ARUP

Tiznow Property Company Limited (Comer Group Ireland)

City Park Development at the Former Tedcastles Site

Quality Audit

Reference: 267365-ARUP-XX-XX-RP-YT-0015

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Job number 267365-00

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Contents

1. Introduction

A Quality Audit has been prepared in relation to the proposed strategic housing development at The Former Tedcastles Site, located within the South Docklands area of Cork City. The Quality Audit was undertaken on behalf of Arup by J.B. Barry & Partners Ltd and is included as Appendix A of this report.

The Quality Audit has been prepared in accordance with the Design Manual for Urban Roads and Streets (DMURS) and includes a Stage 1 Road Safety Audit, a Cycle Audit and a DMURS Street Design Audit. The overall Quality Audit report summarises the issues raised within each individual Design Audit.

Appendix A

Quality Audit Report

Tiznow Property Company Limited

City Park Development at the Former Tedcastles Site, Centre Park Road, Cork

Quality Audit

March 2022

BARRY & PARTNERS
consulting engineers

CIVIL • STRUCTURAL • ENVIRONMENTAL • TRANSPORTATION

Document Control Sheet

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Table of Contents

SECTION 1: Introduction

1.1 Background

J.B. Barry & Partners Ltd were commissioned by Arup on behalf of their client Tiznow Property Company Limited to prepare a Quality Audit for a proposed development on the site of the former Tedcastles site, Centre Park Road, Cork City. The site is bounded by Centre Park Road to the south, Marina Walk to the north and an industrial site (Marina Power Station & Marina Commercial Park) to the west. See Figure 1.1.

This report is the result of a Quality Safety Audit (QA) based on the preliminary design of the proposed development.

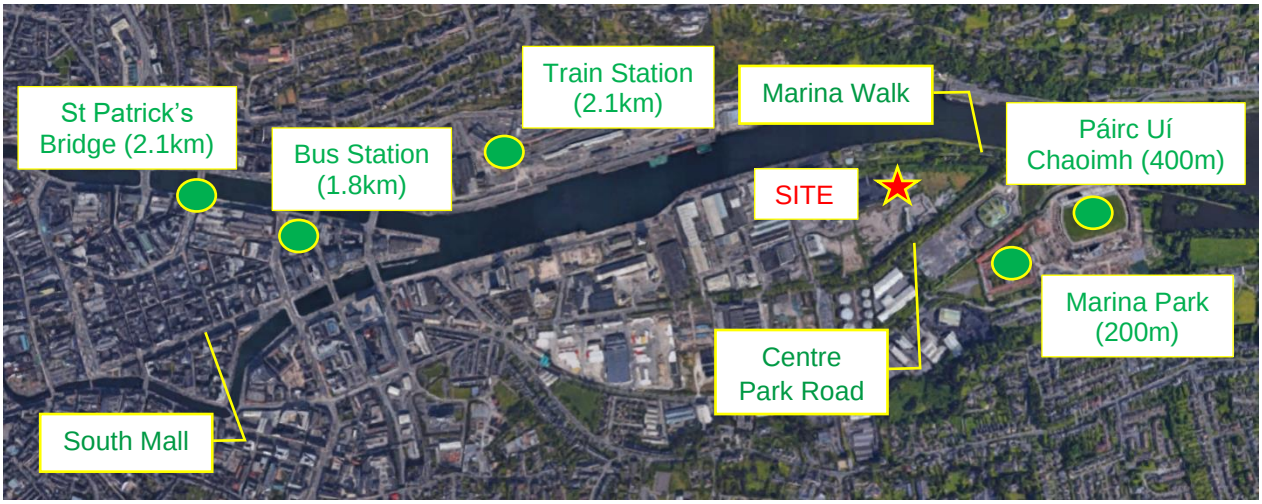

Figure 1.1: Site Location Map (source: Google Earth)

The proposed mixed-use development comprising of 830 residential units with creches, restaurants, cafes, retail units and other neighbourhood amenities. Refer to Figure 1.2 for a 3D rendered image. Cira 270 parking spaces will be provided internally at a lower-ground level accessed from a new internal site access road which forms a new T-junction with Centre Park Road.

Figure 1.2: Proposed City Park Development (3D Rendered Image)

1.2 Project Objectives

The following project objectives were provided by the Design Team.

> *"City Park Development is located at the Former Tedcastles site between Centre Park Road and the River Lee at the heart of Cork's South Docklands.*
>
> *The proposal will provide a mix of 1, 2 and 3-bedroom apartments, each with their own private balcony, that offer a variety of accommodation to cater to the diverse demands of the modern Irish family. As well as having direct access to the iconic and contemporary Marina Park, residents will enjoy a mix of shared communal and public open spaces which provide ample space for nature to thrive in. This high-quality environment will be complimented by a wide range of facilities such as creches, restaurants, cafes, retail units and other neighbourhood amenities to create a vibrant and enjoyable community."*

1.3 Quality Audit Process

This Quality Audit has been prepared in accordance with the Design Manual for Urban Roads and Streets (DMURS). A Quality Audit is undertaken to demonstrate that appropriate consideration has been given to all the relevant aspects of the design. It provides a system of design checks that can be carried out to promote 'best practice' design solutions. For large scale/complex projects several audits may be undertaken.

The Quality Audit process seeks to integrate existing auditing processes and expand their scope to fully embrace a multi-disciplinary approach to street design. The UK Department for Transport notes the key benefits of a Quality Audit as:

- A transparent process that demonstrates that the needs of all user groups have been considered alongside the design objectives.
- A checking procedure that facilitates the projects objectives to be delivered.
- A documentation process that clearly demonstrates the breadth of issues that have been considered and how decisions were arrived at.
- A cost saving exercise that reduces the likelihood of problems at completion.
- A process that encourages greater engagement with stakeholders.

As the core element of any Quality Audit is a Road Safety Audit: This was prepared using standard Road Safety Audit principles and practice by experienced road design engineers with a background in Road Safety Auditing. Issues or potential hazards identified are centred on established road safety engineering principles. The audit process is based on a combination of desk assessment combined with site visits and consultations.

1.4 Quality Audit Report Structure

Quality Audits should consist of two major parts:

- **Individual Design Audits**
  For the proposed development, these will consist of a:
  - Stage 1 Road Safety Audit (contained in Appendix 1);
  - Cycle Audit (contained in Appendix 2); and
  - DMURS Street Design Audit.

  Note: other individual Design Audits may be added to this report as the design evolves.
- **Quality Audit Report**
  The Quality Audit Report will summarise the issues raised within each individual Design Audit, identify any potential conflicts between audits and propose solutions. All solutions should be measured against the main objectives of the project and presented as a series of recommendations.

1.5 Methodology

The methodology adopted for this report is summarised as follows.

Various architectural design drawings and design statements for the development were reviewed.

An inspection of the local street network was undertaken in the area.

In preparing the Audit reference was made to the following documents:

- Design Manual for Urban Roads and Streets (DMURS), Department of Transport, Tourism and Sport.
- DMURS Supplementary Material – Advice Note 4 – Quality Audits
- DMURS Supplementary Material – DMURS Street Design Audit (May 2019)
- Traffic Advisory leaflet 5/11, Department of Transport UK.
- Building for Everyone – A Universal Design Approach (Book 1 – External Environment & Approach), National Disability Authority.

This QA was carried out between Thursday 13 Jan 2022 and Friday 25 Mar 2022. While carrying out this QA, the site was visited on Thursday 13 Jan 2022. Moderate volumes of traffic were observed in the immediate vicinity of the site during the site visit and moderate levels of pedestrians and cyclists as would be expected this close to the city centre, particularly on the Marina amenity walk.

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SECTION 2: Stage 1 Road Safety Audit

2.1 Summary of Issues

Problem 2.1: Visibility Splays at Accesses
It is not clear from the drawings if the required sight distances can be achieved for motorists exiting the Block C carpark entrance or at the proposed access to Centre Park Road.

Problem 2.2 Turning Area
The square corners of the turning area may make it difficult for larger vehicles especially service or delivery vehicles to turn around and excessive manoeuvring may endanger other road users. Also, it is not safe for pedestrians to cross the turning area through the middle of the stem where vehicles reverse into.

Problem 2.3: Priority and Intervisibility at Carpark Entrances
It appears from the drawings that motorists have priority over pedestrians at all private entrances. There is a risk that a pedestrian, who would normally have priority in this situation and in this type of neighbourhood development, would walk out in front of an emerging vehicle which could lead to a vehicle striking a pedestrian. The problem is made worse by the poor intervisibility offered due to the carpark entrances aligned with the front wall and the back of footpath.

Problem 2.4: Shared Surface Street
It is not clear from the drawing if it is proposed to have a shared surface street. Share surface street would be appropriate for this type of neighbourhood development and are particularly effective at calming traffic and perform well in terms of road safety. However, if not designed properly, shared surface streets can be intimidating for impaired users.

Problem 2.5: Priority at Shared Surfaces
It is not clear from the drawing as to how it is proposed to introduce the shared areas between pedestrians and cyclists.

Problem 2.6: Exposed Water Edge
It is not clear from the drawing if it is proposed to install additional protection along the exposed water edge.

Problem 2.7: Pedestrian Crossing Width
The pedestrian approach to the pedestrian crossing from the north is wider than the pedestrian crossing itself which may result in pedestrians walking in front of an oncoming vehicle or needing to walk for longer on the carriageway due to the grass landing area on the opposite side.

Problem 2.8: Street Parking Footpath Surrounds
The paving at the end of both street parking areas lead pedestrians to walk directly onto the carriageway which may result in pedestrians walking in front of an oncoming vehicle or needing to walk for longer on the carriageway due to the grass landing on the opposite side.

Problem 2.9: Lack of Public Road Crossings
The proposed scheme does not appear to include any dedicated pedestrian/cyclist crossing facilities across the public road bounding the site.

Problem 2.10: Carpark Traffic Management
There is a danger that a motorist, unfamiliar with the carpark layout, entering the carpark may not appreciate the one-way system, especially if the white arrow road markings are obscured by an oncoming vehicle.

Problem 2.11: Long Carpark Aisle
Motorists might not be a able to see if there are any vacant spaces along a long aisle in the carpark which could lead to motorists requiring to turn around within the aisle.

Problem 2.12: End Parking Bays
Many of the end parking bays may be difficult to use requiring multiple reversing movements.

Problem 2.13: Doorways Obstructions
At a few locations, a parked car may block a doorway leading to the risk of trapping a person inside. Some doors appear to open out into the aisle where they could be struck by a passing vehicle.

Problem 2.14: No Advisory Carpark Pedestrian Routes
It is not proposed to provide any advisory lanes to guide pedestrians safety to the nearest exit.

Problem 2.15: Lack of Connection to the Marina
The Marina amenity will be a desire line (and vice versa) for many pedestrians and cyclists from the development. The proposals include a series of connections into the car park from the development which appear to be blocked by parking spaces.

2.2 Possible Conflicts with Audits / Project Objectives

No conflicts were identified between the Stage 1 Road Safety Audit and the Project Objectives or the other Design Audits carried out.

2.3 Conclusions / Recommendation

All issues were agreed with the Design Team.

Recommendation 2.1: The required sight lines should be achieved in accordance with DMURS at all new entrances.
Designers Response: Yes | Yes

Recommendation 2.2: The shape of turning area should be revised to one closer to that shown in the right image above. The footpath should be realigned to the back of the turning area.
Designers Response: Yes | Partially | The turning area has corner radii applied. It will also be part of a raised table area which will facilitate pedestrian crossings at grade at the top of the stem (it is not possible to divert the footpath around the turning area).

Recommendation 2.3: A raised footpath should be maintained across all private entrances indicating that pedestrians have priority. Consider moving pedestrians out from the building at each of the carpark entrances by installing a vertical bollard on each side of the access close to the wall.
Designers Response: Yes | Yes – partially | All pedestrian crossings are to be raised. The provision of bollards to direct pedestrian movement will be considered at detailed design stage.

