24050-07-001-Rev 1

SHB5-FLD-RP-RP-CS-P3 QA

Stage 1 Quality Audit

(Incorporating a DMURS Street Design Audit, and Audits of Accessibility, Cycling, Walking and Road Safety)

for

Malone O'Regan

SEPTEMBER 2024

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DOCUMENT CONTROL SHEET

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1. INTRODUCTION

1.1 Roadplan Consulting has been commissioned by Malone O'Regan to carry out a Quality Audit of a proposed development at Forbes Lane, Dublin. This scheme is a part of the NDFA social housing schemes.

1.2 The proposed development comprises a large-scale residential development with numerous vehicular entrances.

1.3 Development at the site will consist of the following:

- The demolition of the existing sheds and garages and site clearance works
- Partial retention and modification of the existing rubble stone wall fronting Forbes Lane.
- Retention and modification of the former Gate House structure's east elevation along Marrowbone Lane. The removal of the remaining existing boundary wall fronting Marrowbone Lane and subsequent widening to facilitate an active travel route which will be subject to separate consent.
- Construction of 108 no. apartment units in two blocks (Block A and Block B) with frontage onto Marrowbone Land and Forbes Lane comprising 108 residential units (64 no. 1-bed, 31 no. 2-bed, 13 no. 3-bed)
- Block A ranges from 6-7 storeys and consists of 81 residential units (50 no. 1-bed, 19 no. 2-bed, 12 no. 3-bed)
- Block B is 5-storeys and consists of 27 residential units (14 no. 1-bed, 12 no. 2 bed, 1 no. 3-bed)
- long-stay and 54 short-stay bicycle parking spaces and 2 car parking spaces.
- 190 sq.m of community, cultural and arts space.
- 800 sq.m of public realm space and 700 sq.m of communal open space.

1.4 Figure 1.1 below is a layout drawing of the development. Forbes Lane and Marrowbone Lane have posted speed limits of 30 km/h and 50 km/h respectively.

Figure 1.1 *– Site Location Map and Site Layout for the development*

2. QUALITY AUDIT

2.1 Quality Audit is a defined process, independent of, but involving, the design team that, through planning, design, construction and management stages of a project provides a check that high quality places are delivered and maintained by all relevant parties, for the benefit of all end users. Quality Audit is a process, applied to urban roads, traffic management or development schemes, which systematically reviews projects using a series of discrete but linked evaluations and ensures that the broad objectives of place, functionality, maintenance and safety are achieved.

2.2 Quality Audit was introduced in the publication Design Manual for Urban Roads and Streets following concerns that in the design of new streets provisions made for motor vehicles frequently led to a poorly designed public realm. In an urban area there is a high level of competing demand from different classes of road users. A well-balanced street will have minimal visual clutter and obstacles; it will use durable materials and most importantly, will encourage a degree of negotiation between road users as they make their way through it.

2.3 Quality Audit involves various assessments of the impacts of a street scheme in terms of road safety, visual quality and the use of streets by the community. Access for disabled people, pedestrians, cyclists and drivers of motor vehicles is considered.

2.4 In the context of a Quality Audit, road safety assessment is considered to be an appropriate method of examining road safety issues as it incorporates both the hazard identification techniques used in road safety audit and formal risk assessment techniques. This allows the opportunity at an early stage for road safety issues to be considered in a more dynamic way within the design process, and to ensure that safety issues are considered as part of the design rather than after design work is completed.

2.5 The Quality Audit Team reports findings with suggestions for future action. It should be noted that, in a Quality Audit, it is not the intention that suggestions would be binding on the design team; they are offered for detailed consideration in the design process.

2.6 DMURS states that Quality Audits should consist of the following parts:

- DMURS Street Design Audit
- Individual Design Audits
- Quality Audit Report

In the case of this report the individual design audits comprise an RSA, an Accessibility audit, a Walking audit and a Cycle audit.

3. METHODOLOGY

3.1 The Audit Team was as follows:

- George Frisby Chartered Engineer, FIEI
- Glenn Hingerty Chartered Engineer, MIE

3.2 Road safety, non-motorised users, visual quality, access for disabled and functionality were considered in the Quality Audit. This exercise focused on issues such as:

- the design rationale as it related to vehicle, cycle and pedestrian movements;
- pedestrian desire lines both to and through the site;
- access requirements for all modes of transport;
- access requirements for disabled people and other vulnerable users;
- any road safety concerns associated with the scheme;
- how the scheme is experienced by those entering it and moving around within the street, including how this affects road user behaviour; and
- any other issues considered relevant to each constituent element of the Quality Audit process.

3.3 The site visit for this quality audit was carried out on 18th March 2024.

The documents provided for the audit were:

Drawing Number	Rev	Drawing Title
SHB4-FLD-DR-MOR-CS-P3-101	0	Proposed Site Layout
SHB4-FLD-DR-MOR-CS-P1-110	0	Swept Path Analysis - Refuse Truck
SHB4-FLD-DR-MOR-CS-P1-111	0	Swept Path Analysis - Delivery Van
SHB4-FLD-DR-MOR-CS-P1-113	0	Swept Path Analysis - Aerial Platform Special Appliance
SHB4-FLD-DR-MOR-CS-P1-114	0	Sightlines
SHB4-FLD-DR-MOR-CS-P1-115	0	Swept Path Analysis - Fire Tender
SHB4-FLD-DR-MOR-CS-P1-121	0	Proposed Road Sign and Markings Layout

Copies of these audited drawings are contained in Appendix A.

Details of drainage or road lighting are not provided. It is assumed that adequate layouts will be provided for each.

In accordance with DMURS Advice Note No. 4 May 2019 (contained on https://www.dmurs.ie/supplementary-material) a Quality Audit should always contain a DMURS Street Design Audit and Other Design Audits (as required). Section 4 of this report contains the Street Design Audit and Section 5 contains the Other Design Audits (Road Safety, Walking, Cycling, Accessibility). The Street Design Audit is in the format provided as a template on the DMURS website.

