24050-01-001

PROPOSED HOUSING DEVELOPMENT
AT CLONBURRIS, DUBLIN

Stage 1 Quality Audit

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

for

Malone O'Regan

May 2024

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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 Clonburris, Dublin. This scheme is a part of the NDFS social housing schemes.

1.2 The proposed development comprises a large-scale residential development including dedicated car parking spaces.

1.3 The development is in Clonburris, located between Kishoge Community School and the GSWR Railway Line.

1.4 Figure 1.1 below is a layout drawing of the development. Lynch's Park has a speed limit of 50 km/h.

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, MIEI
- Glenn Hingerty, Chartered Engineer MIEI

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
SHB5-CSD-DR-MOR-CS-P3-101	Rev 3	Proposed Site Layout
SHB5-CSD-DR-MOR-CS-P3-116	Rev 2	Swept Path Analysis - Proposed Sightlines
SHB5-CSD-DR-MOR-CS-P3-117	Rev 2	Swept Path Analysis - Refuse Truck
SHB5-CSD-DR-MOR-CS-P3-118	Rev 2	Swept Path Analysis – Aerial Platform Special Appliance
SHB5-CSD-DR-MOR-CS-P3-120	Rev 2	Proposed Roadmarkings and Signage 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	No Comment	
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]	3.3.1 – A single vehicular/pedestrian/cyclists access point is provided to the development from Lynch's Park. Future access points will be provided to the southwest and southeast of the site. The southern boundary is adjacent to the GSWR Railway. 3.3.1 – It is unclear how residents can access the soon to be opened Kishoge Railway Station, adjacent to this development.	
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	3.3.1 – Multiple pedestrian access points are provided to the development from Lynch's Park.	

[1] *When connecting with existing communities a detailed analysis and extensive community consultation should be carried out to identify the optimal location for connections (refer also to the NTA Permeability in Existing Urban Areas: Best Practice Guide).*

CONNECTIVITY			
Key Issues	**Key DMURS Reference**	**Audit Suggestion**	**Design Team Response**
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	

SELF-REGULATING STREET ENVIRONMENT			
Key Issues	**Key DMURS Reference**	**Audit Suggestion**	**Design Team Response**
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 [2]	3.2.1 – There is no through road network in the development. The singular vehicular entrance is located on a residential street, but future connections to adjacent residential development may be made for vehicular movements. 4.1.1 – The proposed development vehicular access is connected to a local road with a raised crossing. Internal streets have a variety of materials which will induce traffic reduction.	
The street environment will facilitate the creation of a traffic clamed environment via the use of 'softer' or passive measures.[3]	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	4.2.1 – No information on building heights is provided within the drawings. 4.2.2 – A landscaped area is proposed in a courtyard area in the centre of a block. Street Trees appear to be proposed along most streets. Planting creates a sense of place and unique character to each streetscape. Care should be taken	

[2] *Refer also to the National Speed Limit Guidelines*
[3] *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.*

SELF-REGULATING STREET ENVIRONMENT			
Key Issues	**Key DMURS Reference**	**Audit Suggestion**	**Design Team Response**
		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. 4.4.2 – Some variety of carriageway material has been proposed which can induce traffic calming. Excessive amounts of variance however may cause confusion for vision impaired users.	
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	4.4.4 – Forward visibility at all carriageway deflections should be kept clear of all obstructions including parked vehicles, and vegetation/landscaping. 4.4.5 – Visibility Splays at all junctions should be kept clear of all obstructions including parked vehicles, and vegetation/landscaping. This includes future maintenance of tree growth in proximity to junction visibility splays.	

PEDESTRIAN AND CYCLING ENVIRONMENT			
Key Issues	**Key DMURS Reference**	**Audit Suggestion**	**Design Team Response**
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. It is assumed that adequate lighting will be provided. Its effectiveness should not be impacted by trees or parked vehicles on streets.	
Footpaths are continuous and wide enough to cater for the anticipated number of pedestrian movements.	3.2.1 – Movement Function 3.2.2 – Place Context 4.2.5 – Street Furniture 4.3.1 - Footways, Verges and Strips 4.3.2 - Pedestrian Crossings	4.2.5 – Segregated footways have been provided and appear to be clear of obstructions which may reduce their effective width.	
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. 4.3.5 – There does not appear to be cycle facilities, for standard or cargo cycles, provided. These will be particularly important as terraced dwellings with no rear accesses feature in the proposed development.	