Recommendation 2.4: Clearly indicate if a section of the access road is to be designated as a shared surface. If so, design accordingly.
Designers Response: No | No | To confirm, the internal street is not intended to function as a shared street

Recommendation 2.5: Prescribe the necessary road markings and warning paving such as tactile paving or corduroy paving.
Designers Response: Yes | Yes

Recommendation 2.6: Adequate protection should be provided along the walkway. Ensure lifebuoys are provided. Ensure that the walkway is well lit at night.
Designers Response: Yes | Yes | A protective railing is proposed, and the area will be well lit.

Recommendation 2.7: The width of the pedestrian crossing should be at least 4.0m and matches the width of its approaches.
Designers Response: Yes | Yes | Crossing width has been amended

Recommendation 2.8: Either remove the sections of footpath at the ends of the street parking areas or tie them into the footpath network or provide a formal pedestrian crossing when the footpath meets the carriageway.
Designers Response: Yes | Partially | The footpath areas will be connected to the wider footpath network.

Recommendation 2.9: Appropriate pedestrian crossing points should be provided across Centre Park Road and follow pedestrian desire lines. Review the layout and examine the needs of pedestrians and cyclists.
Designers Response: Yes | No | There is no current pedestrian desire line across Centre Park Road at this location. However, once the adjoining site is developed and a pedestrian route available, the appropriate junction treatment and crossing facilities will be agreed with Cork City Council as part of future upgrades on Centre Park Road.

Recommendation 2.10: Appropriate road markings should be provided. White arrow markings should be frequent and supplemented by other road markings such as a guidelines, text markings and signage to ensure one-way system is clear.

Designers Response: Yes | Yes

Recommendation 2.11: The last four spaces should be removed to provide a link between the two adjacent aisles allowing vehicle to circulate more freely.

Designers Response: Yes | Yes | A suitable turning space will be provided for vehicles.

Recommendation 2.12: A vehicle sweep assessment should be carried out to ensure that motorists driving a large car can safely and easily use all end parking spaces when all of the adjacent spaces are occupied.

Designers Response: Yes | Yes

Recommendation 2.13: All parking spaces should be kept clear of doorways and escape routes. Ensure that door cannot open in front of a car travel along the aisle.

Designers Response: Yes | Yes

Recommendation 2.14: Provide road markings advising pedestrians of the safest areas to cross aisles and along with signage, the most direct and safest route to the exit points. If aisle widths are restrictive, then these need only to be advisory allow vehicles to drive on them if needs be.

Designers Response: Yes | Yes

Recommendation 2.15: Appropriate crossing facilities should be provided through the car park between the proposed development and the greenway, giving priority to vulnerable road users.

Designers Response: Yes | Yes

SECTION 3: Cycle Audit

3.1 Summary of Issues

Problem 2.1: Basement Carpark Access
It is proposed that cyclists share the same access ramp to the basement carpark with motorists with no segregation. Cyclist will want to travel at slower speeds while negotiating the ramp which might require sudden breaking which increases the risk of collision with a vehicle. Also, cyclists in the up-ramp direction will require more 'wobble' room. There is also a risk of cyclists slipping in wet weather when entering the carpark which could have different surfacing and potentially a tight turning curve at the bottom of the ramp for Block F. It is not clear from the drawing whether rising barriers are proposed on the car park entry but if so, there is a risk of cyclists colliding with them or having to make sudden manoeuvres to avoid them.

Problem 2.2: Cyclist Desire Lines
There is a danger that cyclist will take a short-cut and enter the 'exit only' entrance at Block C to follow a more direct desire line to the parking located under Blocks A, B and C instead of going as far as the Block F carpark entrance.

Problem 2.3: Bike Storage Access
Some of the bike store rooms appear to be difficult to access.

Problem 2.4: Cycling on Footpaths
Some of the bike storage areas require cyclists to travel along the footpath in order to access them. Some cyclists may not dismount and walk along the footpath but rather cycle on the footpath and risk colliding with a pedestrian.

Problem 2.5: Bicycle Parking
Cycle parking is an integral part of any cycle network and a strategic approach to the provision of bicycle parking facilities will contribute to:

- Promoting modal shift – locating cycle parking conveniently to building entrances and reminding people of the bicycle;
- Improving the quality of cycling facilities – where cyclists and their needs are fully considered;
- Well-designed cycle parking in public spaces – well planned, considerate of the needs of pedestrians and other street users, visually attractive, and sufficient in terms of quantity and quality for the activities in the locality – resulting in less cycle parking against poles and railings;
- Security – where bicycle users are confident their bikes will not be stolen or vandalised;
- Support for mobility management plans – where early provision of cycle parking indicates a level of real commitment towards the bicycle.

Problem 2.6: Priority at Shared Surfaces
It is not clear from the drawing as to how it is proposed to introduce the shared areas between pedestrians and cyclists. Failure to convey who has priority at the shared areas increases the risk of a collision between a pedestrian and a cyclist.

Problem 2.7: Exposed Water Edge
It is not clear from the drawing if it is proposed to install additional protection along the exposed water edge. The change in land use to residential, commercial and more social use will generate new and once off visitor trips who may not be familiar to this danger especially at night. There is a risk that a cyclist especially a young cyclist could fall into water.

Comment 2.8: Bike Storage Access
It is not clear from the drawing how cyclists can access some of the bike stores.

3.2 Possible Conflicts with Audits / Project Objectives

No conflicts were identified between the Cycle Audit and the Project Objectives or the other Design Audits carried out.

3.3 Conclusions / Recommendation

All issues were agreed with the Design Team.

Recommendation 2.1: Provide cycle lanes of adequate width along the carpark ramp. Ensure that the vertical gradient of the carpark ramp is no greater than 7% (1 in 14) to keep cycle speeds low. Ensure there is sufficient head room of between 2.2 to 2.4 in height to accommodate cyclists. Ensure the ramp surface is suitable for bicycle wheels and braking, and that there is adequate surfacing and corner radii (if required) beyond the bottom end of the ramp. Also, if there are rising barriers proposed, ensure cycle lanes provide adequate room to manoeuvre around the barriers.
Designers Response: Yes | No | It is not possible to increase the width to facilitate dedicated cycle lanes on the ramps. However, ramp lengths are short and gradients are 7% for Block C and E, and Block F facilitates cycle parking access from the street level. Appropriate surfacing and radii will be considered at detailed design stage.

Recommendation 2.2: Either enforce the no entry at the Block C carpark entrance by way of a barrier to prohibit cyclists from entering or provide a contra-flow cycle lane aligned with bollards and design for how cyclists can access the bike storage areas safely considering the one-way system in the carpark.
Designers Response: Yes | No | All car park accesses will be two-way.

Recommendation 2.3: Ensure all of the bike storage areas can be easily and safely accessed by cyclist.
Designers Response: Yes | Yes

Recommendation 2.4: Reduce the distance that cyclists need to travel on the footpath by providing more direct access points.
Designers Response: Yes | Yes | Additional access points will be provided.

Recommendation 2.5: Cycle parking areas with a large number of parking places need careful design, and the parking area layout needs to be borne in mind when selecting the type of rack or stand to be used.
Designers Response: Yes | Yes | All cycle parking areas will be provided in line with best practice.

Recommendation 2.6: Prescribe the necessary road markings and warning paving such as tactile paving or corduroy paying.
Designers Response: Yes | Yes | The appropriate markings and advisory paving will be provided.

Recommendation 2.7: Provide adequate protection along the walkway. Ensure lifebuoys are provided. Ensure that the walkway is well lit at night.
Designers Response: Yes | Yes | A railing will be provided and the area will be well lit.

SECTION 4: DMURS Street Design Audit

4.1 Summary of Issues

4.1.1 Connectivity

Strategic Routes

3.3.1-Street Layouts: A cul-de-sac access road with parallel street park will require excessive turning. A second access point would remove the cul-de-sac and reduce turning or provide a second dedicated turning area midway along the access road. Alternatively perpendicular parking should also be considered.

Accessibility:

3.3.1-Street Layouts: More clarity needed on raised surfaces, shared surfaces, dropped kerbs, tactile paving and public lighting.

3.4.1–Vehicle Permeability: Lack of a nearby turning area along the section of access road near the main entrance will result in difficulty for motorists exiting the street-side parking. Vehicles will turn at the car park entrance.

4.1.2 Self-Regulating Street Environment

Design Speeds

4.1.1-A Balanced Approach to Speed: Vehicle movement priorities are low on Local Streets and a 10-30km/h Design Speed would be appropriate.

Street Environment

4.2.4-Signage and Line Markings: Limited detailed provided. We recommend that road lining and signage be kept to a minimum to promote traffic calming and more towards a self-regulating street environment.

4.2.7-Planting: One key consideration needs to be given to the ongoing maintenance and size of street trees/planting at maturity and that these trees don't infringe on movement or reduce visibility at accesses. Care needs also need to select species suitable for planting over the lower-level carpark.

4.4.2-Carriageway Surfaces: All raised surfaces should be distinct from more mainstream road surface which use a 125mm high kerb. Consideration should be giving to a shared street surface.

The use of standard materials, such as macadam/asphalt should generally be confined to streets with moderate design speeds (i.e. 40-60km/h). Where low design speeds (i.e. 30km/h) are desirable then changes in the colour or texture of the carriageway should be used periodically, such as at crossings or at strategic locations, such as Focal Points. Where shared carriageways are proposed (i.e. 10-20 km/h) changes in colour and texture should be applied to the full length of the street.

4.4.9-On-Street Parking: Overall parking provision needs to be carefully considered in order not to promote driving over other more sustainable modes of travel.

Perpendicular street spaces may be provided in lower speed environments such as Local Streets to cater for increased demands around commercial units. Parallel street parking on a cul-de-sac local access road requires a nearby turning area.

No loading areas are shown on the layouts. Loading facilities should preferably, be provided off-street.

To reinforce narrower carriageways (particularly when spaces are empty) parking bays should be finished so that it is clearly distinguishable from the main carriageway.

Design Standards

4.4.1-Carriageway Widths: The standard carriageway width for Local Streets should be 5-5.5m and 4.8m with a shared surface carriageway.

4.4.4–Forward Visibility: A reduced Stopping Sight Distance (SSD) of 33m should be applied in keeping with a Local Access Road in a Neighbourhood setting.

4.4.5–Visibility Splays: A reduced sight distance (Y value) of 33m should be applied to all carpark exits and of 59m at the access to Centre Park Road. An setback distance (X value) of 2.4m should be used in conjunction with STOP controlled junctions.

4.1.3 Pedestrian and Cycling Environment

Built Environment

4.2.3-Active Street Edges: Care is needed to ensure that the larger more secluded park area to the west of the development and also along the water channel are safe and feel safe especially at night.

4.2.5–Street Furniture: Street furniture serves many purposes that relate to both place and function and includes a variety of commonly found items within a street such as public art, lighting, bollards, guardrails, seating and cycle parking.

Pedestrian / Cyclist Priority

4.3.2-Pedestrian Crossings: More thought needs to be given to ensuring pedestrian crossings across Centre Park Road are provided to correspond to desire lines.

4.3.3–Corner Radii: Corner radii for this development should be between 1-3m for few larger vehicles and allows the occasion HGV to cross centrelines if required.

4.4.3-Junction Design: The proposed access on Centre Park Road is directly opposite another proposed development access (i.e. forms a crossroad) which is no longer considered very safe. Consider a staggered arrangement. Consider a left/right staggered junction arrangement.

Ensure a Stop control is used rather than a Yield control.

4.4.7-Horizontal and Vertical Deflections: All crossings should be raised indicating that pedestrians have priority over vehicles.

Footpaths

4.2.5-Street Furniture: The number of items used should be balanced with other facilities (including signage and line marking) to reduce clutter. To reduce street clutter designers should consider combining lighting with other installations.

The use of guardrails should be limited if used at all.

On Local Streets, the mounting heights of lanterns should be no greater than 6 metres.

4.3.1-Footways, Verges and Strips: Footpaths along commercial frontages should be wider than 2.0m to compensate for the lack of strips and allow for doors to open etc.

Visually and Mobility Impaired

4.2.5-Street Furniture: Items used should be chosen from a limited palette that promotes visual cohesion while contrasting with the background to assist the visually impaired.

4.3.1-Footways, Verges and Strips: Where public steps are encountered, an alternative ramped route is available.

Verges offer a buffer between the footpath and the carriageway/parallel parking bays and accommodates street lighting.