4. STREET DESIGN AUDIT

CONNECTIVITY			
Key Issues	**Key DMURS Reference**	**Audit Suggestion**	**Design Team Response**
Strategic routes/major desire lines been identified and are clearly incorporated into the design.	3.1 – Integrated Street Network 3.2.1 – Movement Function 3.3.1 – Street layouts 3.3.4 - Wayfinding	3.2.1 – There are two vehicular entrances, one with removable bollards, which may cause confusion to drivers of vehicles trying to use these. It is not clear how they will operate or what vehicles can or cannot use them.	3.2.1 - The site can only be entered by vehicles from Marrowbone Lane at the south-east corner of the site. All vehicles must exit the site at the same junction except for emergency vehicles who will exit the site on to Forbes Lane. The removable bollards will be removed (opened by key) temporarily to allow the emergency trucks exit the sit and will be re-installed and locked immediately following the exit of the emergency vehicles. The only car parking provision on the site is 2 no. disabled car parking spaces (in the south-west corner of the site). Cars will be effectively prohibited from the site by signage (or other) by the PPPCo Management whilst service trucks will enter from Marrowbone Lane, turn within the site and exit on to Marrowbone Lane.
Multiple points of access are provided to the site/place, in particular for sustainable modes.	3.3.1 – Street Layouts 3.3.3 – Retrofitting [1]	. – There are two vehicular entrances, one with removable bollards, which may cause confusion to drivers of vehicles trying to use these. It is not clear how they will operate or what vehicles can or cannot use them.	3.2.1 - As above

[1] *Refer also to the National Speed Limit Guidelines*

CONNECTIVITY			
Key Issues	**Key DMURS Reference**	**Audit Suggestion**	**Design Team Response**
Accessibility throughout the site is maximised for pedestrians and cyclists, ensuring route choice.	3.3.1 – Street Layouts 3.3.2 – Block Sizes 3.4.1 – Vehicle Permeability	No comment	
Through movements by private vehicles on local streets are discouraged by an appropriate level of traffic calming measures.	3.2.1 – Movement Function 3.2.2 – Place Context 3.4.1 – Vehicle Permeability	No comment	
A suitable range of design speeds have been applied with regard to context and function.	3.2.1 – Movement Function 3.2.2 – Place Context 4.1.1 – A Balanced Approach to Speed [1]	No comment	

[1] *Refer also to the National Speed Limit Guidelines*

[2] *In retrofit situations a detailed analysis should be carried out to establish what measures exist, what their likely effectiveness is and level of intervention required to achieve the designed design speed*

CONNECTIVITY			
Key Issues	**Key DMURS Reference**	**Audit Suggestion**	**Design Team Response**
The street environment will facilitate the creation of a traffic clamed environment via the use of 'softer' or passive measures.	4.2.1 – Building Height and Street Width 4.2.2 – Street Trees 4.2.3 – Active Street Edges 4.2.4 – Signage and Line Marking 4.2.7 – Planting 4.4.2 – Carriageway Surfaces 4.4.9 – On-Street Parking Advice Note 1 – Transitions and Gateways	– No information on building heights is provided within the drawings. – A landscaped area is proposed in a courtyard area in the centre of a block. Planting creates a sense of place and unique character to each streetscape. Care should be taken to ensure the street trees do not block visibility splays at the proposed junctions and pedestrian crossings. Their location should not create risk for mobility impaired users with regard to falling leaves or surface rooting trees creating tripping hazards. 4.2.4 – Adequate signage and road markings should be provided according to the TSM and DMURS at all junctions and elsewhere as required. This should include advanced warning of removable bollards on all approaches including the crossroads on Forbes Lane.	4.2.1 – The number of stories in each block is shown on current drawings. 4.2.2 – The current layout by the Landscape Architect takes account of issues raised in the Audit. Street trees with clear stems up to 2 meters height have been set back to ensure that they do not block visibility at junctions. 4.2.4 – The current signage and road marking drawings complies with T.S.M. and DMURS including advance warnings of removable bollards

CONNECTIVITY			
Key Issues	**Key DMURS Reference**	**Audit Suggestion**	**Design Team Response**
A suitable range of design standards/ measures have been applied that are consistent with the applied design speeds.	4.4.1 – Carriageway Widths 4.4.4 – Forward Visibility 4.4.5 – Visibility Splays 4.4.6 – Alignment and curvature 4.4.7 – Horizontal and Vertical Deflections Advice Note 1 – Transitions and Gateways	4.4.5 – Visibility Splays at all junctions should be kept clear of all obstructions including vegetation / landscaping.	4.4.5 – Visibility splays at all junctions are kept clear of all obstructions including landscaping.
The built environment contributes to the creation of a safe and comfortable pedestrian environment.	4.2.1 – Building Height and Street Width 4.2.3 – Active Street Edges 4.2.5 – Street Furniture 4.4.9 – On-Street parking	4.2.5 – Information on streetlights throughout the parking area is not provided within the drawings other than the positions of the proposed lighting columns. Its effectiveness should not be impacted by trees or parked vehicles on streets.	4.2.5 – Street Lighting Drawing, attached was prepared within the design process to be effective without being impacted by trees and the 2-no. disabled car parking spaces.
Footpaths are continuous and wide enough to cater for the anticipated number of pedestrian movements.	– Movement Function – Place Context 4.2.5 – Street Furniture - Footways, Verges and Strips - Pedestrian Crossings	4.2.5 – Segregated footways have been provided. However, sign poles located within the footpaths may reduce their effective width.	4.2.5 – Sign location is approximate only. The Contractor shall confirm with the Engineer at site prior to erection.
Cycling facilities will cater for cyclists of all ages and abilities.	3.2.1 – Movement Function 3.2.2 – Place Context 4.3.5 – Cycle facilities	3.2.1 – Cyclists will be expected to mix amongst general vehicular traffic to access the proposed development. There is no proposed tie-in provision for future cycle schemes in the GDA Cycle network strategy.	3.2.1 – By agreement with DCC/Dublin Active Travel, this current project is not required to show connection to GDA Active Travel.

