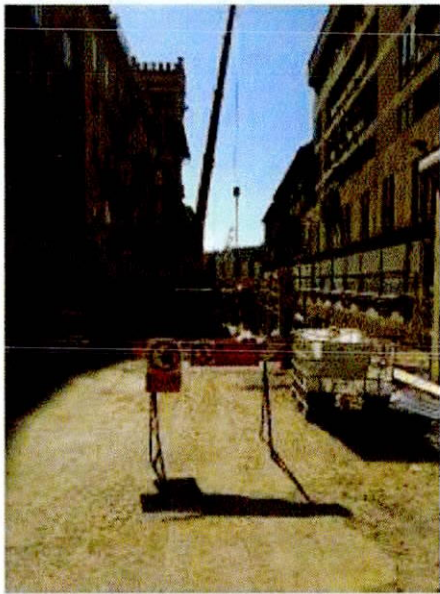
The main advantages of the top-down method are the following:

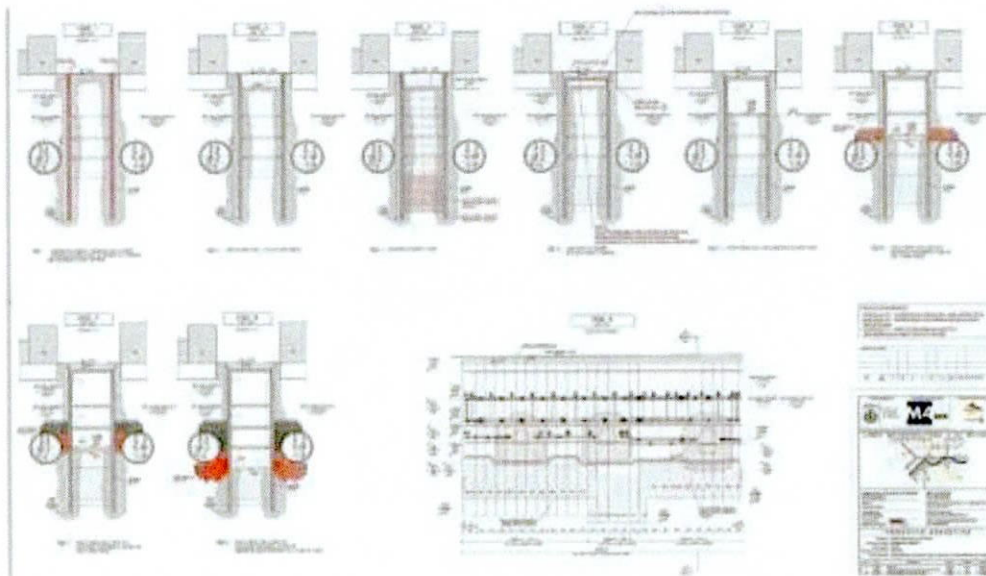
- Reduction of worksite space outside the station footprint;
- Limited traffic diversion during works;
- Reduced impact on neighbouring in term of noise during works since work are executed under the top slab;
- Reduced risk of instability of the retaining system since the stiffness guaranteed by horizontal slabs is higher than those of temporary propping system;

The methodology is shown schematically below:



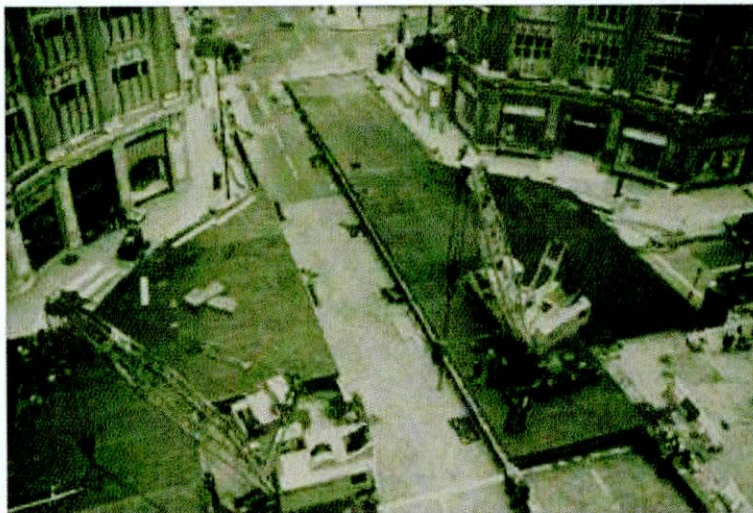
This method has been adopted for the Milan M4 Sant' Ambrogio Station in 2019 as from the picture and drawing with the phases of excavations below:

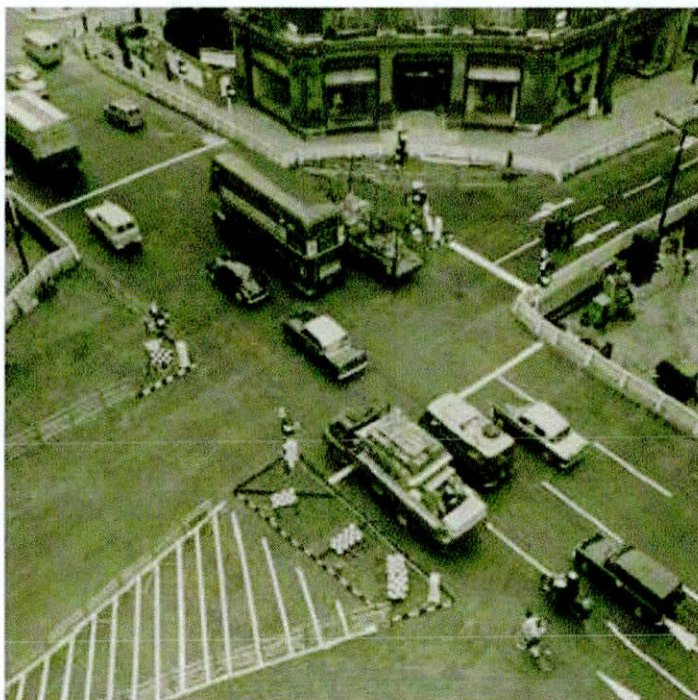




ii) Temporary overdecking with a steel 'umbrella' or bridge.

Also widely used and even more rapid re-instatement is simply to insert the D-walling and start the excavation for the top slab, but overdeck this with steel bridging elements for a short period, which then are removed and the road surface restored. The technique is widely used and famously so in the case of the reconstruction and expansion of Oxford Circus Underground station in London in the mid-1960s;





We are aware that TII propose to use Dartmouth Road as the exit for construction trucks, but there is no reason to close the road for this purpose. In any event it is unreasonable to suggest such a long closure in our view, and unnecessary.

4. Use of Dartmouth Road by Heavy Construction Trucks

One of the proposals of TII appears to be possibly proposing to use a 'drive through' approach to construction traffic into the site at Charlemont. That is to say that heavy construction trucks will enter the site from Grand Parade and exit via Dartmouth Road. This is shown in both the Construction Sequencing report (Appendix 5.3 pp 158) and the Traffic Management Plan (Appendix 9.5 from pages 457 and 509)

Our view is that while this would no doubt be convenient from a construction perspective, the reality is that the impact on the residents of the entire length of narrow Dartmouth Road will be very considerably negative, for a period of some years. The safety of this arrangement on all locals but particularly the elderly and young children and other vulnerable persons should be very closely examined.

Given that 'through flow' construction sites are by no means the norm (most major construction sites will demonstrate the use of the single entrance and exit format), we suggest that TII reconsider this and accommodate both entry to and exit from the site on Grand Parade, which is wider and actually entirely open on one side (facing the canal) with buildings on the other side a considerable distance away.

5. Requirement for Second Entrance

The EIAR explains the reasoning for the second entrance for Charlemont Station at Appendix A7.9 "Terminus Station at Charlemont compared to St. Stephens Green", Section 5.1.2 on page 18:

The additional southern entrance has been incorporated in the design to:

- *improve station accessibility from the south of the station where modelling indicates strong demand from the Ranelagh area;*
- *avoid overcrowding on the Grand Parade footpath, which is used for the interchange with Luas;*
- *facilitate station access for cyclists and from vehicle drop off; and to,*
- *provide additional resilience to passenger evacuation and emergency access in the event of an incident at the station.*

although the likely expected patronage for the second entrance is not provided in the document.

