

QUINTAIN DEVELOPMENTS IRELAND LIMITED

Proposed Residential Development

At

Portmarnock South Phase 1D

Stage 1 Road Safety Audit



Document Control Sheet

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| Project Title: | Proposed Residential Development At Portmarnock South Phase 1D |
| Document Title: | Stage 1 Road Safety Audit |
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APPENDIX 1: ROAD SAFETY AUDIT FEEDBACK FORM

SECTION 1: INTRODUCTION

Barry Transportation were commissioned by Quintain Developments Ireland Limited to carry out a Stage 1 Road Safety Audit to support the Planning Permission to An Bord Pleanala (ABP) for a residential development at Portmarnock South Phase 1D in the townlands of Portmarnock, Maynetown and Drumnigh, Portmarnock, Co Dublin.

The proposed development (Phase 1D) generally comprises: -

- 172no. new housing units (comprising of 57no. four-bedroom houses, 93no. three-bedroom houses, 11no. three-bedroom duplex units and 11no. two-bedroom apartment units).
- Associated roads, footpaths, private driveways, landscaping, site services, SuDS measures and sundry related works.
- A new access road and junction onto Moyne Road serving the proposed development.



Figure 1.1 Site Location (Source: Open-source aerial photography)

The audit has been prepared in accordance with TII Publications (Standards) GE-STY-01024 - Road Safety Audit (2017). The Audit Team has examined and reported on only the road safety implications of the scheme and has not examined or verified the compliance of the design to any other criteria. This audit is confined to the details as shown on the scheme drawings provided. The Audit Team was as follows:

Filip Ondrusz
 Team Leader

MScEng CEng MIEI
 Barry Transportation
 Classon House,
 Dundrum Business Park,
 Dundrum Road,

Dublin 14.

Laura Woodbyrne
Team Member

BA BAI (Hons) PGCert CEng MIEI MICE PMP
Barry Transportation
Classon House,
Dundrum Business Park,
Dundrum Road,
Dublin 14.

Noel Navya of Barry Transportation attended the site visit as audit team observer.

The audit site visit was carried out during daylight hours on Tuesday 2 November 2021. Weather conditions during the site visit were sunny and dry, road surfaces were dry.

Drawings and documents supplied for the audit consisted of:

- 21205-JBB-00-XX-DR-C-02013 Roads - RSA

SECTION 2: AUDIT ITEMS

2.1 No Traffic Signs and Markings at Junctions

There are no signs and markings shown at any of the proposed junctions within the estate. Whilst it is appreciated that signage and marking should be kept to a minimum within housing estates, it is nevertheless considered necessary at some (or all) junctions to ensure clear movement priority. Failure to define priority at junctions may lead to angle collisions.

Recommendation

Adequate traffic signs and markings should be provided at junctions to define movement priority.

2.2 Uncontrolled Parking

Whilst there appears to be enough parking spaces provided for the residents throughout the scheme, the visitors, service staff, delivery van drivers etc. will not have spaces available for them. Some residents might also be tempted to avoid perpendicular parking if they park for short time periods. Both scenarios might lead to vehicles being parked parallel on, or straddling, the footpath (observed during the site visit on the already constructed part of the estate), which might result in pedestrians walking on the carriageway leading to vehicle/pedestrian conflicts, or to unsafe passing manoeuvres of parked vehicles leading to potential vehicular conflicts on the carriageway.



Figure 2.2.1 Examples of cars parallel-parked straddling the footpath in the already constructed part of the estate.

Recommendation

A limited number of visitors' parking spots should be provided, evenly scattered around the estate.

Where there are no parking spots, footpaths should be separated from the carriageway by means of, for example, a row of vegetation, which will act as a parking deterrent.



Figure 2.2.2 Examples of vegetation separating the footpath from the carriageway, also acting as a parking deterrent (source: Open-source street view photography)

Where there are parking spots, footpaths should ideally be run behind parking spots thus ensuring footpaths will remain clear of vehicles and the “temptation” to park parallel is reduced. If this is not possible, a monitoring and enforcement regime should be introduced by the council to ensure footpaths remain clear at all times.

2.3 Parking and Footpaths Arrangement

All parking spaces throughout the scheme are perpendicular, with footpaths in front. Drivers will be reversing either getting in or out of spaces and crossing the footpath with potential low visibility due to hedges, other parked vehicles (potentially large), waste bins, trees etc. This may result in drivers not seeing pedestrians in time, leading to vehicle/pedestrian conflicts on the footpath. This could be exacerbated by the likely usage of electric cars which are often front parked due to the location of the electric plug and do not emit sound and are therefore more difficult to notice in time.

Recommendation

Ideally, footpaths should be run behind parking spots which would eliminate the problem. If this is not possible, a buffer strip should be introduced between the footpath and the parking spots, differentiated by surface type and colour, and/or with adequate road marking, to offer pedestrians an additional level of security and reaction time, and to draw drivers' attention to the likely presence of pedestrians.