4.3.2-Pedestrian Crossings: All crossings should be a minimum width of 2-3m. All crossings should be raised and well-lit to aid those with a visual or mobility impairment. All crossing lengths should be less than 6.0m long and be located to match desire lines. Forward visibility should be 33m at all crossings with trees remove if they obscure a pedestrian waiting to cross.

4.3.4-Pedestrianised and Shared Surfaces: Apply design measures such as:

- Sections of tactile paving that direct movement along the street or across spaces.
- The creation of distinct zones that delineate pedestrian only space from shared space.
- Flush kerbs, drainage lines and/or sections of tactile paving to assist guide dogs and indicate movement from a pedestrian only space to a shared carriageway.

Cycling for All Ages and Abilities

3.2.1–Movement Function: More consideration by the designer is required for what cyclists are required to do at shared spaces with pedestrians at crossings and across with motorists at the main entrance.

4.1.4 Visual Quality

Landscape Plan

4.2.2–Street Trees: Smaller species with a canopy spread of 2-6m will be best suited to narrower streets such as Local streets and where buildings are located in close proximity to the street edge carriageway (i.e. to take account of overshadowing, growth restrictions).

Consideration needed as to the impact of root growth. Tree roots may need to be contained within individual tree pits, continuous soil planting strips or using other methods to restrict growth under pavements/toward services. Attention is needed for trees planted over the lover-level carpark.

4.2.7–Planting: Designers should also consider the size of trees, shrubs and other landscape elements at full maturity. In general designers should avoid planting that will grow to obstruct movement and surveillance.

Signs and Road Markings

3.2.3–Place Context: An emphasis on the values of place also requires the visual impact of signage to be considered in order to reduce visual clutter.

4.2.4-Signage and Line Marking: Road lining should be confined to a Stop Line accompanied with a Stop sign and a shorth 8m long section of centre line.

We recommend no centre line be used elsewhere.

Materials and Finishes

3.2.1–Movement Function: Apply a hierarchical approach to the application of materials. Altering the palette according to the street hierarchy and/or importance of place will assist in way finding.

3.2.3–Place Context: Higher quality design solutions should be implemented that highlight and promote the importance of place.

4.3.2–Pedestrian Crossings: Materials and finishes at crossings should promote visual cohesion, while contrasting with the background to assist the visually impaired.

4.4.2–Carriageway Surfaces: Use of contrasting materials and textures to inform pedestrians and motorists of changes to the function of space (i.e. at verges, footpaths, strips, cycle track, pedestrian crossings, road-side parking bays, car park entrances and shared surfaces) and in particular to guide the visually impaired.

4.2 Possible Conflicts with Audits / Project Objectives

No conflicts were identified between the DMURS Street Design Audit and the Project Objectives or the other Design Audits carried out.

4.3 Conclusions / Recommendation

All issues were agreed with the Design Team. The following sub-sections refer to the Designer's Responses.

4.3.1 Connectivity

Strategic Routes

3.3.1-Street Layouts: Residents of the development will be primary users of the access road and will have access to the underground parking for turning. A limited amount of on-street parking is provided at street level, and a turning area is provided to accommodate this non-residential parking. A second access point is not proposed as part of this development on site at this time.

Accessibility:

3.3.1-Street Layouts: Raised surfaces, shared surfaces, dropped kerbs, tactile paving and public lighting will all be employed to ensure layouts are permeable and legible in line with best practice and will be developed further at detailed design stage to the satisfaction of Cork City Council.

3.4.1–Vehicle Permeability: The reduced street width of 5.5m will discourage this u-turn manoeuvre and encourage vehicles to use the turning area provided.

4.3.2 Self-Regulating Street Environment

Design Speed

4.1.1-A Balanced Approach to Speed: A low design speed will be implemented and reinforced through the reduced street width of 5.5m and the extensive areas with pedestrian priority.

Street Environment

4.2.4-Signage and Line Markings: Road lining and signage will be kept to a minimum to promote traffic calming and a self-regulating street environment. Road lining should be confined to a Stop Line accompanied with a Stop sign and a shorth 8m long section of centre line, as per other comments.

4.2.7-Planting: Smaller species with a canopy spread of 2-6m will be best suited to narrower streets such as Local streets and where buildings are located in close proximity to the street edge carriageway and above lower-level carpark.

4.4.2-Carriageway Surfaces: All raised surfaces will be distinct from mainstream road surface and will be separated by a 125mm high kerb. Low design speed of 30km/h will be complimented by changes in the colour and texture of the carriageway at crossings and other strategic locations such as carparking entrances.

4.4.9-On-Street Parking: A minimal number of car parking spaces have been provided while excess bike parking has been provided for both residents and visitors.

Parallel parking spaces are proposed in order to limit the intrusion of perpendicular spaces into the adjacent spaces. A very limited number of on-street non-residential spaces are proposed, and a turning area is provided.

The on-street non-residential spaces will accommodate loading and servicing requirements on site.

Parking bays will have a distinctive surface finish to distinguish them from the main carriageway to reinforce the narrower carriageway.

Design Standards

4.4.1-Carriageway Widths: Standard carriageway width of 5.5m throughout (no shared surface).

4.4.4–Forward Visibility: Noted.

4.4.5–Visibility Splays: Noted.

4.3.3 Pedestrian and Cycling Environment

Built Environment

4.2.3-Active Street Edges: Area along water channel will be overlooked by Blocks A, B, D & F which will provide ample passive surveillance. Area will be well lit with public lighting to promote safe environment.

Park area to the west of the development will be overlooked by Block F which will provide passive surveillance. Area will be well lit with public lighting to promote safe environment.

4.2.5–Street Furniture: A variety of high-quality and well considered street furniture such as lighting, seating and cycle parking will be included in the street design.

Pedestrian / Cyclist Priority

4.3.2-Pedestrian Crossings: Once the Ford site is developed opposite, there will be a pedestrian route and a corresponding desire line, and this will be considered through discussions with Cork City Council and Glenveagh regarding the optimum junction control at this location. In the interim the pedestrian desire lines will be at the Marina and at the Marquee Road junctions.

4.3.3–Corner Radii: Corner radii for this development will be set at 3m maximum unless alternative radii are necessary to meet other requirements.

4.4.3-Junction Design: A stop controlled junction will be implemented at the Priority Junction on to Centre Park Road. This aligns with the opposing site access junction in order to facilitate future upgrade to a potential signal-controlled junction (it is noted that Centre Park Road is the indicated route of the future LRT system for Cork and as such signal control will likely be required along this route).

4.4.7-Horizontal and Vertical Deflections: All crossings will be raised to indicate that pedestrians have priority.

Footpaths

4.2.5-Street Furniture: High-quality street furniture shall be included and organised in such a way as to reduce clutter. A balance will be struck between required facilities such as street markings and signage and supplementary furniture. Guardrails will be limited to use along the open water edge. Lanterns shall not be installed at heights greater than 6m.

4.3.1-Footways, Verges and Strips: A minimum width of 2m is provided along the local street, with widths in excess of 2m provided along commercial frontages to compensate for the lack of strips and to allow for doors to open.

Visually and Mobility Impaired

4.2.5-Street Furniture: A limited palette of high-quality items will promote visual cohesion while contrasting with the background and providing amenity to users.

4.3.1-Footways, Verges and Strips: Alternative ramped routes are provided whenever public steps are encountered.

A minimum width of 1.8m is provided.

A verge is provided to act as a buffer between the footpath and the carriageway..

4.3.2-Pedestrian Crossings: All crossings will be a minimum of 3m wide. All crossing lengths will be less than 6m long and be located to match desire lines. All crossings and car park entrances will be raised. The relevant forward visibility will be provided.

4.3.4-Pedestrianised and Shared Surfaces: Sections of tactile paving that direct movement along or across spaces will be provided. Use of tactile or other surface treatments will be used to create distinct zones that delineate pedestrian only space from shared space. Flush kerbs, drainage lines and/or paving changes that can assist guide dogs and indicate movement from pedestrian only to a shared carriageway will be implemented.

Cycling for All Ages and Abilities

3.2.1–Movement Function: Appropriate markings and advisory paving will be provided to inform cyclists of what they are required to do at shared spaces with pedestrians at crossings and with motorists at the main entrance.

4.3.4 Visual Quality

Landscape Plan

4.2.2–Street Trees: Smaller species with a canopy spread of 2-6m will be best suited to narrower streets such as Local streets and where buildings are located in close proximity to the street edge carriageway and above lower-level carpark.

Consideration to selection of tree species will be given to ensure that negative impact on adjacent surfaces and below ground car parking is avoided.

4.2.7-Planting: A greater variety of trees, shrubs and other plants will be used in the green area to the west of the development to promote a greener ‘living’ character. Full consideration will be given to ensure that planting is avoided that will have a future negative impact on the movement through and surveillance of the space.

Signs and Road Markings

3.2.3–Place Context: Careful consideration will be given to the balance between under and over-providing signage to ensure an environment that is legible, yet not visually cluttered.

4.2.4-Signage and Line Marking: Road lining will be confined to a Stop Line accompanied with a Stop sign and a short 8m long section of centre line, as per recommendations.

Materials and Finishes

3.2.1–Movement Function: The selection and application of surface materials will be developed and a hierarchical approach to use and implementation will be established to ensure ease of way finding and place making.

3.2.3–Place Context: Design solutions, such as the amphitheatre and village plaza, are used to highlight and promote the importance of place – particularly at the heart of the scheme.

4.3.2–Pedestrian Crossings: The selection of materials for use at crossing will promote visual cohesion, while contrasting with the background to assist the visually impaired.

4.4.2–Carriageway Surfaces: Use of changing materials and textures, such as using robust materials at crossings, will inform pedestrians and motorists of changes to the function of a space. Additional surface changes or edge treatments will be used to denote other changes in uses such as for car parking, car park entrances, footpaths, verges, cycle tracks and so forth.

Appendix 1: Stage 1 Road Safety Audit

Tiznow Property Company Limited

City Park Development at the Former Tedcastles Site, Centre Park Road, Cork

Stage 1 Road Safety Audit

March 2022

BARRY & PARTNERS
consulting engineers

CIVIL • STRUCTURAL • ENVIRONMENTAL • TRANSPORTATION

Document Control Sheet

Client:	**Tiznow Property Company Limited**
Project Title:	City Park Development at the Former Tedcastles Site, Centre Park Road, Cork
Document Title:	Stage 1 Road Safety Audit
File Name:	21659-RP-0005_Stage_1_RSA_Tedcastles_Site_P03

Table of Contents *(incl. Y/N)*	**List of Tables** *(incl. Y/N)*	**List of Figures** *(incl. Y/N)*	**Pages of Text** *(No.)*	**Appendices** *(No.)*
Y	N	N	11	2

Document Revision				**Document Verification**			
Issue Date *(DD/MM/YY)*	**Revision Code**	**Suitability Code**	**Author** *(Initials)*	**Checker** *(Initials)*	***Reviewer*** As Per PMP *(Initials)*	**Approver** *As Per PMP (Initials)*	**Peer Review** *(Initials or N/A)*
Add hyperlink to Verification Email on PIM Register for each issue							
16.02.22	P01	S3	TD	AO'N	TF	TF	N/A
16.03.22	P02	S3	TD	AO'N	TF	TF	N/A
25.03.22	P03	S3	TD	AO'N	TF	TF	N/A

Table of Contents

SECTION 1: Introduction

1.1 Background

This report results from a Stage 1 Road Safety Audit (RSA) of a proposed mixed-use development comprising of 830 residential units with commercial, communal, bar/café spaces and creches. Cira 270 parking spaces will be provided internally at a lower-ground level accessed from a new internal site access road which forms a new T-junction with Centre Park Road. The proposed development is located on the site of the former Tedcastle's site, Centre Park Road, Cork City.

The site is bounded by Centre Park Road to the south, The Marina Walk public car park to the north and an industrial site (Marina Power Station & Marina Commercial Park) to the west. Arup on behalf of their client (Tiznow Property Company Limited), commissioned this RSA and C+W O'Brien prepared the drawings provided for this audit.