However residents are concerned that placing a second MetroLink entrance directly on their road will have 2 potentially very disruptive side effects:

- a) Placing the entrance directly on the road will cause considerable extra noise and light pollution to the houses directly facing the entrance for very extended periods every day
- b) It will give rise to the likelihood of travellers from a wide area of south Dublin to use the entrance as a drop off and pick up point for their journeys to the Airport, there not being viable alternatives from South Dublin for so doing.

In respect of the first point a), it is the view of the IEE that the EIAR documentation clearly does not provide assessments that cover the noise that would arise from passenger surface movements, or from the noise of escalators or lifts, PA announcements, local traffic and car parking and not just rail noise or ventilation and this is a serious omission that should be rectified (actually at all of the underground stations, not just Charlemont).

It is not clear if any assessment has been made of the light pollution that might arise from the station entrance itself onto the street, and although EIAR Volume 2 – Book 1: Introduction and Project Description Chapter 6: MetroLink Operations & Maintenance, page 33 says

All lights proposed for the proposed Project utilize LED (light emitting diode) light sources and will have dimmable drivers as future proofing. The lighting design minimises light spill beyond the roads and pedestrian areas wherever possible and uses luminaires with zero upward light in compliance with the Guidance Note 01/21 'The Reduction of obtrusive light' (Institute of Lighting Professionals, 2021) which can be downloaded free of charge from the internet. This is particularly key with the lighting near Dublin Airport due to the requirements

to ensure street and amenity lighting does not obscure or get confused with airfield guidance lighting.

It is not clear to us how this might apply to the Station entrance onto Dartmouth Road.

With regards to point b) we have examined the EIAR Traffic Analysis and we cannot find any evidence of this issue having been explicitly considered, although we note from the EIAR that one of the main objectives of the Metrolink Project is improve the connectivity for national and international visitors using Dublin Airport (Appendix A9.2 Overall Project Traffic & Transportation Assessment, page 8).

Appendix A9.3 Transport Modelling Plan, page 12, states:

The ERM (Eastern Regional Model, developed by NTA) includes 3 special zones, one of these is Dublin Airport.

In addition to the forecast growth associated with the typical land use patterns, Dublin Airport is a key growth driver in the corridor and has a different growth associated with flight travel demand. Within the ERM, growth in landside demand is determined for passengers, staff and freight, applied to the Dublin Airport Special Zone. Freight and staff numbers are forecasted on a scaling factor, which will be aligned with passenger growth forecasts. The Department of Transport, Tourism and Sport (DTTAS) report "Review of Capacity Needs at Ireland's State Airports - August 2018" outlines forecast passenger growth to 2050 for Low, Central and High growth scenarios. There is a working group with NTA, TII, FCC and DAA where use of this aspect of the model is to be discussed to ensure consistent application of this tool. It will be assumed that the growth rate from 2050 will continue until the 2065 forecast year.

The NTA will provide trip end forecasts for Dublin Airport and all other special zones. These will be used within the model.

Consequently while it may be the case that the passengers to/from the airport have been thoroughly evaluated and considered at a strategic level in the overall modelling and high level design of the metro system, this particular issue of quite important detail may well not have been expressly addressed, and it is our view that the concern of the residents in these respects is quite reasonable and at the very least should have been explicitly assessed as part of the EIAR.

6. Conclusions

We are of the view that the design of the station should be optimised to try and reduce the overall size of the station box and therefore reduce the incursion into Dartmouth Road and should this not prove practicable to utilise a construction methodology which minimises the closure time of Dartmouth Road and provides the residents full access to their properties.

It is also our view that given the size and potential developments on the site it would be at the very least practicable to reverse the orientation of the entrance to face away from the street and into the site (facing the development), so although footfall might not be reduced,

the residents would not at least have to be faced with continual exposure to light and noise such as that which accrues around such station entrances. Some discreet signage would be all that would be required to guide walkers to their destination.

We are also of the view that whilst moving the second entrance, perhaps into Dartmouth Park itself, might be technically feasible it might cause as many problems as it solves.



20 Fitzwilliam Place, Dublin 2, D02YV58,
Ireland



Phone. +353 1 6762594



planning@mdb.ie



www.mdb.ie