Drivers should be actively encouraged to reverse-park only. This could be done by introducing an internal estate rule, and by installing "Reverse parking only" or similar signage/markings on estate entries, with reminders throughout the estate. It should be subject to a monitoring regime, similar to point 2.2 above, with gentle reminders issued to offending drivers.

No high vegetation, walls, piers or other features that could obscure visibility should be installed between the parking spots.



Figure 2.3.1 An example of a tree proposed between the parking spots that could obscure visibility and should therefore be removed from the proposals

2.4 Levels of Footpaths in Front of Perpendicular Parking Spots

Continuous perpendicular parking spots are proposed adjacent to long stretches of roads. Detailed footpath level design has not been made available to the auditors, but presumably dropped kerbs will be proposed to enable vehicular access over the footpath. This will result in either successive undulations along the footpath, which may cause trips and falls especially for more vulnerable pedestrians, or a continuous dropped kerb over long stretches of road, which will reduce road users' perception of pedestrian priority and security on the footpath, will facilitate easier and faster driving in and out of parking spots, and could confuse the visually impaired pedestrians, all of which could lead to pedestrians being hit by vehicles.



Figure 2.4.1 Examples of long stretches of continuous perpendicular parking adjacent to footpaths

Recommendation

Ideally, footpaths should be run behind parking spots which would eliminate the problem. If this is not possible, careful detailed design of footpath levels should be carried out to ensure adequate balance between the road users' perception of pedestrian priority and security, and comfortable enough driveways.

Different surfacing type and colour should be applied to aid partially visually impaired pedestrians, and to highlight the potential hazards to all road users.

Adequate road marking should be introduced at the interface between the footpath and the carriageway.

2.5 Perpendicular Parking Against the Narrower Footpath

In one location on the scheme (see Figure 2.5.1) footpath is proposed both in front of and behind the perpendicular parking spaces. Vehicles parked in these spots might overhang the footpath. This could partially or fully block the footpath (narrower here than in other locations) and present an issue especially for more vulnerable road users, resulting in trips and falls.

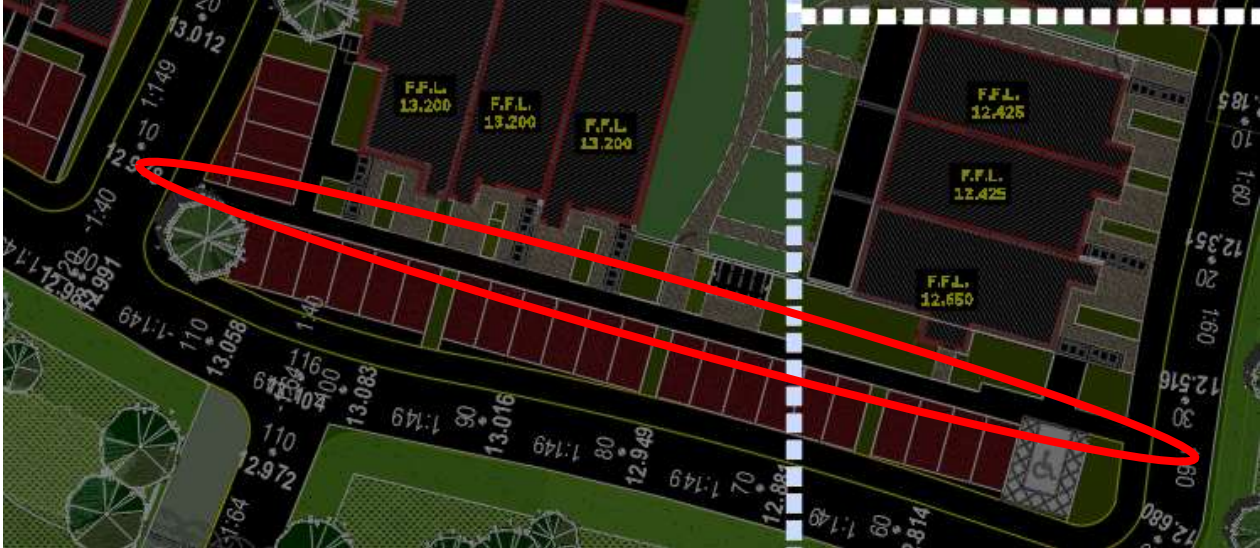


Figure 2.5.1 Narrower footpath behind perpendicular parking spaces that might be blocked by overhanging vehicles

Recommendation

Wheel-stops should be provided.