PEDESTRIAN AND CYCLING ENVIRONMENT			
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 cyclists as there is no designated cycleway network.	

VISUAL QUALITY			
Key Issues	**Key DMURS Reference**	**Audit Suggestion**	**Design Team Response**
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. Street Trees appear to be proposed along most streets. 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.	
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	4.3.1 – Footways largely appear clear of proposed obstacles that may reduce their effective width; however it is not clear where bins will be stored on collection day. This may pose a hazard for those with visual and mobility impairments.	
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 Marking.	No comment	

VISUAL QUALITY			
Key Issues	**Key DMURS Reference**	**Audit Suggestion**	**Design Team Response**
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	4.2.6 – It is not clear if there is clarity between footways and roadways for pedestrians with visual impairments.	

ADDITIONAL COMMENTS

5. ROAD SAFETY

5.1 Issue

Sightlines at the priority junction in Figure 5.1 may be restricted by vehicles parked in the adjacent parking spaces. This may increase the likelihood of vehicle collisions due to the reduced sightlines created by parked vehicles on either side of the junction.

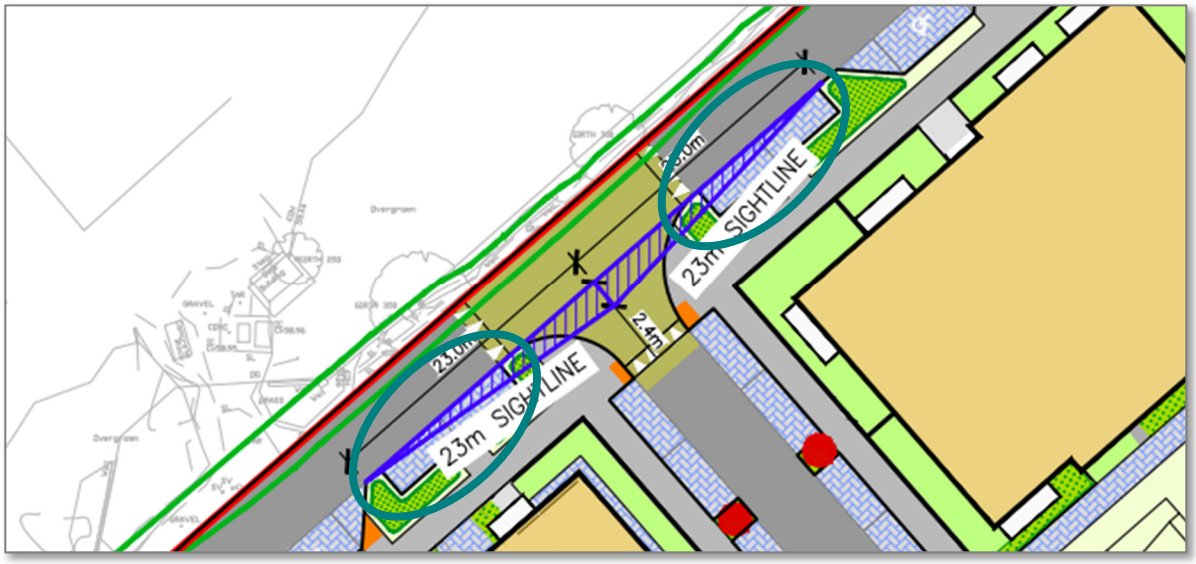

Figure 5.1 – *Restricted Visibility Splays*

Suggestion

Ensure adequate visibility splays at all junctions from edge of carriageway. Remove parking bays or any other obstructions from visibility splays.

5.2 Issue

Stopping sight distances at various bends on the internal road layout (e.g. Figure 5.2) appear to be obstructed by proposed trees and parking bays, which may compromise visibility when occupied. This may increase the likelihood of vehicle collisions due to the reduced sightlines created by parked vehicles and trees on the internal road network.