CONNECTIVITY			
Key Issues	**Key DMURS Reference**	**Audit Suggestion**	**Design Team Response**
The particular needs of visually and mobility impaired users been identified and incorporated in the design.	4.2.5 - Street Furniture 4.3.1 - Footways, Verges and Strips 4.2.5 - Street Furniture 4.3.2 - Pedestrian Crossings 4.3.4 - Pedestrianised and Shared Surfaces	4.3.1 – Footpaths throughout the development may be used by cycles as there is no designated cycleway network.	4.3.1 – Because of the absence of cars within the development, it is considered that there is no requirement for a designated cycleway.
The landscape plan responds to the street hierarchy and the value of the place.	3.2.1 – Movement Function 3.2.2 – Place Context 4.2.2 – Street Trees 4.2.7 – Planting Advice Note 1 – Transitions and Gateways	4.2.2 – A landscaped area is proposed in a courtyard area in the centre of a block. Planting creates a sense of place and unique character to each streetscape. Care should be taken to ensure the street trees do not block visibility splays at the proposed junctions and pedestrian crossings. Their location should not create risk for mobility impaired users with regard to falling leaves or surface rooting trees creating tripping hazards.	4.2.2 – The current layout by the Landscape Architect takes account of issues raised in the Audit. Streett trees with clear stems up to 2 metres height have been set back to ensure that they do not block visibility at junctions.
Street furniture is orderly placed.	3.2.1 – Movement Function 3.2.2 – Place Context 4.2.5 - Street Furniture 4.3.1 - Footways, Verges and Strips	– Segregated footways have been provided. However, sign poles located within the footpaths may reduce their effective width.	– Sign location is approximate only. The Contractor shall confirm with the Engineer at site prior to erection.
The use of signage and line marking has been minimised.	3.2.1 – Movement Function. 3.2.2 – Place Context. 4.2.4 - Signage and Line	4.2.4 – 3 no. signs are proposed in close proximity to one another on Pim Street approach to its junction with Forbes Lane.	

CONNECTIVITY			
Key Issues	**Key DMURS Reference**	**Audit Suggestion**	**Design Team Response**
	Marking.		
Materials and finishes used throughout the scheme have been selected from a limited palette and respond to the value of the place?	3.2.1 – Movement Function 3.2.2 – Place Context 4.2.6 – Materials and Finishes 4.2.8 – Historic Contexts 4.3.2 – Pedestrian Crossings 4.4.2 – Carriageway Surfaces Advice Note 2 – Materials and Specifications	No comment	

ADDITIONAL COMMENTS

5. ROAD SAFETY

5.1 Issue

It is noted that the proposed raised tables and grade changes throughout the development (Figure 5.1 to Figure 5.3), do not feature drainage measures on all sides of continuous ramps. This lack of drainage may result in ponding water, and/or associated silt forming, which may result in cyclists slipping and falling onto the road with associated injuries.

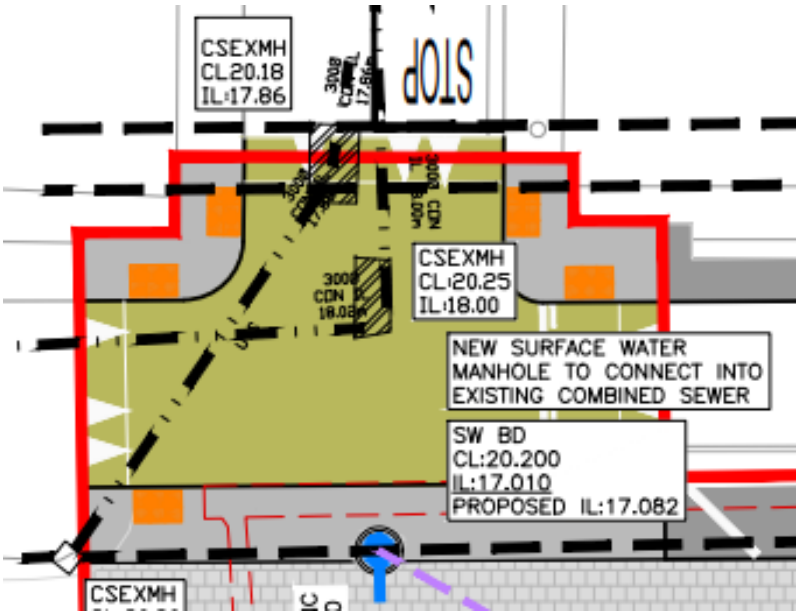

Figure 5.1 – *Raised Crossings without drainage detail*

Figure 5.2 – *Raised Crossings without drainage detail*

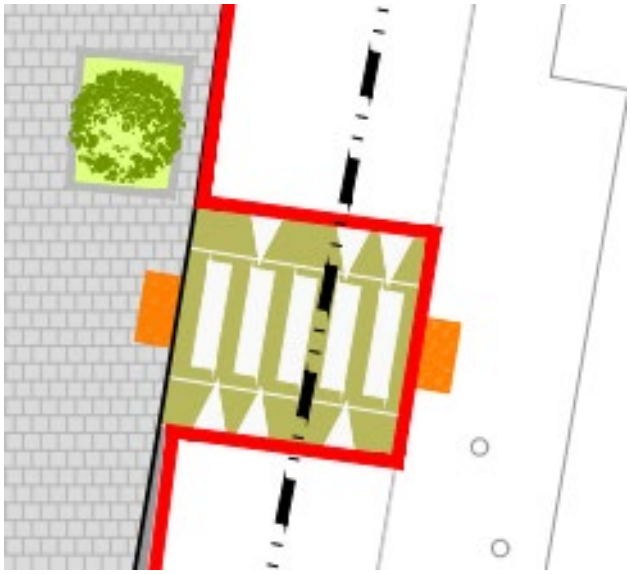

Figure 5.3 – *Raised Crossings without drainage detail*

Suggestion

Ensure that adequate drainage measures are included for all such grade changes throughout the development.

5.2 Issue

Sightlines at the priority junctions in Figure 5.4 and 5.5 may be impacted by planting in the landscaped areas. This may increase the likelihood of vehicle collisions due to the reduced sightlines.