2.6 Pedestrian Crossing Facilities

No pedestrian crossing facilities are indicated on the drawings. Failure to provide pedestrian crossing facilities may result in pedestrians crossing in random locations leading to vehicle/pedestrian conflicts, trips and falls when crossing over high kerbs, and visually impaired pedestrians' confusion potentially leading to pedestrian/vehicle conflicts.

Recommendation

Pedestrian crossing facilities, with adequate dropped kerbs and tactile paving, should be provided along pedestrian desire lines.

2.7 Lack of Pedestrian Permeability

It seems that there are not enough pedestrian footway links interconnecting parts of the estate. Failure to provide good pedestrian permeability, by including pedestrian links where possible to shorten walking distances, could lead to pedestrians having to cross more roads and/or walk along carriageways, which increases their exposure to vehicular traffic and therefore could lead to pedestrian/vehicle collisions..

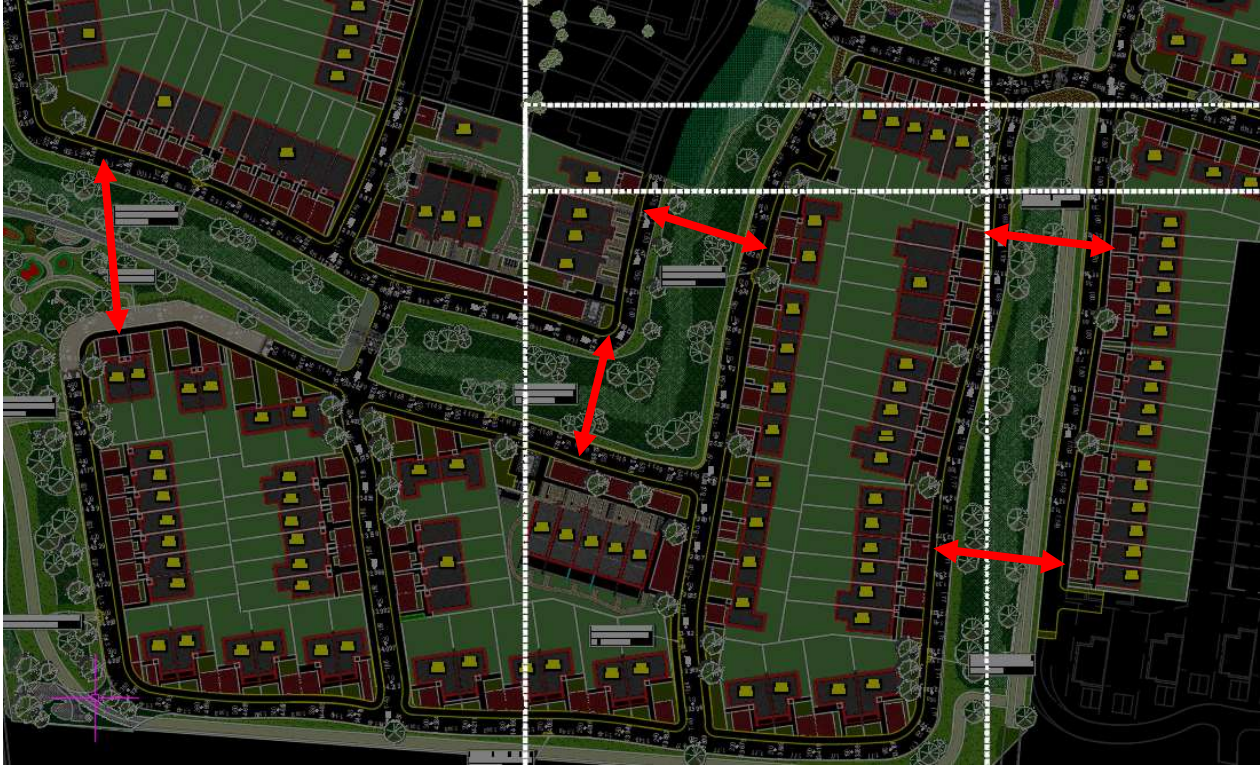


Figure 2.7.1 Examples of pedestrian footway links that could improve pedestrian permeability of the estate

Recommendation

Likely pedestrian movements and desire lines should be analysed, and more permeability footway links provided along the likely vulnerable road users desire lines as, much as possible..

2.8 Usage of the Perimeter Walkway

The walkway around the southern and western perimeter of the estate appears to be for pedestrian use only. It is considered quite likely that residents of the south-western quadrant of the estate wishing to cycle north will use this walkway rather than the estate roads. Lack of clarity with regards its function may confuse the users and lead to cyclist/pedestrian conflicts as pedestrians may not be expecting cyclists on the walkway.

Furthermore, cyclists wishing to join the cycle/pedestrian facility at the eastern side of the estate have no convenient connection to it from the southern side of the estate.