The audit has been prepared in accordance with TII GE-STY-01024 (December 2017) - Road Safety Audit. The Audit Team has examined and reported on only the road safety implications of the design submitted by the Design Team and has not examined or verified the compliance of the design to any other criteria. The members of the Road Safety Audit Team are independent of the Design Team, and include:

Road Safety Audit Team Leader:
Mr. Adrian O'Neill
BEng MSc CEng MIEI RSA Cert
J.B. Barry & Partners

Road Safety Audit Team Member:
Mr. Tim Delaney
BEng CEng MIEI
J.B. Barry & Partners

The drawings audited are as detailed on the drawing issue schedule contained in **Appendix A**. A copy of the RSA Feedback Form is contained in **Appendix B**.

1.2 Road Collision History

No historical road collision data for the study area was made available to the Audit Team. An online check on the Road Safety Authority website shows that there were 6 recorded minor collisions between 2005 and 2016 in the vicinity of the site. Refer to Figure 1.1.

There was a cluster of 4 separate collisions, one involving a pedestrian and the other 3 were single car collisions on a road bend on Centre Park Road, circa 80m west of the junction between Centre Park Road and Marquee Road.

There were another two separate collisions on Monahan Road, one involving a single car near the junction with Marquee Road and the other collision involving a HGV which occurred near a private access 80m southwest of the site.

Single car collisions would suggest that speeding might be a causing factor. Refer to Figure 1.1.

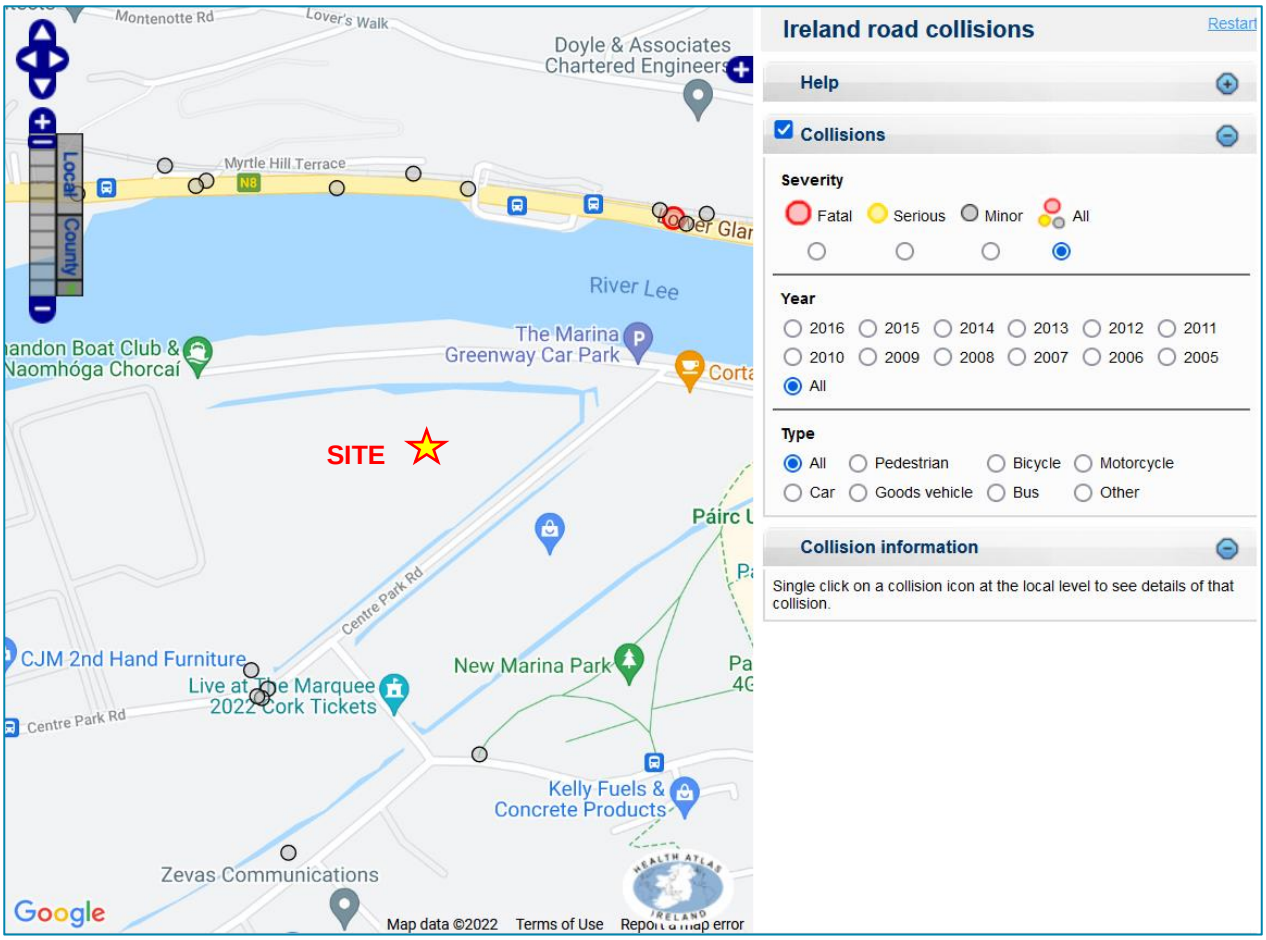


Figure 1.1: RSA collision history (2005 to 2016)

1.3 Site Visit

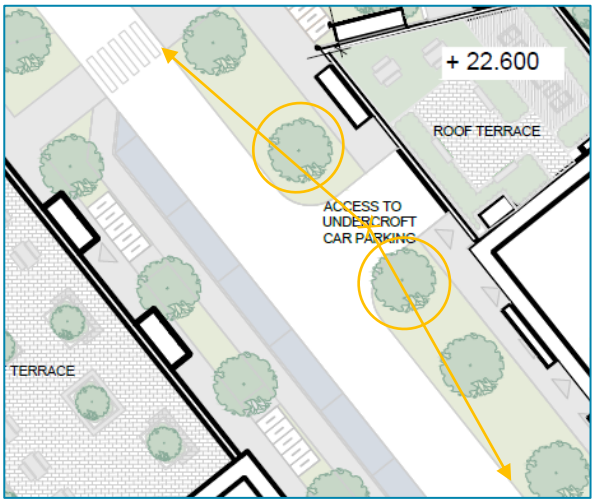
The audit was carried out between Thursday 13 Jan 2022 and Wednesday 25 Mar 2022. The Road Safety Audit site visit was carried out on Thursday 13 Jan 2022 during daylight. It was overcast on the day of the site visit and the road surfaces were damp.

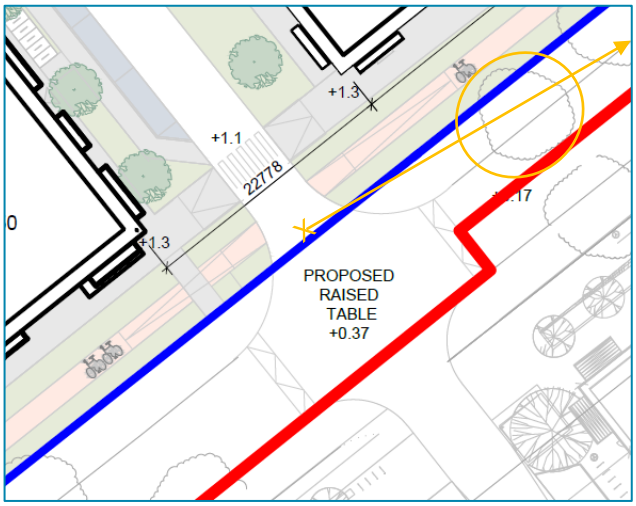
Moderate volumes of traffic were observed in the immediate vicinity of the site during the site visit and moderate levels of pedestrians and cyclists as would be expected this close to the city centre, particularly on the Marina amenity walk. Some vehicles were observed travelling above the posted speed limit on the surrounding road network, particularly on Centre Park Road.

SECTION 2: Audit Issues Identified

2.1 Problem: Visibility Splays at Accesses

It is not clear from the drawings if the required sight distances can be achieved for motorists exiting the Block C carpark entrance or at the proposed access to Centre Park Road. Failure to achieve the necessary sight distances could lead to an increased risk of collision at the entrances.



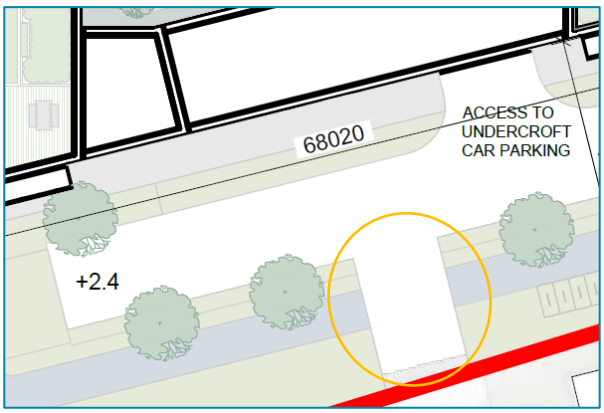


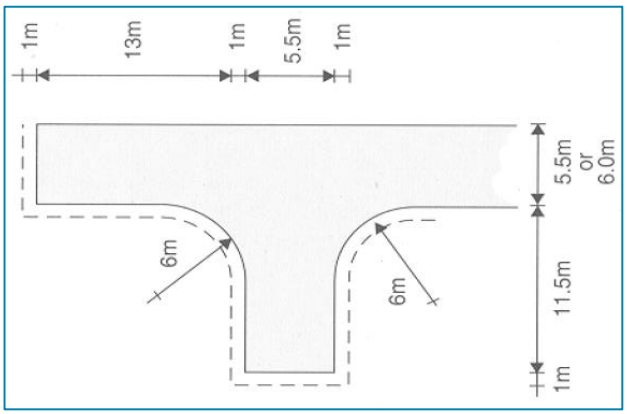
Recommendation

The required sight lines should be achieved in accordance with DMURS at all new entrances.

2.2 Problem: Turning Area

It is proposed to provide a turning area at the end of the cul-de-sac access. The square corners of the turning area may make it difficult for larger vehicles especially service or delivery vehicles to turn around and excessive manoeuvring may endanger other road users. Also, it is not safe for pedestrians to cross the turning area through the middle of the stem where vehicles reverse into.



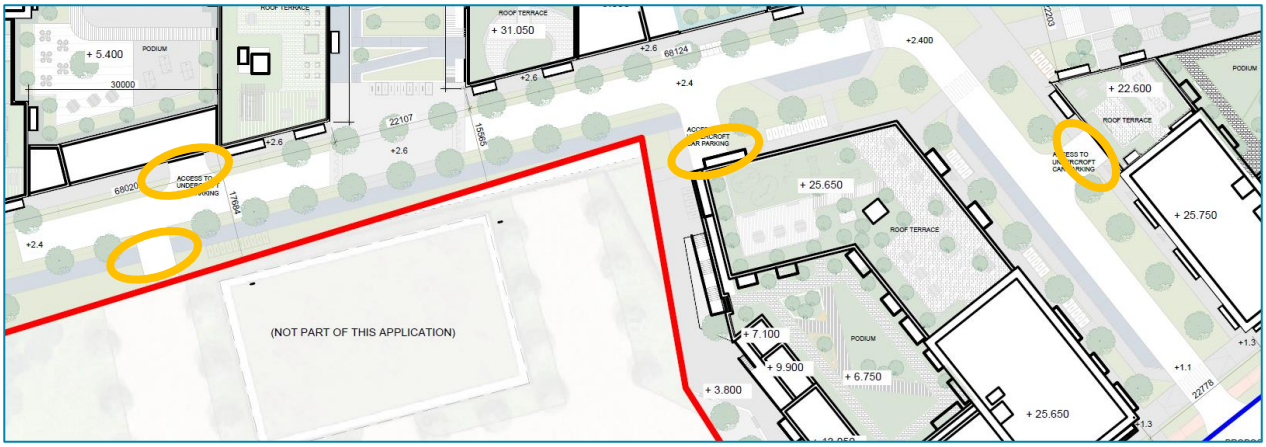


Recommendation

The shape of turning area should be revised to one closer to that shown in the right image above. The footpath should be realigned to the back of the turning area.