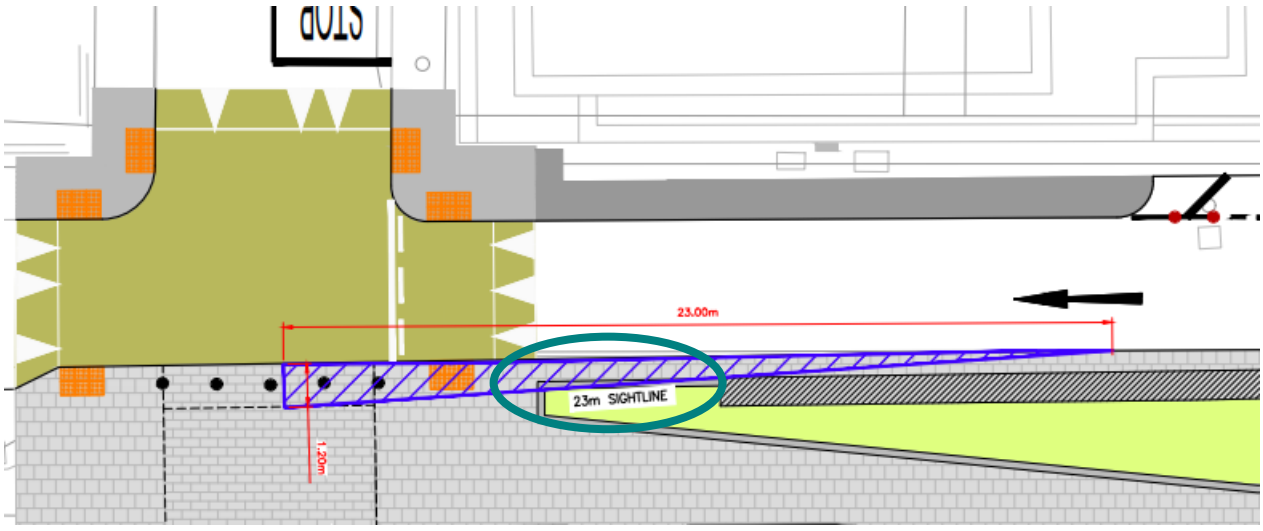

Figure 5.4 – *Visibility Splay potentially interrupted by landscaping*

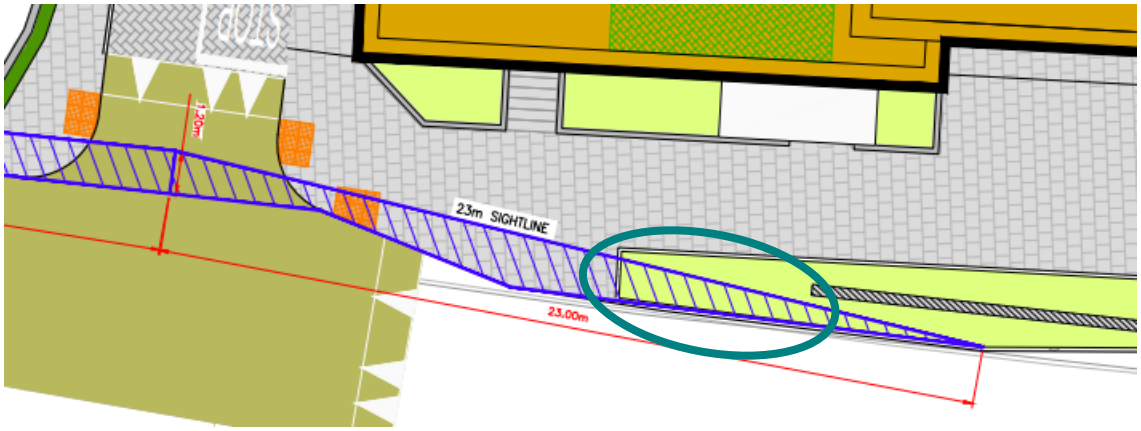

Figure 5.5 – *Visibility Splay potentially interrupted by landscaping*

Suggestion

Ensure adequate visibility splays at all junctions from edge of carriageway.

5.3 Issue

It is proposed to erect three signs in close proximity to one another on Pim Street approach to its junction with Forbes Lane. It is likely that the Ramps sign may obscure visibility of the No Left Turn sign while both may obscure visibility of the Stop sign. A lack of adequate visibility of signage may increase collision risk.