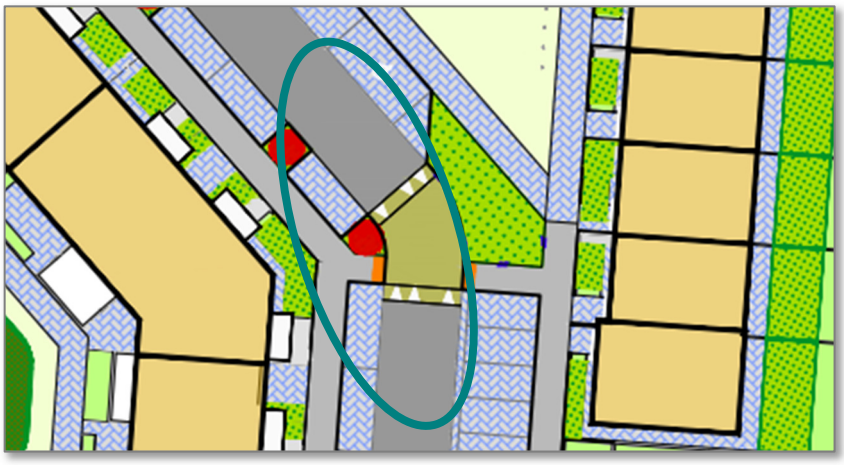

Figure 5.2 – *Incorrect Visibility Splays from centre of carriageway*

Suggestion

Ensure adequate stopping sight distance along all roadways in the development, particularly at bends.

5.3 **Issue**

Various sightlines may be impacted by trees as outlined above. Relocated trees may, when planted, be appropriate however junction visibility splays or stopping sight distance may be reduced with tree growth. This may increase the likelihood of collisions.

Suggestion

Ensure appropriate tree location, species, and maintenance accordingly.

5.4 **Issue**

Street lighting columns were observed on Lynch's Park on the site visit in proximity to the access points for the development (Figure 5.3). There is no indication on the proposed drawings of proposed lighting column positions and any removal of existing columns will reduce the overall lighting in the area, which may result in an increased likelihood of collisions.

Figure 5.3 – *Existing Lighting columns*

Suggestion

Ensure adequate provision of lighting in the development and on Lynch's Park.

5.5 **Issue**

Some proposed traffic signs feature poles which appear to be located on the kerbline. This may result in an increased likelihood of large vehicles swerving to avoid them, resulting in collisions with oncoming vehicles, or vehicles striking the overhanging signs and twisting them, making the signs ineffective which may cause driver confusion and/or collisions.

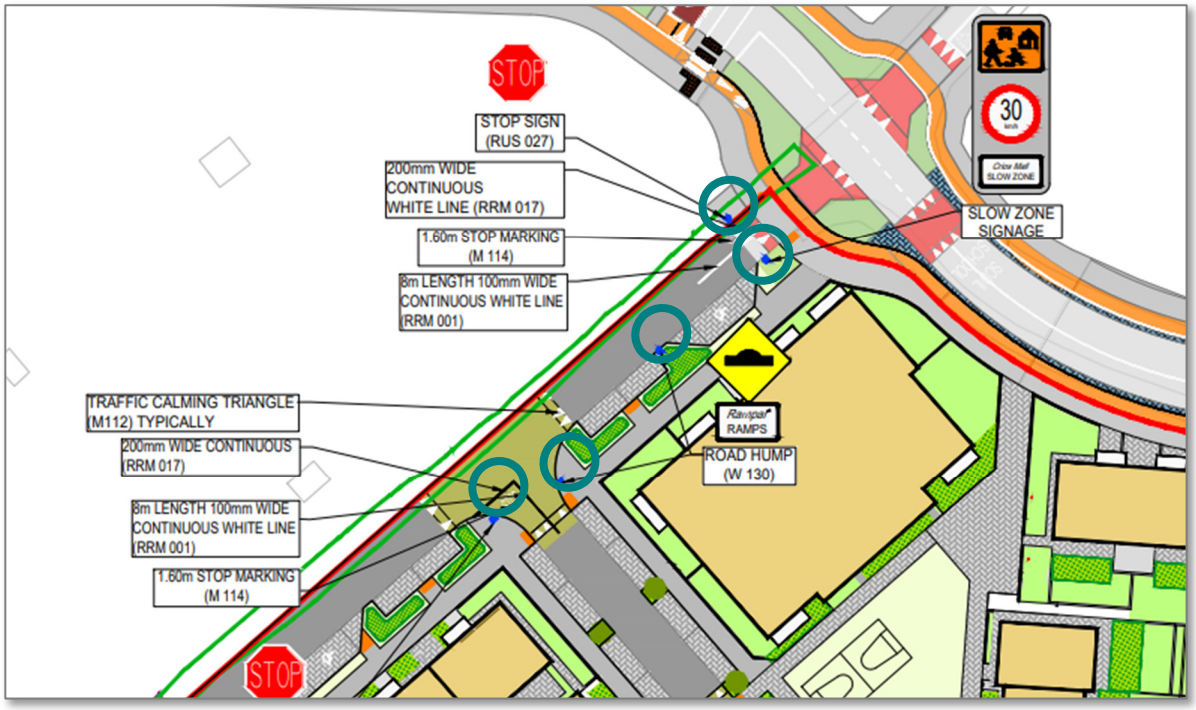

Figure 5.4 – *Traffic Signs adjacent to Kerbline*

Suggestion

Ensure adequate distance between vehicles, and their mirrors, and signage throughout the development. Review in conjunction with swept path analyses.