2.3 Problem: Priority and Intervisibility at Carpark Entrances

It appears from the drawings that motorists have priority over pedestrians at all private entrances. There is a risk that a pedestrian, who would normally have priority in this situation and in this type of neighbourhood development, would walk out in front of an emerging vehicle which could lead to a vehicle striking a pedestrian. The problem is made worse by the poor intervisibility offered due to the carpark entrances aligned with the front wall and the back of footpath.

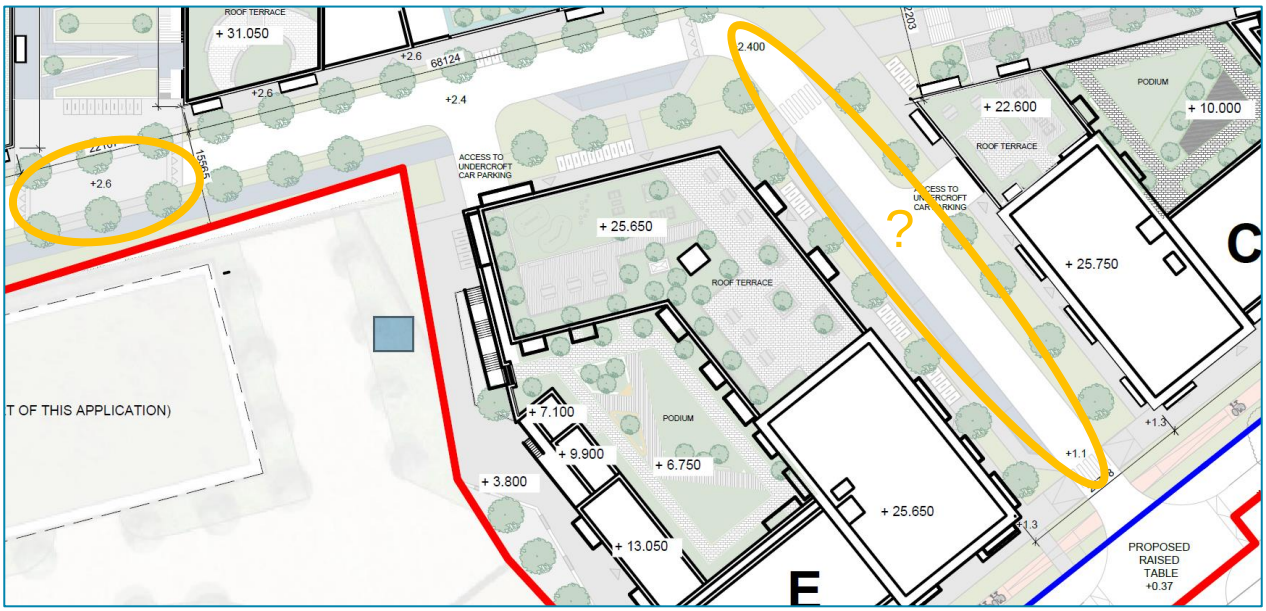


Recommendation

A raised footpath should be maintained across all private entrances indicating that pedestrians have priority. Consider using a different paving pattern or shading at the footpath across the entrance/exit to indicate a shared use surface and increase awareness. Consider moving pedestrians out from the building at each of the carpark entrances by installing a vertical bollard on each side of the access close to the wall.

2.4 Problem: Shared Surface Street

It is not clear from the drawing if it is proposed to have a shared surface street. Share surface street would be appropriate for this type of neighbourhood development and are particularly effective at calming traffic and perform well in terms of road safety. However, if not designed properly, shared surface streets can be intimidating for impaired users. Failure to provide visually-impaired users with kerb lines to navigate streets could increase the risk of a collision with a passing vehicle.



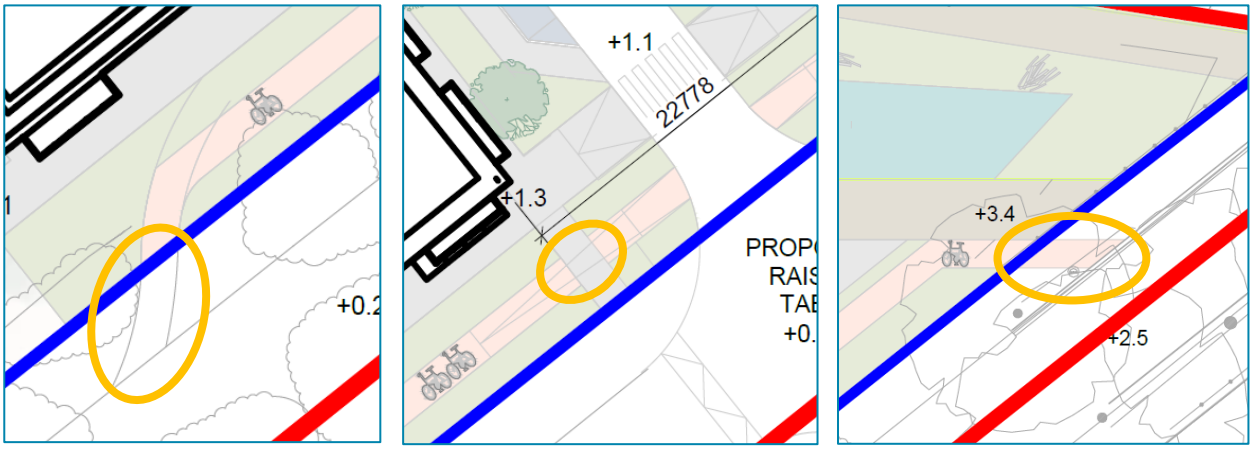
Recommendation

Clearly indicate if a section of the access road is to be designated as a shared surface. If so, apply design measures such as:

- Use a variety of materials and finishes that indicate that the carriageway is an extension of the pedestrian domain;
- Use sections of tactile paving that direct movement along the street or across spaces;.
- Create distinct zones that delineate pedestrian only space from shared space;
- Include flush kerbs, drainage lines and/or sections of tactile paving to assist guide dogs and indicate movement from a pedestrian only space to a shared carriageway; and
- Proposed hardscaped verges that act as refuge zones allowing pedestrians to step on and off the carriageway to let cars pass.

2.5 Problem: Priority at Shared Surfaces

It is not clear from the drawing as to how it is proposed to introduce the shared areas between pedestrians and cyclists. Failure to convey who has priority at the shared areas increases the risk of a collision between a pedestrian and a cyclist.

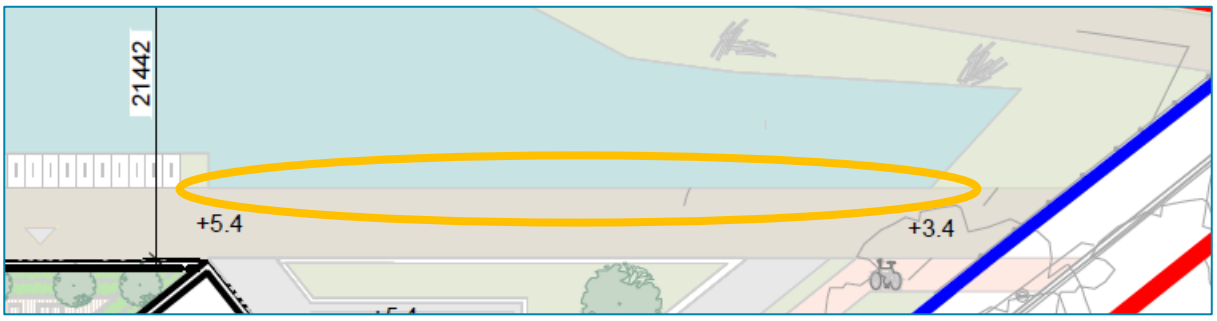


Recommendation

Prescribe the necessary road markings and warning paving such as tactile paving or corduroy paving.

2.6 Problem: Exposed Water Edge

It is not clear from the drawing if it is proposed to install additional protection along the exposed water edge. The change in land use to residential, commercial and more social use will generate new and once off visitor trips who may not be familiar to this danger especially at night. There is a risk that a pedestrian or a child could fall into water.

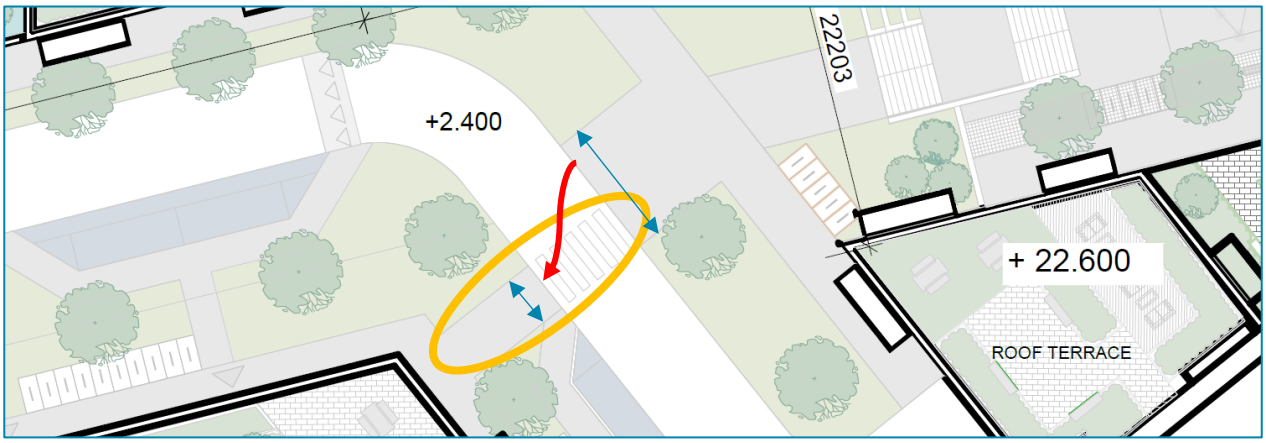


Recommendation

Adequate protection should be provided along the walkway. Ensure lifebuoys are provided. Ensure that the walkway is well lit at night.

2.7 Problem: Pedestrian Crossing Width

The pedestrian approach to the pedestrian crossing from the north is wider than the pedestrian crossing itself which may result in pedestrians walking in front of an oncoming vehicle or needing to walk for longer on the carriageway due to the grass landing area on the opposite side.

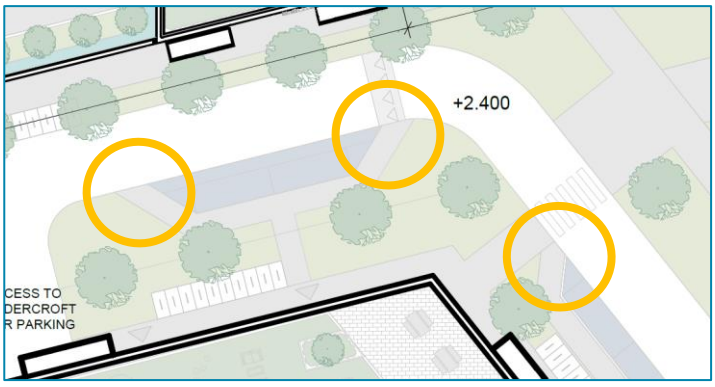


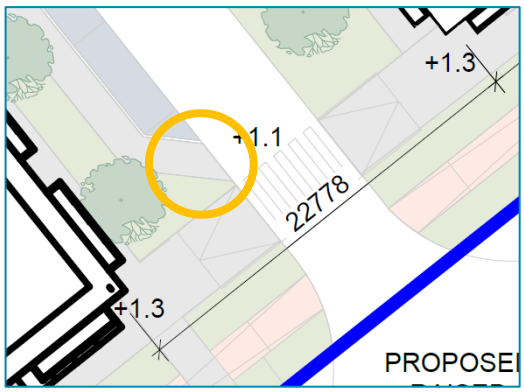
Recommendation

The width of the pedestrian crossing should be at least 4.0m and matches the width of its approaches.

2.8 Problem: Street Parking Footpath Surrounds

The paving at the end of both street parking areas lead pedestrians to walk directly onto the carriageway which may result in pedestrians walking in front of an oncoming vehicle or needing to walk for longer on the carriageway due to the grass landing on the opposite side.