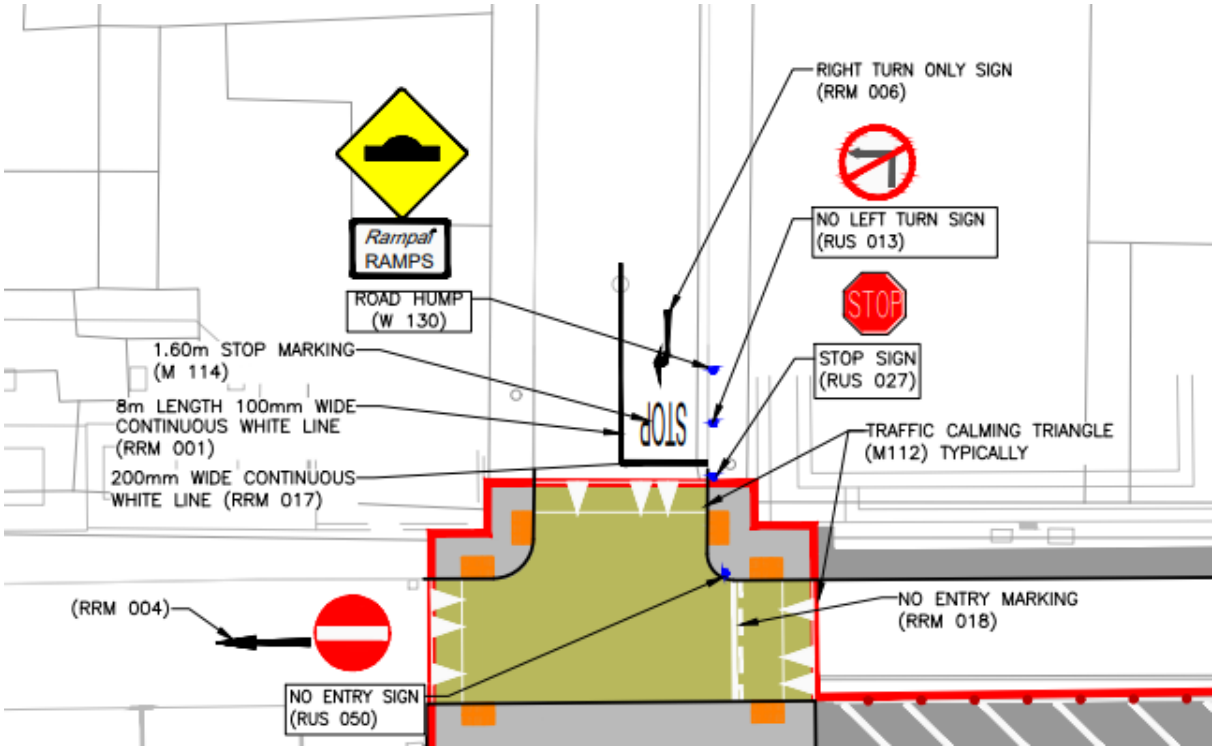

Figure 5.6 – *Sign Clutter*

Suggestion

Ensure that adequate visibility is provided to each sign.

5.4 Issue

A number of signs appear to be located close to the carriageway edge where they would be at risk of being struck by a passing vehicle. Moving these signs further into the footpaths may also reduce the effective footpath width in particular for mobility impaired pedestrians.