5.6 **Issue**

The layout of the chicane proposed in Figure 5.5 below may increase the risk of a vehicle crossing over into the opposing lane contributing to a head-on or side swipe collision at this location.

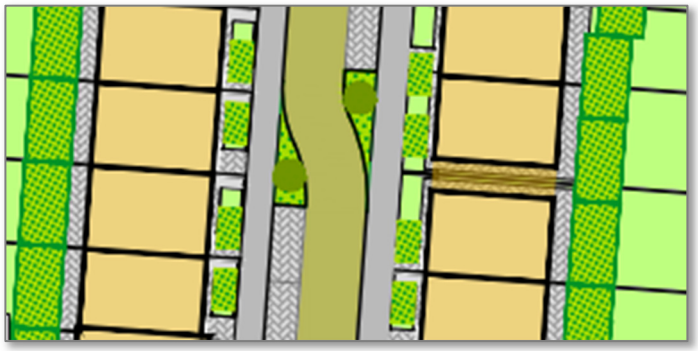

Figure 5.5 – *Proposed Chicane*

Suggestion

Either remove or change the orientation of the chicane.

6. WALKING

6. 1 Issue

Inter-visibility between pedestrians and drivers at raised crossings (e.g. Figure 6.1) in the proposed development may be significantly compromised by the proposed parking arrangement and tree locations. This may increase the risk of collisions and pedestrian injuries at these locations.