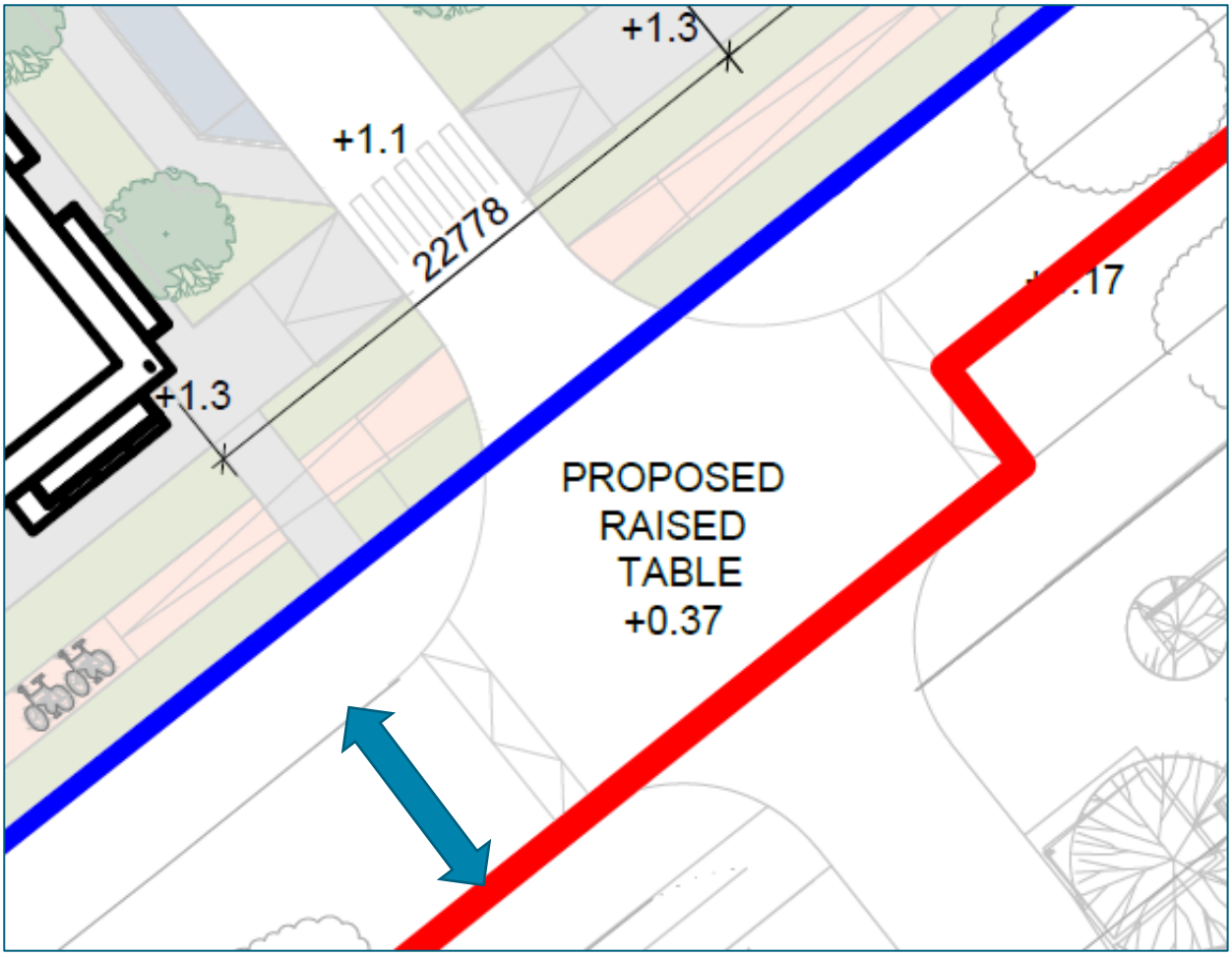


Recommendation

Either remove the sections of footpath at the ends of the street parking areas or tie them into the footpath network or provide a formal pedestrian crossing when the footpath meets the carriageway.

2.9 Problem: Lack of Public Road Crossings

The proposed scheme does not appear to include any dedicated pedestrian/cyclist crossing facilities across the public road bounding the site. The proposed development will generate a considerable increase in pedestrian and cycling activity and there is a risk that pedestrians or cyclists will cross at random unsafe locations with an increased risk of been struck by a passing or turning vehicle. This risk is particularly high for pedestrians with a mobility or visual impairment.

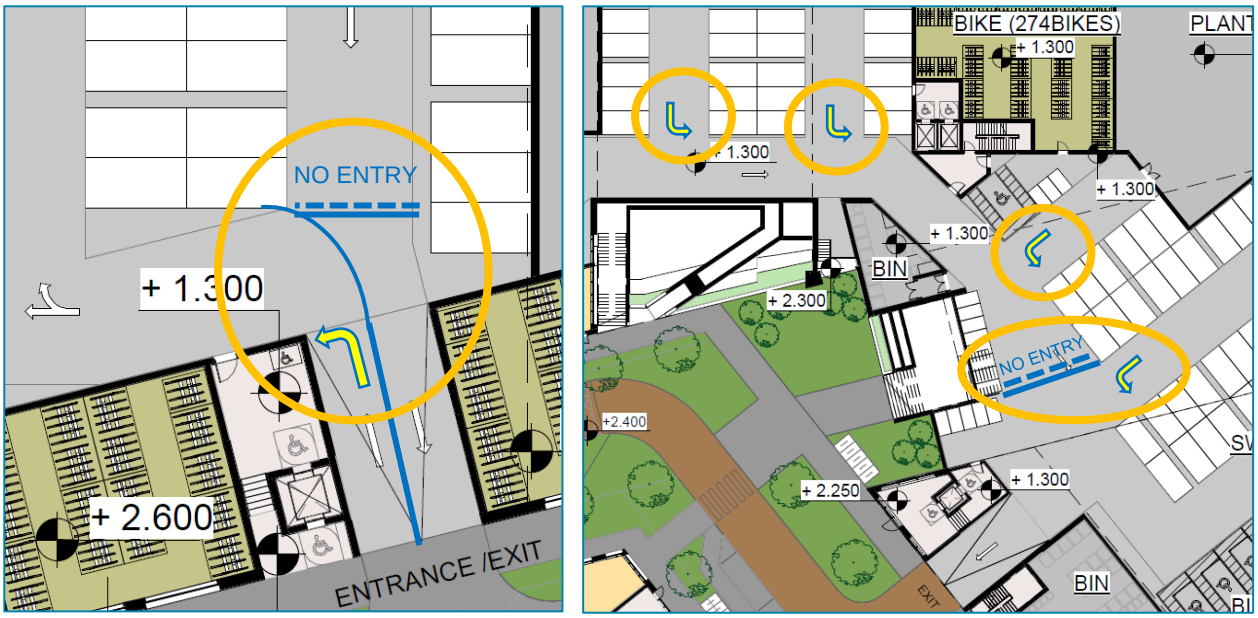


Recommendation

Appropriate pedestrian crossing points should be provided across Centre Park Road and follow pedestrian desire lines. Review the layout and examine the needs of pedestrians and cyclists in terms of new desire lines created by the development and its pedestrian and cyclist access points. All crossings and tie-ins should align with the proposals of other schemes and the existing facilities to ensure continuous and safe facilities.

2.10 Problem: Carpark Traffic Management

There is a danger that a motorist, unfamiliar with the carpark layout, entering the carpark may not appreciate the one-way system, especially if the white arrow road markings are obscured by an oncoming vehicle increasing the risk of a collision with an oncoming vehicle or a vehicle reversing out of the parking space.

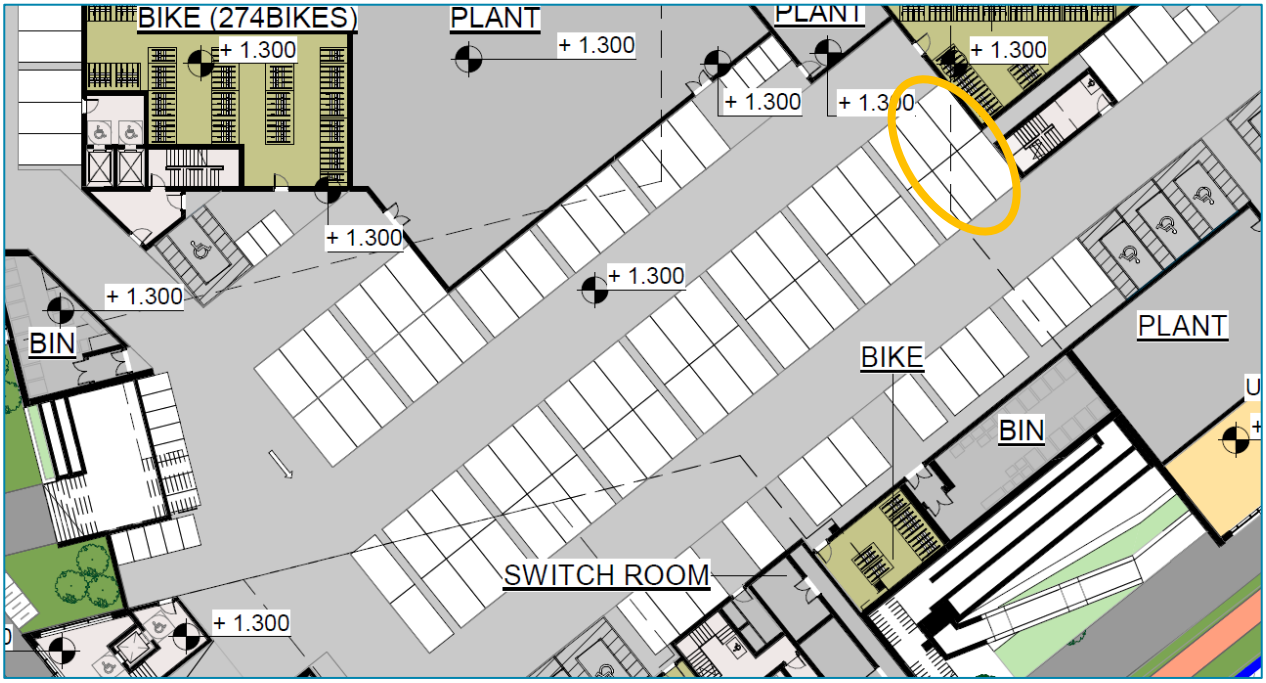


Recommendation

Appropriate road markings should be provided. White arrow markings should be frequent and supplemented by other road markings such as a guidelines, text markings and signage to ensure one-way system is clear.

2.11 Problem: Long Carpark Aisle

Motorists might not be a able to see if there are any vacant spaces along a long aisle in the carpark which could lead to motorists requiring to turn around within the aisle and increase the risk of a collision with another vehicle or a pedestrian.