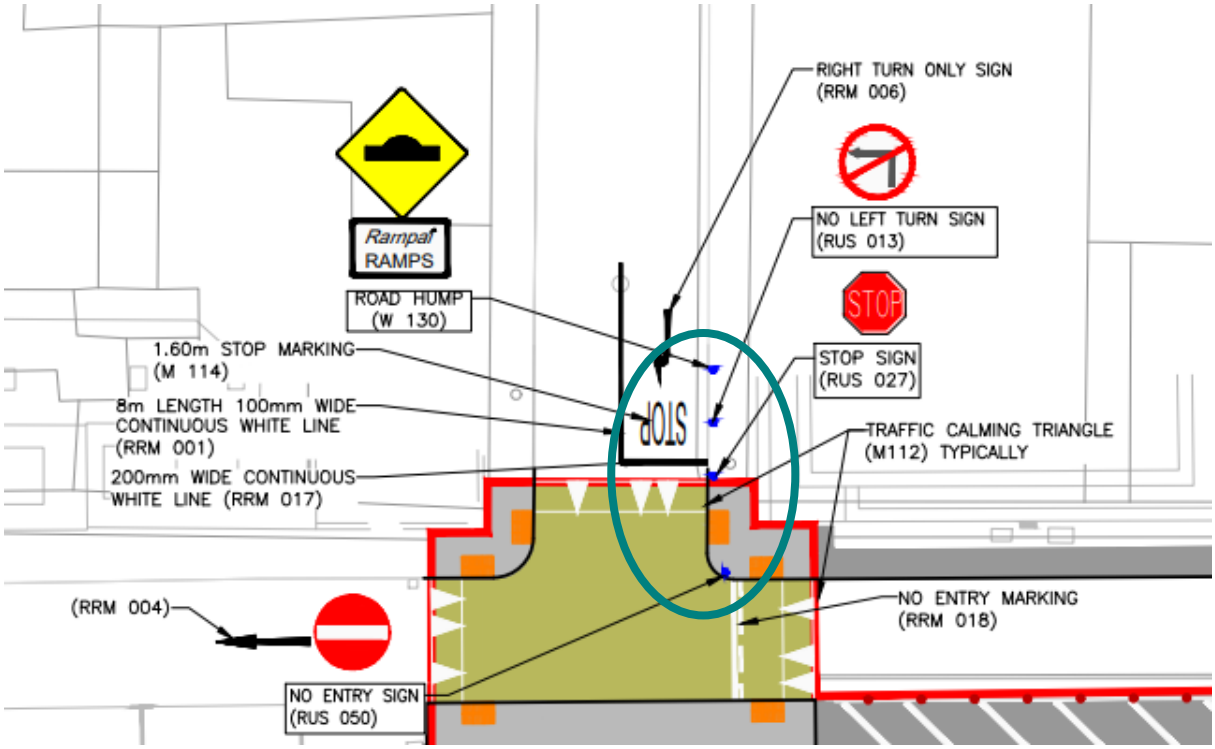

Figure 5.7 – *Position of Signage*

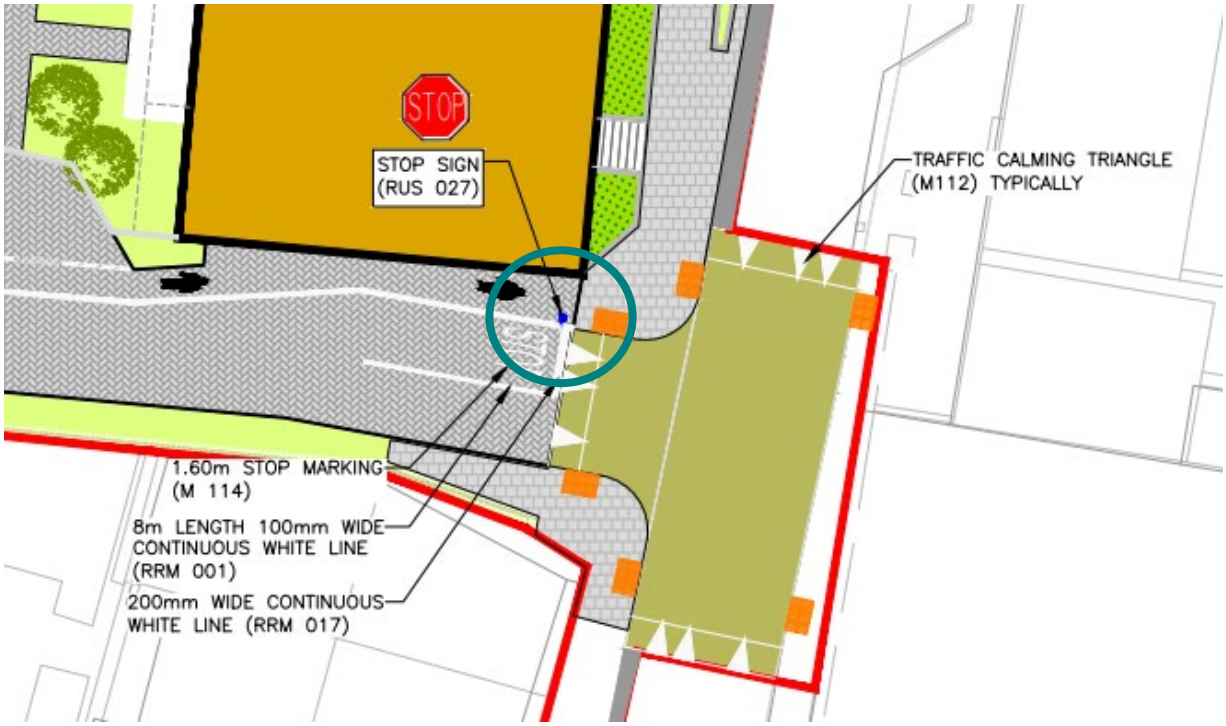

Figure 5.8 – *Position of Signage*

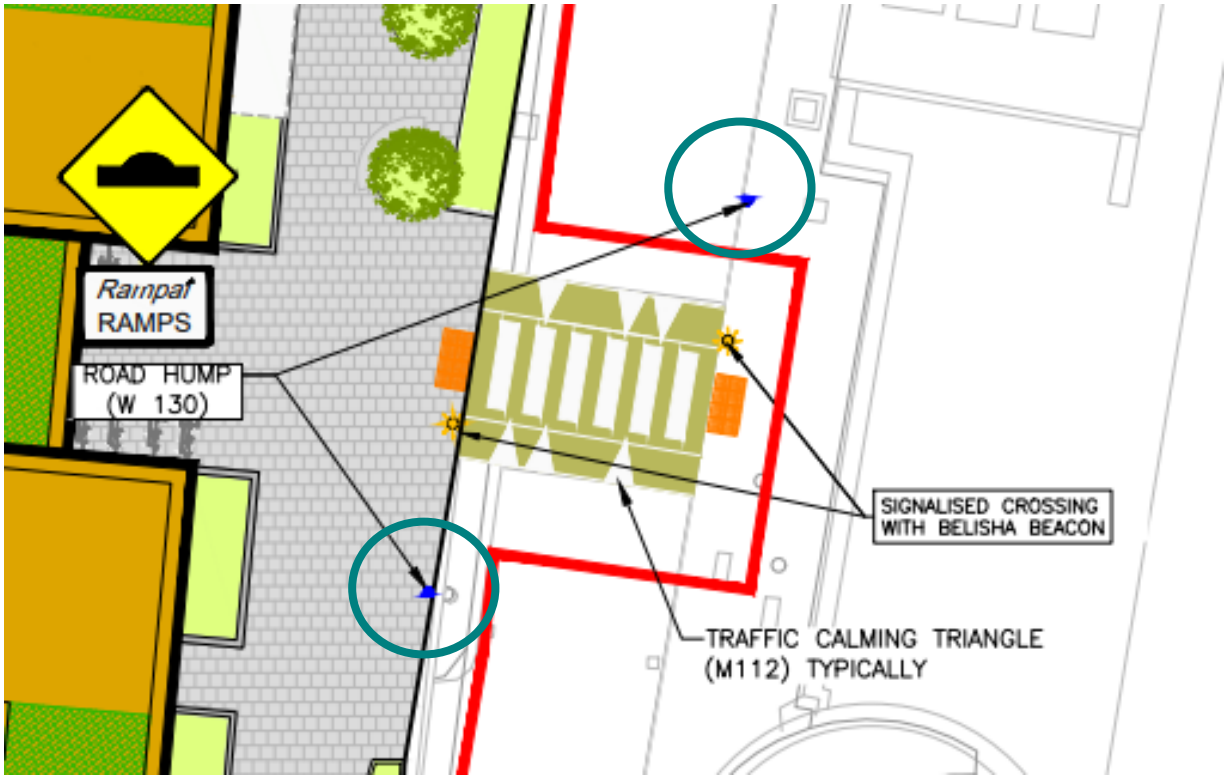

Figure 5.8 – *Position of Signage*

Suggestion

Ensure that any proposed signage is located so as to avoid being struck by passing vehicles and does not reduce the effective footpath width in particular for mobility impaired pedestrians.

6. WALKING

6. 1 Issue

Landscaping is proposed to the south of the pedestrian crossing on Marrowbone Lane. It is unclear as to the heights of landscaping proposed in this area. Intervisibility between pedestrians crossing at this location and approaching northbound vehicles may be restricted by high planting within the landscaped area. A lack of adequate intervisibility may increase the likelihood of pedestrians being struck by approaching vehicles at this crossing.

Figure 6.1 – *Pedestrian Intervisibility*

Suggestion

Ensure adequate intervisibility is provided between pedestrians crossing at the pedestrian crossing and approaching northbound vehicles. Revise the landscaping area if necessary.

6. 2 Issue

Intervisibility between pedestrians crossing the proposed crossing on Marrowbone Lane and approaching southbound vehicles may be restricted by the existing boundary wall and railings on the east side of the carriageway (Figure 6.3). A lack of adequate intervisibility may increase the likelihood of pedestrians being struck by approaching vehicles at this crossing.

Figure 6.2 – *Proposed pedestrian crossing*

Figure 6.3 – *Existing boundary wall and railing*

Suggestion

Ensure adequate intervisibility is provided between pedestrians crossing at the pedestrian crossing and approaching southbound vehicles.

6. 3 **Issue**

Landscaping is proposed to the east of the pedestrian crossing on Forbes Lane. It is unclear as to the heights of landscaping proposed in this area. Intervisibility between pedestrians crossing at this location and approaching westbound vehicles may be restricted by high planting within the landscaped area. A lack of adequate intervisibility may increase the likelihood of pedestrians being struck by approaching vehicles at this crossing.