Figure 2.8.1 Lack of convenient connection to the cycle/pedestrian facility at the south-eastern end of the estate

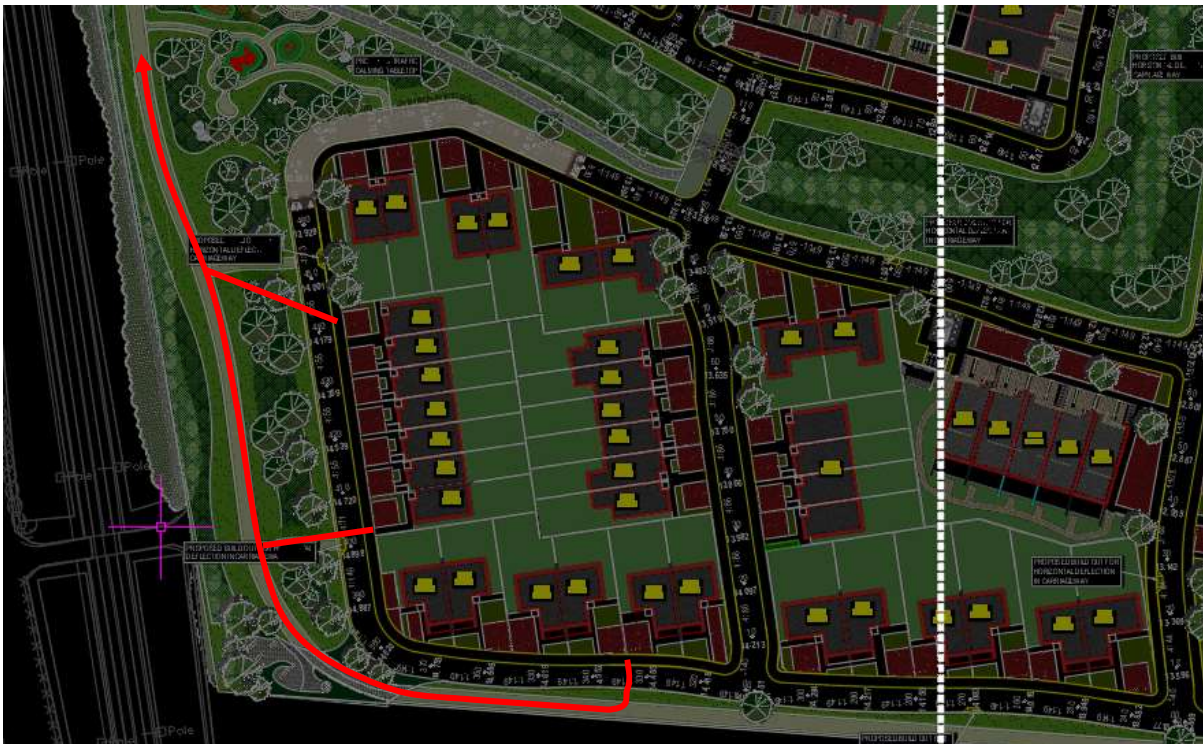


Figure 2.8.2 Likely path taken by south-western quadrant residents wishing to cycle north

Recommendation

The southern and western perimeter walkway should be designated a cycle/pedestrian facility, It should be of sufficient width and detail, with adequate signage, and with adequate and convenient connection points.

2.9 Discontinuous Pedestrian Path

The pedestrian path near the north-western end of the scheme ends abruptly. Whilst this is part of the existing environment, it is affected by the proposals in that there will be more pedestrian journeys and desire lines in this location after the construction of the next phase of the development is finalised. This could lead to pedestrians crossing the road in random locations, and potentially walking through grassed area, which could result in trips and falls, and/or vehicle/pedestrian conflicts.



Figure 2.9.1 Discontinuous pedestrian facility and likely pedestrian desire line



Figure 2.9.2 Currently constructed discontinuous pedestrian facility

Recommendation

Continuous pedestrian footpath, with adequate crossing facilities where required, should be provided along the likely desire lines.

2.10 Unclear Facility Design and Use

It is unclear what the purpose of the facility running along the eastern side of the scheme is. If this is meant to be a pedestrian/cycle facility, there are a number of potential safety issues that need to be addressed i.e. cross sectional detail, road crossings arrangement, signs and marking, pavement etc. Failure to provide adequate details for the pedestrian/cycle way could result in various cycle/pedestrian, and cycle/vehicle conflicts and/or cyclist loss of control incidents..



Figure 2.10.1 Facility at the eastern side of the scheme, with unclear purpose and design

Recommendation

Purpose of this facility should be clearly defined, and adequate design details incl. pavement, levels, signs and markings, crossing details etc should be developed to improve various aspects of road users' safety.