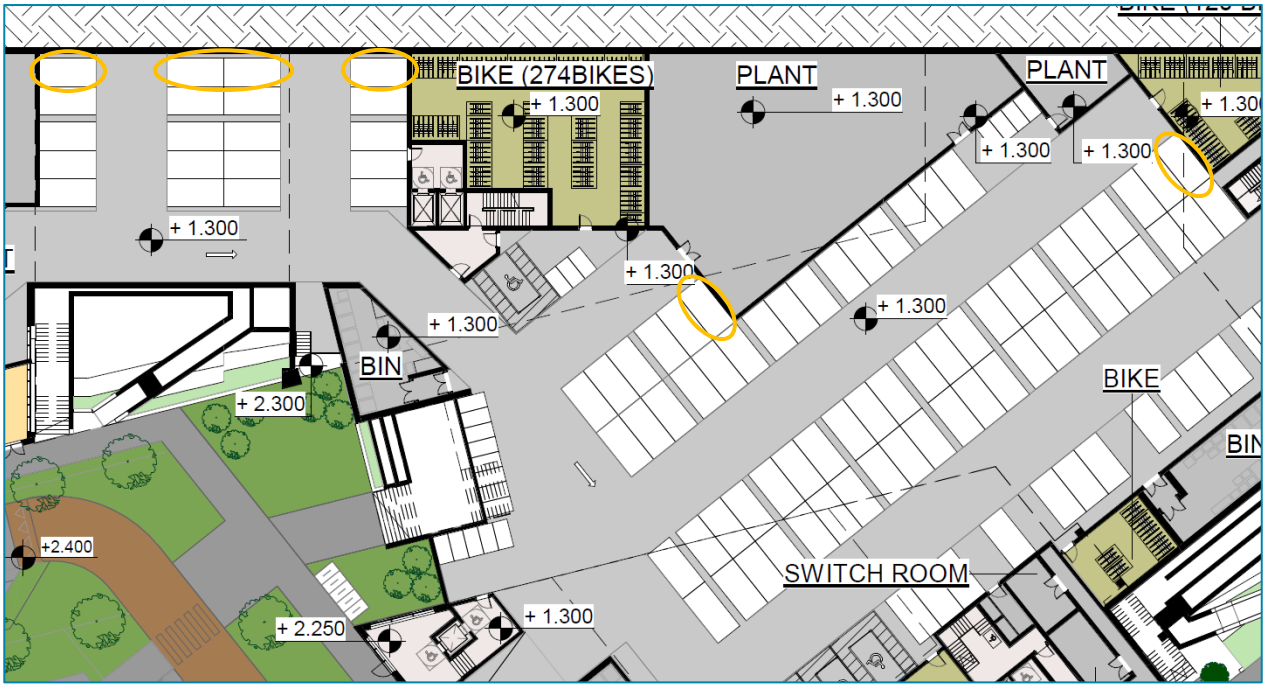


Recommendation

The last four spaces should be removed to provide a link between the two adjacent aisles allowing vehicle to circulate more freely.

2.12 Problem: End Parking Bays

Many of the end parking bays may be difficult to use requiring multiple reversing movements increasing the risk of a collision with a pedestrian or another vehicle.

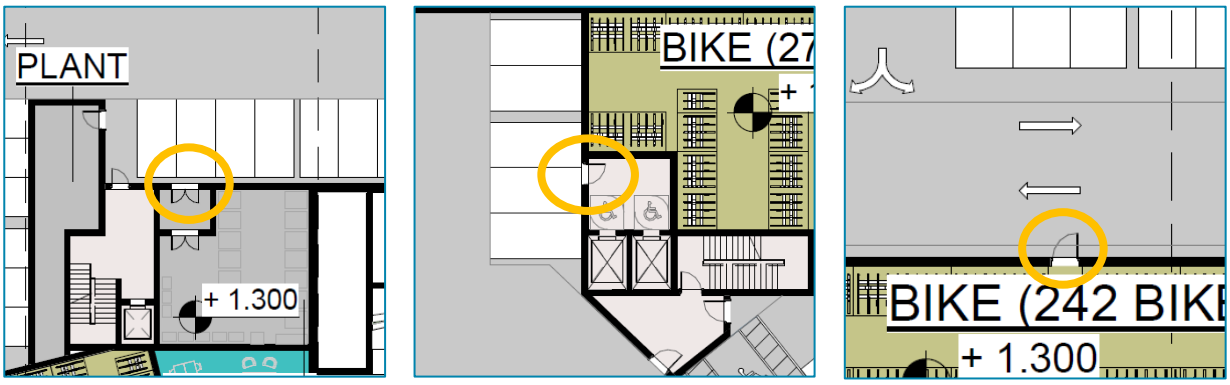


Recommendation

A vehicle sweep assessment should be carried out to ensure that motorists driving a large car can safely and easily use all end parking spaces when all of the adjacent spaces are occupied.

2.13 Problem: Doorways Obstructions

At a few locations, a parked car may block a doorway leading to the risk of trapping a person inside. Some doors appear to open out into the aisle where they could be struck by a passing vehicle.



Recommendation

All parking spaces should be kept clear of doorways and escape routes. Ensure that door cannot open in front of a car travel along the aisle.

2.14 Problem: No Advisory Carpark Pedestrian Routes

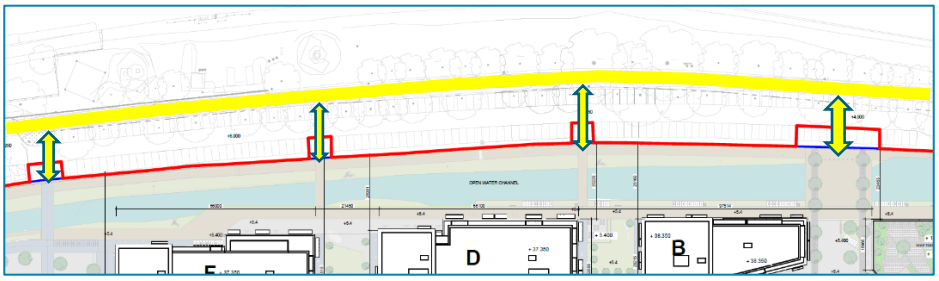
It is not proposed to provide any advisory lanes to guide pedestrians safety to the nearest exit. There is an increased risk of a pedestrian being struct by a vehicle within the carpark.

Recommendation

Provide road markings advising pedestrians of the safest areas to cross aisles and along with signage, the most direct and safest route to the exit points. If aisle widths are restrictive, then these need only to be advisory allow vehicles to drive on them if needs be.

2.15 Problem: Lack of Connection to the Marina

The Marina amenity will be a desire line (and vice versa) for many pedestrians and cyclists from the development. The proposals include a series of connections into the car park from the development which appear to be blocked by parking spaces. There is an increased risk of pedestrians/cyclists being struck by a passing vehicle or a vehicle entering/exiting the parking spaces.



Recommendation

Appropriate crossing facilities should be provided through the car park between the proposed development and the greenway, giving priority to vulnerable road users.

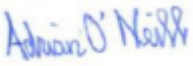
SECTION 3: Audit Team Statement

We certify that we have examined the drawings and documents listed in the appendices to this report.

The examination and subsequent report were 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 in the initial scheme design.

Assessment Team Leader		
Name:	AdrianO'Neill BEng MSc CEng MIEI RSACert	Signed: 
Position:	Senior Engineer	Date: 25.03.22
Organisation:	J.B. Barry & Partners Ltd.	
Address:	3 Eastgate Road Eastgate Little Island Co. Cork	

Assessment Team Member		
Name:	Tim Delaney BEng CEng MIEI	Signed: 
Position:	Associate	Date: 25.03.22
Organisation:	J.B. Barry & Partners Ltd.	
Address:	3 Eastgate Road Eastgate Little Island Co. Cork	

Appendix 1: Drawings Provided

Table A: List of drawings/documents provided for audit

Drawing Title	Drawing No.	Revision
Site GA Plan-Lower Ground Level	PE21055-1999 (CWO'B)	P08
Site GA Plan-Upper Ground Level	2000 (CWO'B)	P06
Proposed Site Plan	PE21055-0106 (CWO'B)	P03

Appendix 2: Feedback Form

Road Safety Audit Feedback Form

Scheme: **City Park Development at the Former Tedcastles Site, Centre Park Road, Cork**

Audit Stage: **Road Safety Audit Stage 1**

Date Audit Completed: **15 March 2022**

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)	Alternative measure (describe)	Alternative measure accepted by Auditors (yes/no)
2.1	Yes	Yes		
2.2	Yes	Partially	The turning area has corner radii applied. It will also be part of a raised table area which will facilitate pedestrian crossings at grade at the top of the stem (it is not possible to divert the footpath around the turning area).	Yes. From the drawing there is no radii and it is located outside the raised area to the west.
2.3	Yes	Yes - partially	All pedestrian crossings are to be raised. The provision of bollards to direct pedestrian movement will be considered at detailed design stage.	Yes
2.4	No	No	To confirm, the internal street is not intended to function as a shared street	Yes
2.5	Yes	Yes		
2.6	Yes	Yes	A protective railing is proposed, and the area will be well lit.	
2.7	Yes	Yes	Crossing width has been amended	
2.8	Yes	Partially	The footpath areas will be connected to the wider footpath network.	Yes. The main concern is that the footpath surrounding the street parking bays do not encourage pedestrians to cross the carriageway at unsafe locations.
2.9	Yes	No	There is no current pedestrian desire line across Centre Park Road at this location. However, once the adjoining site is developed and a pedestrian route available, the appropriate junction treatment and crossing facilities will be agreed with Cork City Council as part of future upgrades on Centre Park Road.	Yes. Ensure that the location of the stem extending from the footpath as far as the edge of the carriageway is within the raised table top junction.
2.10	Yes	Yes		

2.11	Yes	Partially	A suitable turning space will be provided for vehicles.	Yes
2.12	Yes	Yes		
2.13	Yes	Yes		
2.14	Yes	Yes		
2.15	Yes	Yes		

Signed: ..... Designer Date: 24/03/22

Signed: ..... Audit Team Leader Date: 25 Mar 2022

Signed: ..... Client Date: 25-3-2022

Appendix 2: Cycle Audit

Tiznow Property Company Limited

City Park Development at the Former Tedcastles Site, Centre Park Road, Cork

Cycle Audit

March 2022

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Document Control Sheet

Client:	**Tiznow Property Company Limited**
Project Title:	City Park Development at the Former Tedcastles Site at Centre Park Road, Cork
Document Title:	Cycle Audit
File Name:	21659-RP-0006_Cycle_Audit_Tedcastles_Site_P02

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Y	N	N	7	2

Document Revision				**Document Verification**			
Issue Date *(DD/MM/YY)*	**Revision Code**	**Suitability Code**	**Author** *(Initials)*	**Checker** *(Initials)*	***Reviewer*** As Per PMP *(Initials)*	**Approver** *As Per PMP (Initials)*	**Peer Review** *(Initials or N/A)*
Add hyperlink to Verification Email on PIM Register for each issue							
15.03.22	P01	S3	TD	AO'N	TF	TF	N/A
25.03.22	P02	S3	TD	AO'N	TF	TF	N/A
28.03.22	P02	S3	TD	AO'N	TF	TF	N/A

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SECTION 1: Introduction

1.1 Background

This report results from a Cycle Audit of a proposed mixed-use development comprising of 830 residential units with commercial, communal, bar/café spaces and creches. Cira 270 parking spaces will be provided internally at a lower-ground level accessed from a new internal site access road which forms a new T-junction with Centre Park Road. The proposed development is located on the site of the former Tedcastle's site, Centre Park Road, Cork City.

The site is bounded by Centre Park Road to the south, Marina Walk to the north and an industrial site (Marina Power Station & Marina Commercial Park) to the west. Arup on behalf of their client (Tiznow Property Company Limited), commissioned this Cycle Audit and C+W O'Brien prepared the drawings provided for this audit.

This Cycle Audit was carried out as part of an overall Quality Audit which also includes a Stage 1 Road Safety Audit and a DMURS Street Design Audit.

The Audit Team has examined and reported on only general cycling and cyclists related issues with regards to the road safety implications, quality of cycle infrastructure, and cycle connectivity of the design submitted by the Design Team and has not examined or verified the compliance of the design to any other criteria.

The drawings audited are as detailed on the drawing issue schedule contained in **Appendix A**. A copy of the Cycle Audit Feedback Form is contained in **Appendix B**.

1.2 Road Collision History

No historical road collision data for the study area was made available to the Audit Team. An online check on the Road Safety Authority website shows that there were 6 recorded minor collisions between 2005 and 2016 in the vicinity of the site. Refer to Figure 1.1.

There was a cluster of 4 separate collisions, one involving a pedestrian and the other 3 were single car collisions on a road bend on Centre Park Road, circa 80m west of the junction between Centre Park Road and Marquee Road.

There were another two separate collisions on Monahan Road, one involving a single car near the junction with Marquee Road and the other collision involving a HGV which occurred near a private access 80m southwest of the site.

Single car collisions would suggest that speeding might be a causing factor. Refer to Figure 1.1.