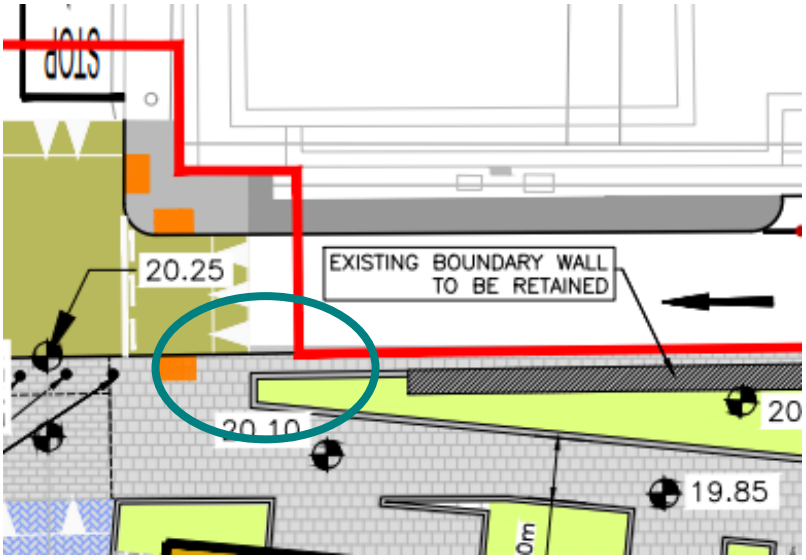

Figure 6.4 – *Pedestrian Intervisibility*

Suggestion

Ensure adequate intervisibility is provided between pedestrians crossing at the pedestrian crossing and approaching westbound vehicles. Revise the landscaping area if necessary.

7. CYCLING

7. 1 Issue

While there is no proposed cycle infrastructure in the development, it is not clear however how the development will tie into the proposed 'Primary Orbital' Cycle Route (red in Figure 7.1) along James Walk, the 'Secondary' Route (blue in Figure 7.1) on Marrowbone Lane, or the 'Feeder' Route (dashed pink line in Figure 7.1) on Basin View. A lack of coordination may reduce the effectiveness of these schemes, proposed by Dublin City Council and National Transport Authority, and undermine potential to achieve cyclist desire lines.

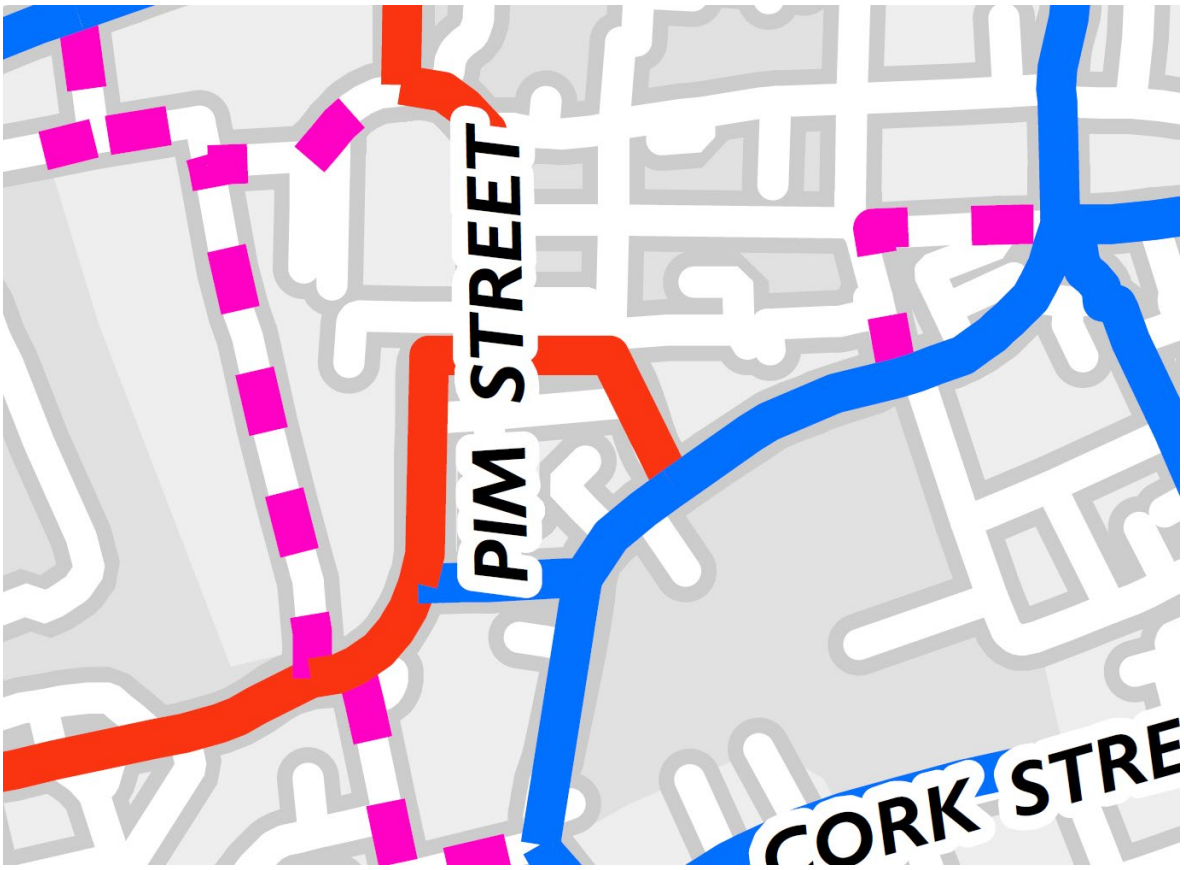

***Figure 7.1** – GDA Cycle Network (www.nationaltransport.ie/wp-content/uploads/2023/01/2022-GDA-Cycle-Network.pdf)*

Suggestion

Consider wider network impacts of future schemes to support a network of segregated cycleways through the development. Consult with Dublin City Council Active Travel to ensure the development is futureproofed.

8. ACCESSIBILITY

8. 1 Issue

Sets of steps in the development do not feature tactile paving. It is unclear if proposed steps feature railings. Lack of railings and tactile paving may increase the likelihood of injuries for pedestrians with mobility impairments or vision impairments respectively.