2.11 Use of Various Surfaces

Details of paving surfaces have not been made available to the auditors, but it is understood from the drawing that several surface types are proposed for footways throughout the scheme. Whilst it is acknowledged that different surfaces may be used in recreational spaces like parks and playgrounds, the use of varying surfaces throughout the scheme without clear reasons for change could confuse visually impaired pedestrians, resulting in them coming into a conflict with vehicles. Consistency of design is one of the key features of a safe design for visually impaired pedestrians.

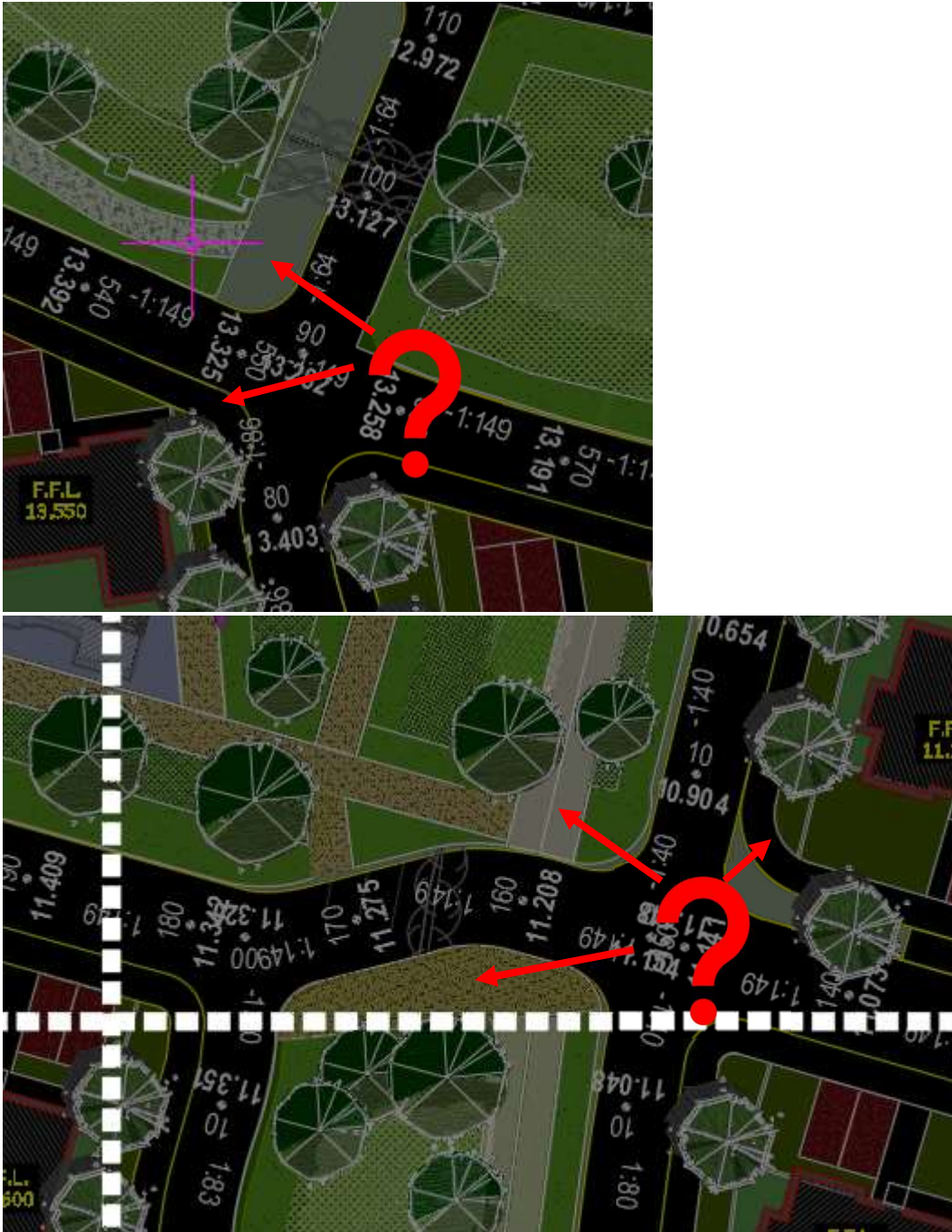


Figure 2.11.1 Examples of various footway surfaces used throughout the scheme

Recommendation

Footway surfaces should be consistent throughout the scheme as much as possible, and ideally matching those of adjacent phases of this development.

2.12 Long Straight

There is a relatively long straight proposed at the north-eastern side of the proposed scheme, which, at 6m, is also wider than other internal estate roads. Such layout may encourage speeds inappropriate for the housing estate, and as a result could lead to various collisions on this stretch of road. This could at some point be more exacerbated as the future development appears to include further extension of this road.



Figure 2.12.1 The relatively long and wide straight at the north-eastern end of the scheme



Figure 2.12.2 Potential future extension of this straight

Recommendation

Traffic calming design integral with the road layout should be incorporated along this stretch.