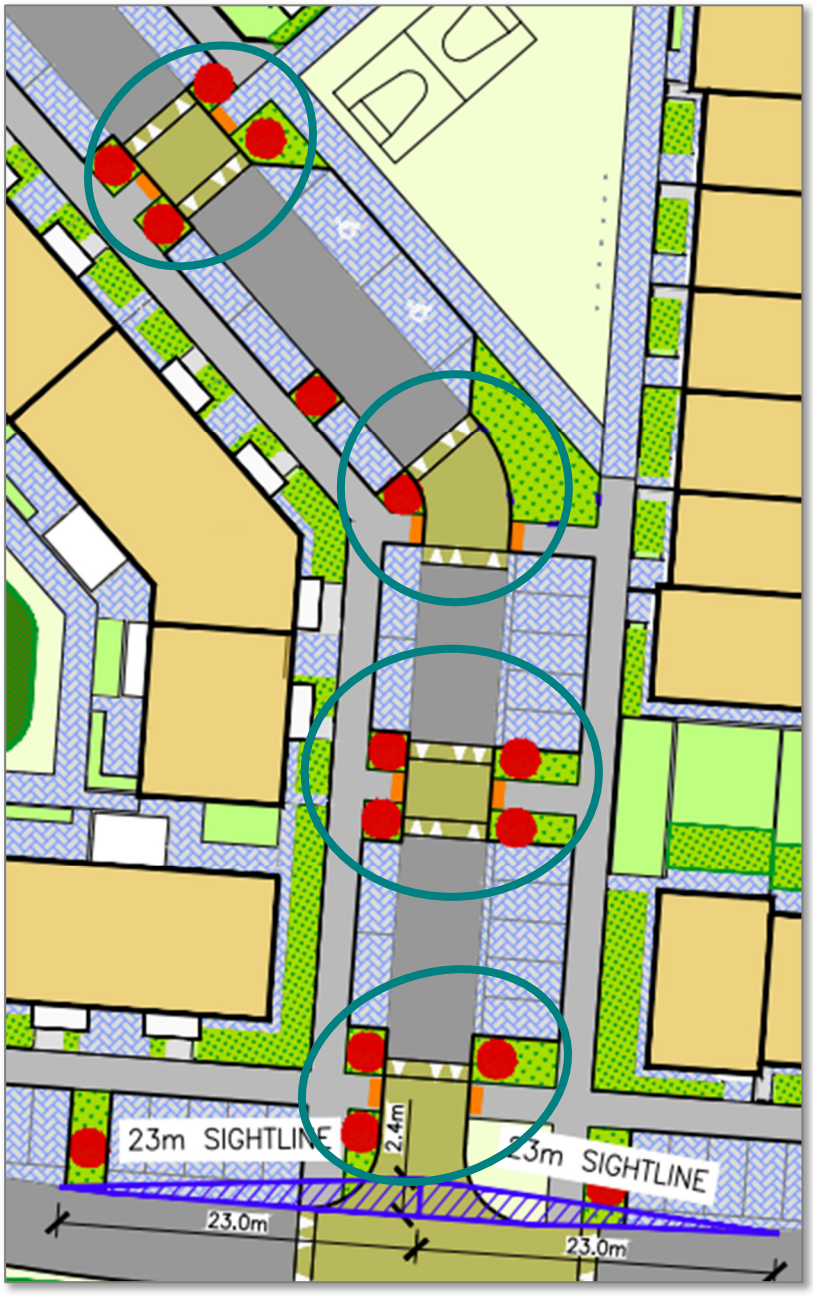

Figure 6.1 – *Inconsistent junction treatment*

Suggestion

Ensure adequate inter-visibility between pedestrians and drivers at pedestrian crossings.

6. 2 **Issue**

The proposed development is, as the crow flies, in close proximity to the soon to be opened Kishoge Railway Station (Figure 6.2) however it is unclear how pedestrians will access the station on foot, without using the more circuitous route via Thomas Omar Way and The R136.

Figure 6.2 – *New Kishoge Railway Station without pedestrian connection*

Suggestion

Include a direct pedestrian access point between the development and the rail station.

6. 3 **Issue**

Existing lighting columns on Lynch's Park may reduce the effective width of the footway (Figure 6.3), encouraging people to walk around them and onto the roadway during busy times, e.g. school run, resulting in associated injuries.

Figure 6.3 – *Lynch's Park Road with no pedestrian crossing points*

Suggestion

Relocate the lighting columns and ensure adequate level of service for footway.

7. CYCLING

7. 1 **Issue**

There is no proposed cycle storage in the development and many housing units feature no rear access. This may cause cyclists to lock cycles to other street furniture, creating a navigation risk and reducing the effective widths of footways, especially for cargo cycle users.

Suggestion

Provide secure storage for cycles and cargo cycles.

7. 2 **Issue**

There is also no cycle connection between the development the new Kishoge Rail Station.

Figure 7.1 – *New Kishoge Railway Station without cycle connection*

Suggestion

Include a direct cycle access point between the development and the rail station.

8. ACCESSIBILITY

8. 1 Issue

DMURS style 'Local Shared Streets' (e.g. Figure 8.1) feature in the proposed development. As these feature roads and footways with no level difference, this may pose a risk that pedestrians with a vision impairment may wander out onto the carriageway (at locations other than a formal crossing) and be struck by a vehicle.