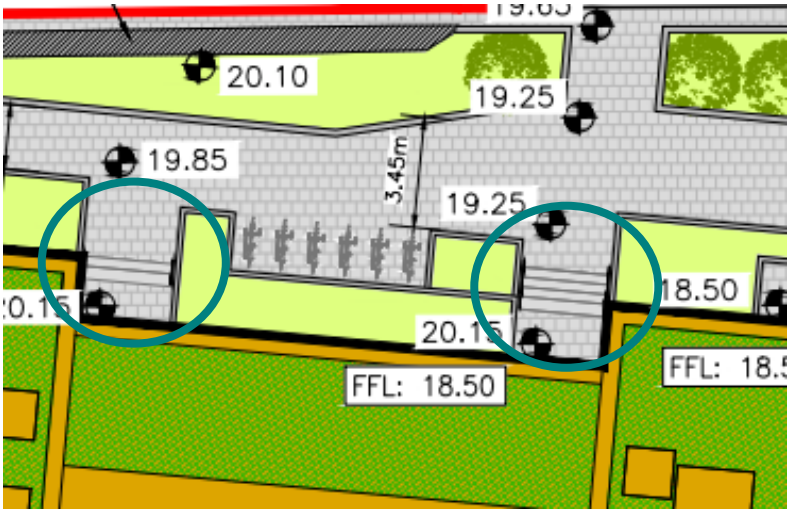

Figure 8.1 – *Pedestrian Steps*

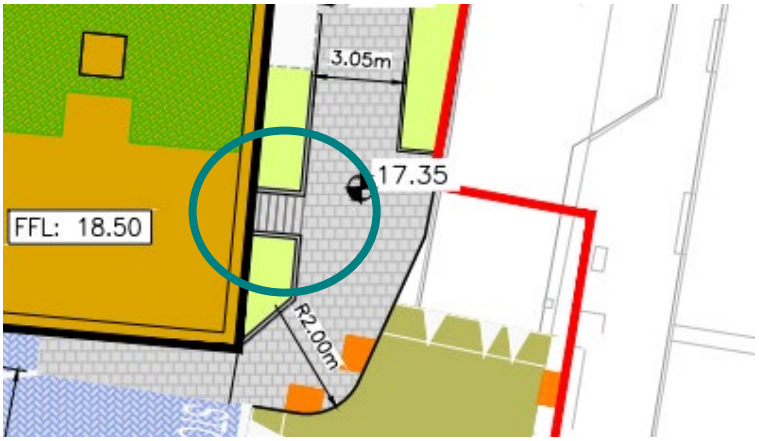

Figure 8.2 – *Pedestrian Steps*

Suggestion

Ensure all steps throughout the development feature railings and appropriate tactile paving.

8. 2 Issue

Some Existing Tactile Paving at the junction location in Figure 8.3 is interrupted by chamber lids (Figure 8.4). This may result in user confusion for pedestrians with vision impairments.

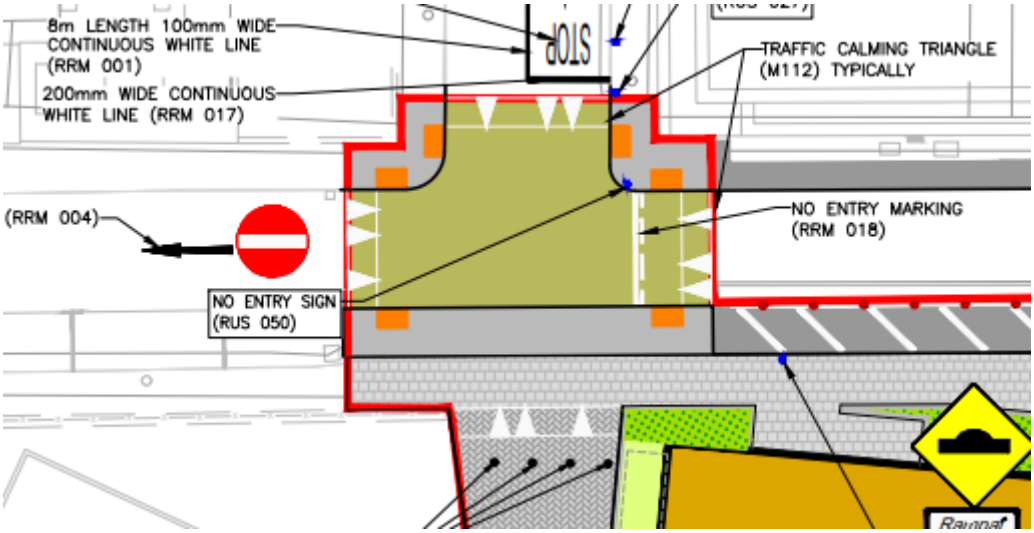

Figure 8.3 – *Interrupted Tactile Paving*

Figure 8.4 – *Interrupted Tactile Paving*

Suggestion

Relocate all chamber lids away from tactile paving locations or use recessed drainage lids.

9. QUALITY AUDIT FEEDBACK FORM

Scheme: Forbes Lane Residential Development, Dublin

Document Number: 24050-07-001

Date Audit Completed: 19th March 2024

Paragraph No. in Safety Audit Report	To Be Completed By Designer			To Be Completed by Audit Team Leader
	Problem accepted (yes/no)	Recommended measure Accepted (yes/no)	Describe alternative measure(s). Give reasons for not accepting recommended measure. Only complete if recommended measure is not accepted.	Alternative measures or reasons accepted by auditors (yes/no)
5.1	Yes	Yes	----------	----------
5.2	Yes	Yes	----------	----------
5.3	Yes	Yes	----------	----------
5.4	Yes	Yes	----------	----------
6.1	Yes	Yes	----------	----------
6.2	Yes	Yes	----------	----------
6.3	Yes	Yes	----------	----------
7.1	Yes	Yes	----------	----------
8.1	Yes	Yes	----------	----------
8.2	Yes	Yes	----------	----------

Safety Audit Signed off Kezia Adanza **Design Team Leader**

Print Name **….Kezia Adanza……..** **Date** **…09/09/2024…**

Safety Audit Signed off Glen Murray **Employer**

Print Name Glen Murray **Date** 01/10/2024

Safety Audit Signed off George Frisby **Audit Team Leader**

Print Name George Frisby **Date** 1/10/2024

Please complete and return to:

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Kilkenny
E-mail: info@roadplan.ie

APPENDIX A – DRAWINGS