2.13 Connection to the Greenway

It is likely that the Portmarnock Greenway will attract a considerable number of estate residents to walk and cycle, but details of pedestrian and cycle connections of the estate with the greenway, that may be proposed as part of this and future development phases, are unclear. Failure to provide safe, direct, and comfortable connections may lead to vulnerable road users getting to the greenway using other existing public road links that may carry heavier traffic and have poor or no facilities for vulnerable road users, resulting in vulnerable road users' exposure to conflicts with vehicular traffic.



Figure 2.13.1 Portmarnock Greenway (blue) and the potential unsafe routes vulnerable road users might take (dashed red arrows) in the absence of direct connections (red arrows)

Recommendation

Safe, direct, and comfortable connections from the estate to the Portmarnock Greenway should be provided for vulnerable road users during all development stages.

2.14 Access Road Environment

The details (like kerbs, road markings, public lighting) of the proposed access road connecting Moyne Road with the estate have not been made available to the auditors but it seems that the road environment over the southern section of this road is of unclear character. On the estate side it is urban with kerbs, footpaths, and artificial bends acting as traffic calming features, but on leaving the estate it suddenly becomes rather rural (no kerbs and footpaths, with vegetated verges), although with sharp curves. Drivers (especially going north from Moyne Road which is very rural in character despite the 60km/h speed limit) may misinterpret this road environment for a rural road, which could result in speeding, potentially leading to loss of control at sharp curves, and/or not slowing down enough on entering the estate, thus increasing the likelihood of conflicts with pedestrians. This could be exacerbated by darkness in the absence of public lighting.