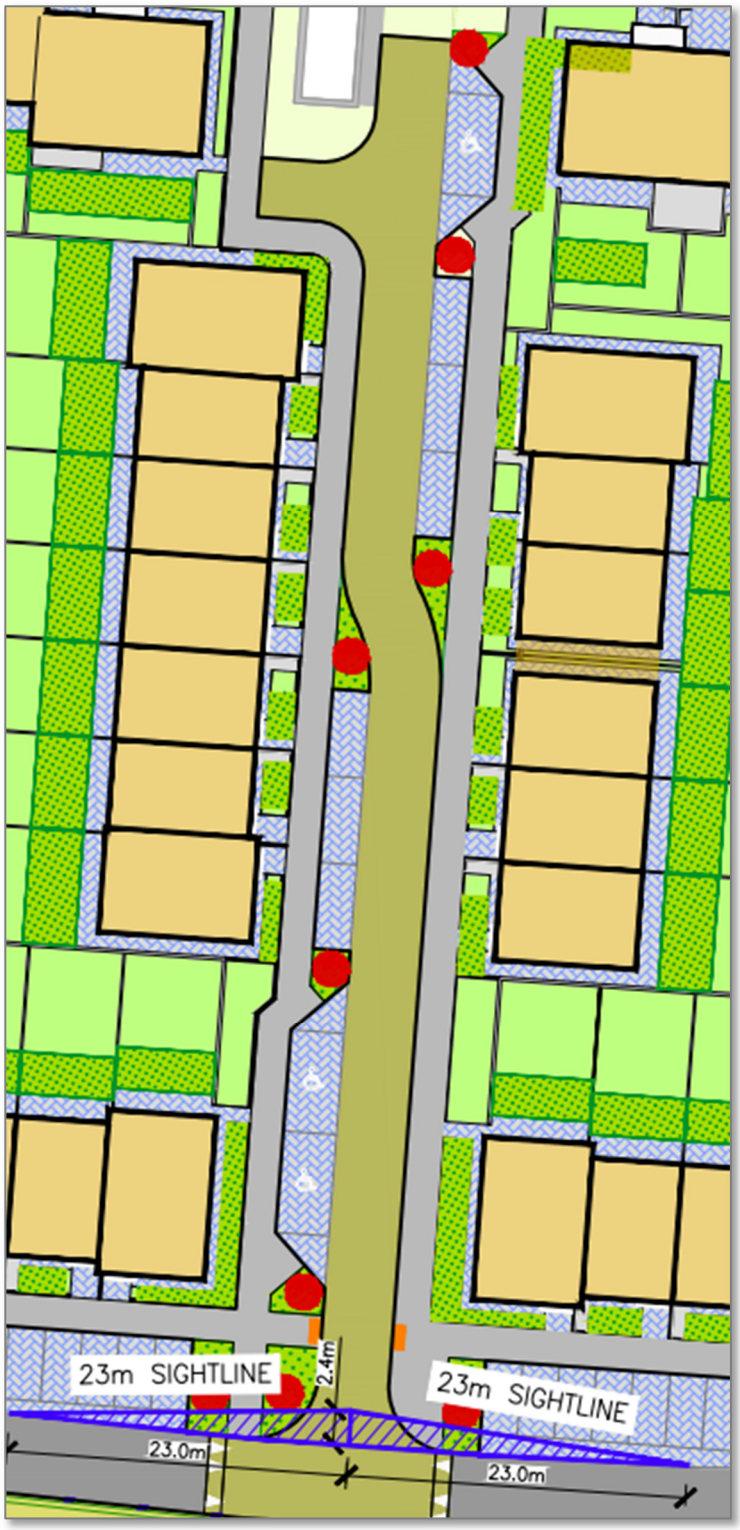

***Figure 8.1** – Local Shared Street*

Suggestion

Include an upstand between the footway and carriageway, or a tactile delineation line, to support navigation by vision impaired pedestrians.

8. 2 **Issue**

It is unclear what the refuse collection strategy is for this development. Most road edges in the development feature parallel parking in designated bays. This creates a risk that refuse bins will be left on the roadway and block sightlines or left on the segregated footways and thereby reduce the effective width thereof resulting in navigation challenges, particularly for those with vision or mobility impairments.

Suggestion

Revise refuse collection strategies in conjunction with infrastructure provision. Install singular/centralised bin storage areas.

9. QUALITY AUDIT FEEDBACK FORM

Scheme: Clonburris Residential Development, Dublin

Document Number: 24050-01-001

Date Audit Completed: 30th May 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		
5.5	Yes	Yes		
5.6	Yes	Yes		
6.1	Yes	Yes		
6.2	Yes	Yes	Third-party land is not owned by the developer. The SDZ development establishes the street hierarchy and specifically outlines connectivity with both the station and the proposed development.	The proposed development includes a footpath that will connect to future paths leading to the Kishogh railway station once they are constructed by others.
6.3	Yes	Yes		
7.1	Yes	No	Appartement and duplex units have dedicated cycle storage. Housing units will accommodate cycle storage.	Provided in scheme

7.2	Yes	Yes	Third-party land is not owned by the developer. The SDZ development establishes the street hierarchy and specifically outlines connectivity with both the station and the proposed development.	The proposed development includes a cycle path that will connect to future cycle paths leading to the Kishogh railway station once they are constructed by others.
8.1	Yes	Yes		
8.2	Yes	Yes	Off-street refuse bin storage is provided throughout out the development. Gaps in the on-street parking provide locations for temporary bin storage on collection day.	Further review of the refuse collection strategy will be conducted

Safety Audit
Signed off ……. Design Team Leader

Print Name ……..……... Date ……

Safety Audit
Signed off ……..…… Employer

Print Name ……. Date ……

Safety Audit
Signed off …… Audit Team Leader

Print Name ……. Date ……

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APPENDIX A – DRAWINGS