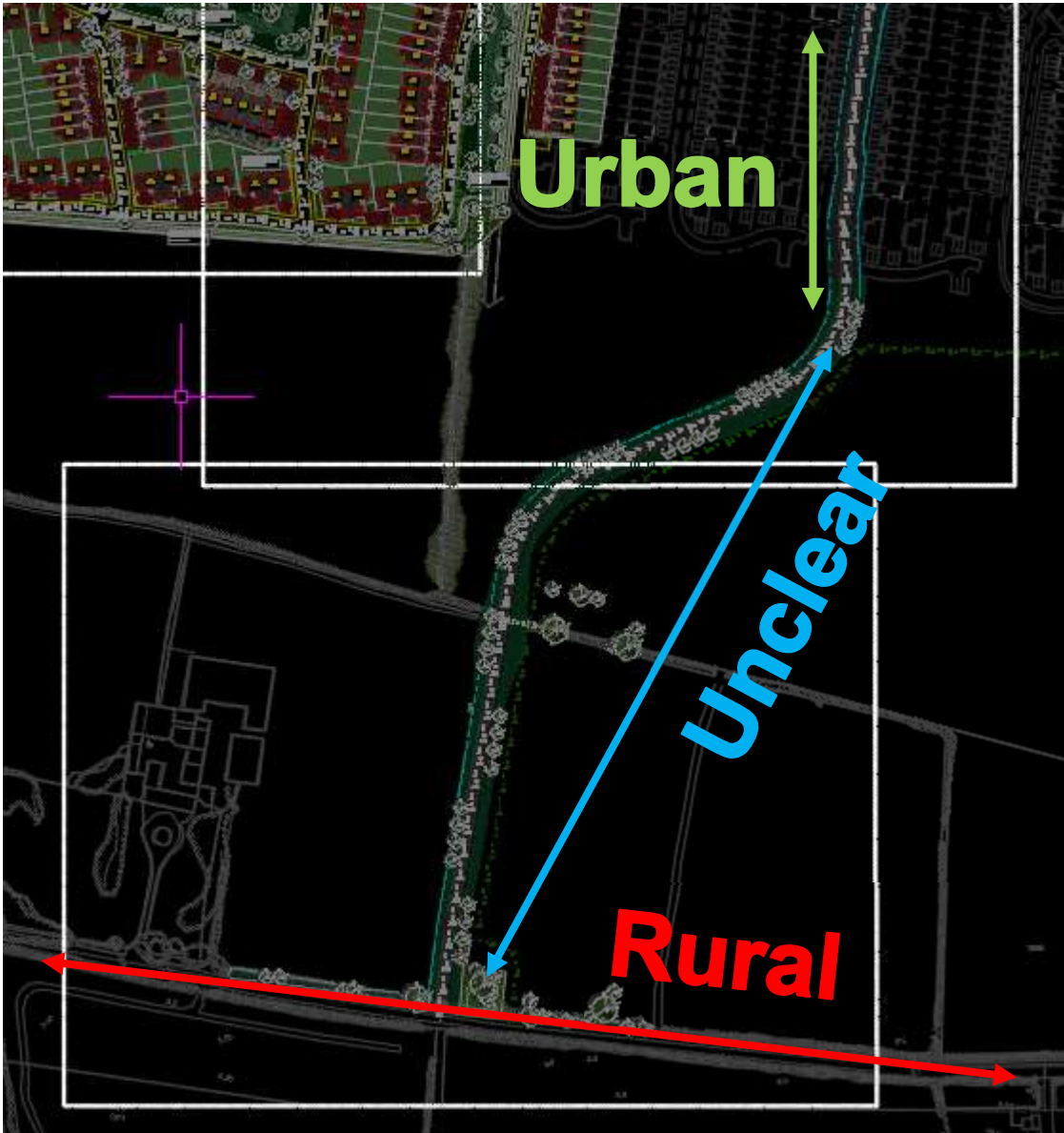


Figure 2.14.1 Section of the access road where road environment seems unclear in character

Recommendation

Adequate signs and markings should be introduced for drivers entering and leaving the estate to make them aware of the changing road environment and the presence of sharp curves.

Public lighting should be installed along this stretch of road.

Suitable speed limit should be introduced.

2.15 Interim Access Road Arrangements

It is understood that the access to Moyne Road will be constructed as part of Phase 1D, but the adjoining houses and other infrastructure will only form part of future phases. This will result in the access road running through greenfield and/or construction site in the interim arrangement, which may cause drivers to be disoriented and confused especially during the time of darkness. This can lead to drivers not reading the road environment properly resulting in side swipe and loss of control collisions due to traffic calming features like bends and kinks in the alignment, and also loss of control collisions where the future extensions of the road are temporarily fenced off.



Figure 2.15.1 Bends and kinks in the alignment that may not be expected by drivers in the interim scenario, and may be hard to see in darkness



Figure 2.15.2 The fenced off extensions of the straight section of road that could mislead drivers in darkness

Recommendation

Public lighting should be provided along the access road.

In the interim scenario, reflective chevrons or other similar signs should be installed on fences running across the straight section of road to highlight the presence of fencing during darkness.

In the interim scenario, reflective chevrons or other adequate signs should be provided on road edges at alignment kinks.

2.16 Moyne Road Entrance Visibility

There is inadequate visibility in both directions where the proposed access road adjoins Moyne Road. Failure to provide adequate visibility to and from the junction could lead to angle, loss of control, and rear end collisions on the proposed junction.



Figure 2.16.1 Looking left along Moyne Road from the proposed access point (source: Open-source street view photography)



Figure 2.16.2 Looking right along Moyne Road from the proposed access point (source: Open-source street view photography)

Recommendation

Adequate visibility to and from the junction should be provided in both directions where the proposed access road adjoins Moyne Road.

2.17 Crossroads

There is an existing temporary site access opposite to where the proposed estate access road adjoins Moyne Road. When constructed, it would form a crossroads on Moyne Road which, despite the 60km/h speed limit, is quite rural in character. Crossroads in rural road environment are known to cause serious road safety problems due to confusion regarding right-of-way, a see-through issue and resulting potential junction overshooting, as well as adding unnecessary complexity resulting in more potential conflict points.



Figure 2.17.1 The existing temporary site access opposite the proposed estate access (source: Open-source street view photography)

Recommendation

The temporary site access should be removed prior to opening of the estate access to general traffic. Chevron signs and/or shielding by vegetation or other features should be provided to ensure no see-through problem remains by leaving a section of the temporary access in place.

If the temporary site access was to be changed into a permanent entry, the junction layout should be revised and either a staggered junction, a signalised junction, or a roundabout be introduced.



Figure 2.17.2 Aerial photo from before the access was constructed showing the existing road that could cause a see-through problem even if the access is blocked (source: Open-source aerial photography)

SECTION 3: AUDIT TEAM STATEMENT

We certify that we have examined the supplied drawings and documents and the scheme on-site during daylight hours.

The examination and subsequent report was made with the sole purpose of identifying any features of the scheme that could be removed or modified in order to improve the safety of the proposals.

The problems identified have been noted in this report together with associated safety improvement suggestions, which we recommend should be studied for implementation.

No one on the Audit Team has been involved with the scheme design.

Audit Team Leader

Name: Filip Ondrusz
 MScEng CEng MIEI

Signed: 


Date: 24/11/21

Organisation Barry Transportation

Address: Classon House,
 Dundrum Business Park,
 Dundrum Road,
 Dublin 14.

Audit Team Member

Name: Laura Woodbyrne
 BA BAI (Hons) PGCert CEng MIEI MICE PMP

Signed: 

Date: 24/11/21

Organisation Barry Transportation

Address: Classon House,
 Dundrum Business Park,
 Dundrum Road,
 Dublin 14.

Appendix 1: Road Safety Audit Feedback Form

QUINTAIN DEVELOPMENTS IRELAND LIMITED

Proposed Residential Development

At

Portmarnock South Phase 1D

Stage 1 Road Safety Audit – Feedback Form

November 2021



Document Control Sheet

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| 24/11/21 | P01 | S3 | CH | CH | CH | JO'B | N/A |
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Appendix 1: Road Safety Audit Feedback Form

Scheme: Proposed Residential Development at Portmarnock South Phase 1D

Audit Stage: Stage 1 Road Safety Audit

Date Audit Completed: 24th November 2021

| Paragraph No. in Report | To Be Completed by the Design Team | | | To Be Completed by the Audit Team |
|-------------------------|------------------------------------|---------------------------------------|---|--|
| | Problem accepted (yes/no) | Recommended measure accepted (yes/no) | Designer's Response / Alternative measures (describe) | Designer's Response / Alternative Measures accepted by Auditors (yes/no) |
| 2.1 | Yes | Yes | Updated drawings 02014-02018 showing proposed signage and markings are included with application. | Yes |
| 2.2 | No | N/A | <p>The example shown in this RSA is in an earlier phase (1A), we believe this will not be an issue for this proposed phase (1D), since;</p> <ul style="list-style-type: none"> Phase 1 D is further from railway station, with no risk of non-resident parking, The last 2 Phases (1B and 1C) do not exhibit any problems on this point. Most importantly the design has evolved since Phase 1A was built in 2018 i.e. removal of undercroft parking, which resulted in some residents not using these spaces and sometimes parking on roads outside their houses. <p>Car parking design since then has not resulted in any evident issues or resident complaints.</p> | No, the audit team agree it may be less of an issue for the residents but given the size of the estate there is potential for several visitors daily, who will have nowhere to park and therefore potentially park on footpaths. |
| 2.3 | Yes | Yes | Updated drawings 02014-02018 showing usage of F403 Totem Signs with 'Reverse Parking Only' information plates – sited at strategic locations around the development, are included with application. | Yes |

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| | | | Note proposed trees will have 2m min. clearance to underside of crown | |
| 2.4 | Yes | Partially | Utilising different colour approach. Road will be 'black' asphalt. Footpath will be 'light grey' concrete and Parking Bay will be 'dark grey' paviour – these colours achieve an LRV visual contrast of 80 and 35 respectively > than recommended LRV visual contrast of 30. | Yes |
| 2.5 | Yes | Yes | Wheel-stops or hard verge will be used. | Yes |
| 2.6 | Yes | Yes | Updated drawings 02001-02005 showing proposed locations for pedestrian crossings with buff tactile paving and dropped kerb control, are included with application. | Yes |
| 2.7 | Partially | No | One of the Objectives (GI 9) of the Local Area Plan for these lands was to minimise disruption to the historic townland boundaries. This constrains the amount of permeability links that can be provided. We are of the opinion that the links provided match the most relevant pedestrian desire lines. | Yes |
| 2.8 | Yes | Yes | Updated drawing 02005 showing proposed connections to this shared surface path, are included with this application. | Yes |
| 2.9 | Yes | Yes | Existing footpath will be connected to proposed footpaths. | Yes |
| 2.10 | Yes | Yes | Updated drawing 02004 showing proposed table top ramp at this location connecting shared surface path, are included with application. | Yes |
| 2.11 | Yes | Yes | Primarily three surface types proposed for 'paths' – Concrete for Footpaths, Asphalt for Shared Surface Paths and Gravel for Park Paths. | Yes |
| 2.12 | Yes | Yes | Updated drawings 02003 and 02004 showing proposed table top ramps at junction locations on these sections of the road, are included with this application. | Yes |
| 2.13 | Yes | No | Given the scale of this development, it is being delivered in phases (3 phases currently delivered), therefore as each | Yes |

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|------|-----|-----|--|-----|
| | | | phase is put forward for planning approval, the relevant connections are being provided in accordance with the principles of the LAP, however it would be unreasonable to expect connections associated with future phases to be delivered until such time as those phases are fully designed and planning permission sought and attained. | |
| 2.14 | Yes | Yes | Lighting of this road is being provided. Updated drawing 02014 showing proposed entrance ramp and totem and speed (30kph) signage to raise drivers awareness they are entering an urban environment, are included with this application. | Yes |
| 2.15 | Yes | Yes | Lighting of this road is being provided. Chevrons will be provided at key turning points. | Yes |
| 2.16 | Yes | Yes | Adequate sight distances are being achieved by removing and re-planting hedgerow to provide 90m x 2.4m visibility splays for a junction onto a 60kph road. | Yes |
| 2.17 | Yes | Yes | This is a temporary access road to construction compound on the southern side of Moyne Road. We will review and rectify as required prior to opening of estate access road to general traffic. | Yes |

Signed:*Colman Horgan*..... Designer Date.....24/11/2021

Signed:*Filip Ondrusz*..... Audit Team Leader Date30/11/2021