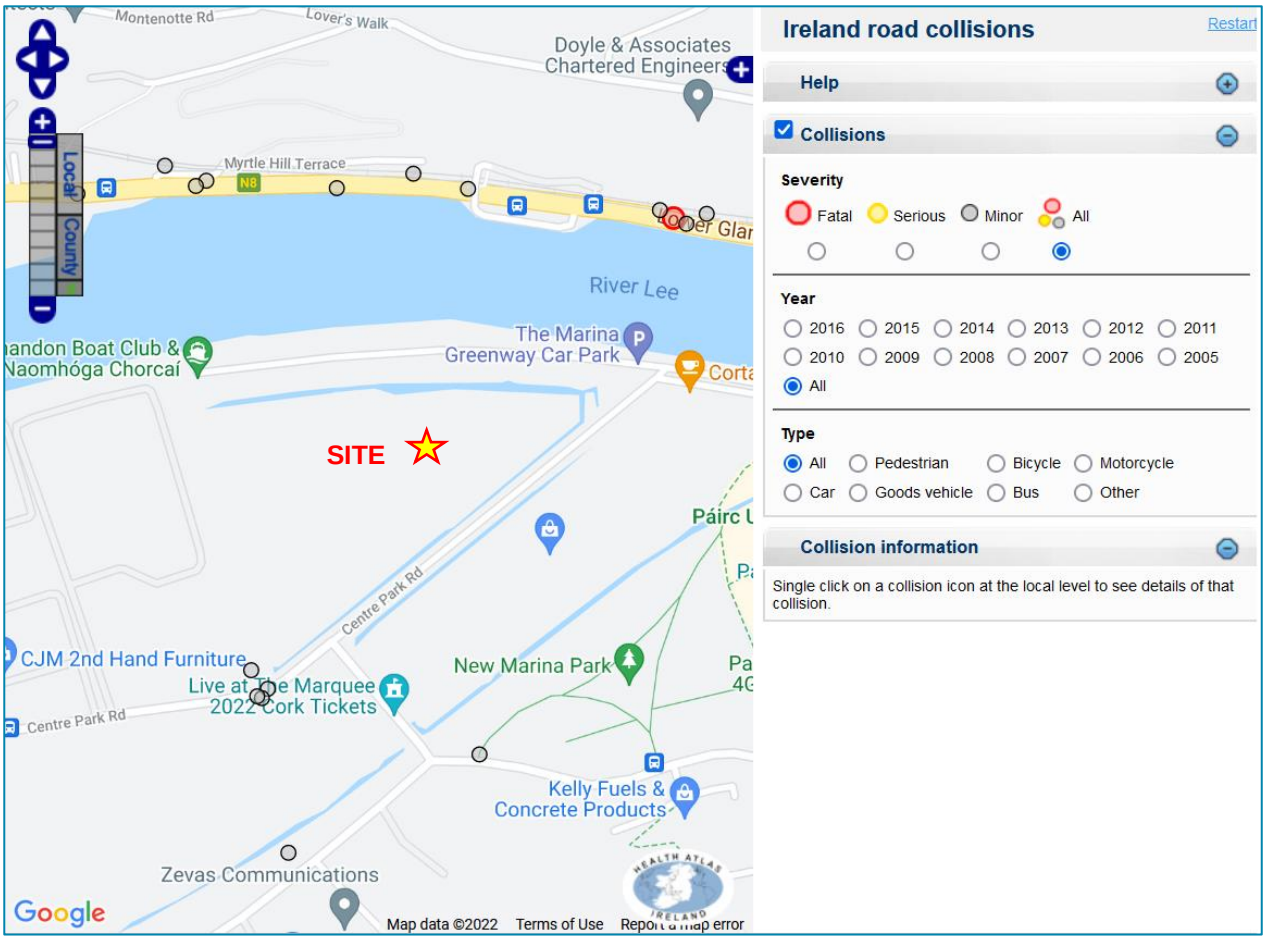


Figure 1.1: RSA collision history (2005 to 2016)

1.3 Site Visit

The audit was carried out between Thursday 13 Jan 2022 and Friday 25 Mar 2022. The Cycle Audit site visit was carried out on Thursday 13 Jan 2022 during daylight. It was overcast on the day of the site visit and the road surfaces were damp.

Moderate volumes of traffic were observed in the immediate vicinity of the site during the site visit and moderate levels of pedestrians and cyclists as would be expected this close to the city centre, particularly on the Marina amenity walk. Some vehicles were observed travelling above the posted speed limit on the surrounding road network, particularly on Centre Park Road.

SECTION 2: Audit Issues Identified

2.1 Problem: Basement Carpark Access

It is proposed that cyclists share the same access ramp to the basement carpark with motorists with no segregation. Cyclists will want to travel at slower speeds while negotiating the ramp which might require sudden breaking which increases the risk of collision with a vehicle. Also, cyclists in the up-ramp direction will require more 'wobble' room.

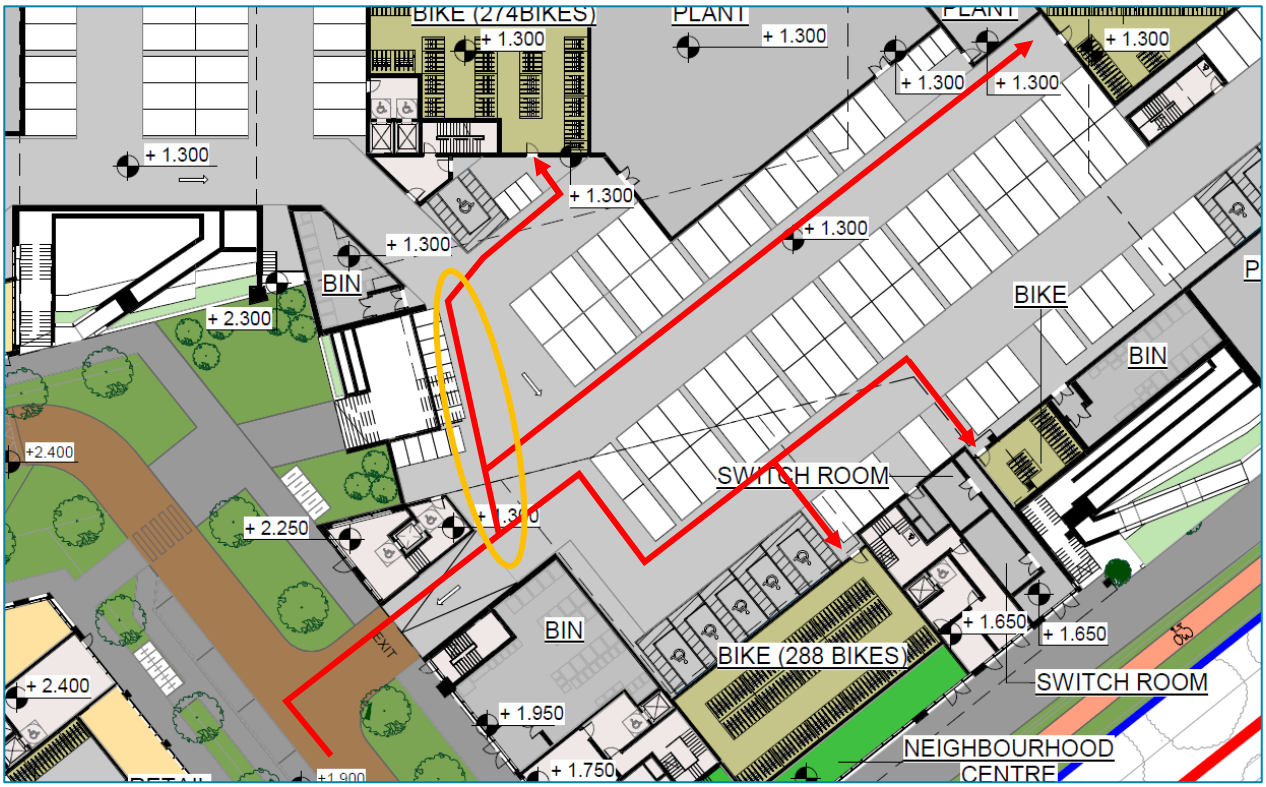
There is also a risk of cyclists slipping in wet weather when entering the car park which could have different surfacing and potentially a tight turning curve at the bottom of the ramp for Block F. It is not clear from the drawing whether rising barriers are proposed on the car park entry but if so, there is a risk of cyclists colliding with them or having to make sudden manoeuvres to avoid them.

Recommendation

Provide cycle lanes of adequate width along the carpark ramp. Ensure that the vertical gradient of the carpark ramp is no greater than 7% (1 in 14) to keep cycle speeds low. Ensure there is sufficient head room of between 2.2 to 2.4 in height to accommodate cyclists. Ensure the ramp surface is suitable for bicycle wheels and braking, and that there is adequate surfacing and corner radii (if required) beyond the bottom end of the ramp. Also, if there are rising barriers proposed, ensure cycle lanes provide adequate room to manoeuvre around the barriers.

2.2 Problem: Cyclist Desire Lines

There is a danger that cyclist will take a short-cut and enter the 'exit only' entrance at Block C to follow a more direct desire line to the parking located under Blocks A, B and C instead of going as far as the Block F carpark entrance. Because of the one-way system proposed in the carpark, there is an increased risk of a 'head-on' type collision between a cyclist and an oncoming vehicle.

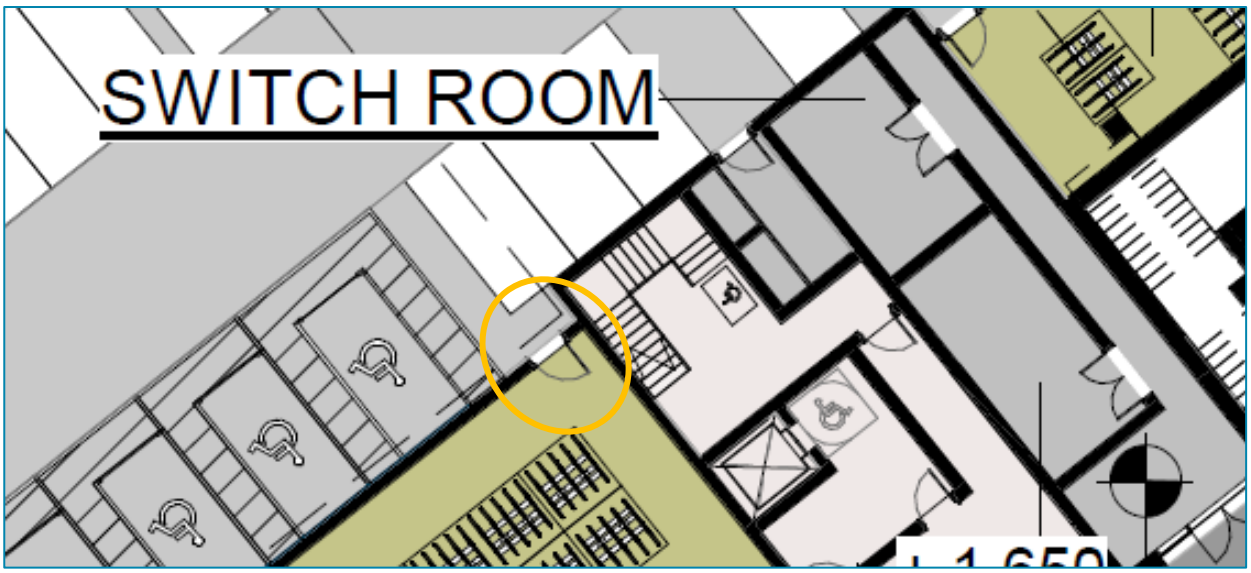


Recommendation

Either enforce the no entry at the Block C carpark entrance by way of a barrier to prohibit cyclists from entering or provide a contra-flow cycle lane aligned with bollards and design for how cyclists can access the bike storage areas safely considering the one-way system in the carpark.

2.3 Problem: Bike Storage Access

Some of the bike store rooms appear to be difficult to access.

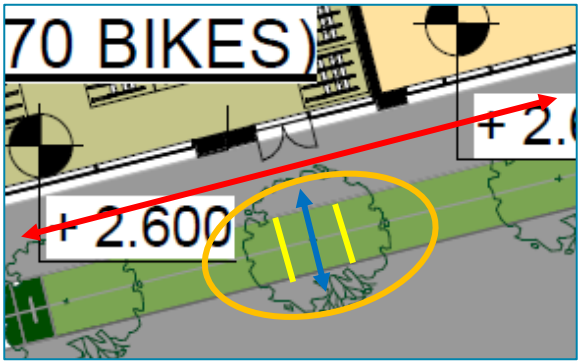


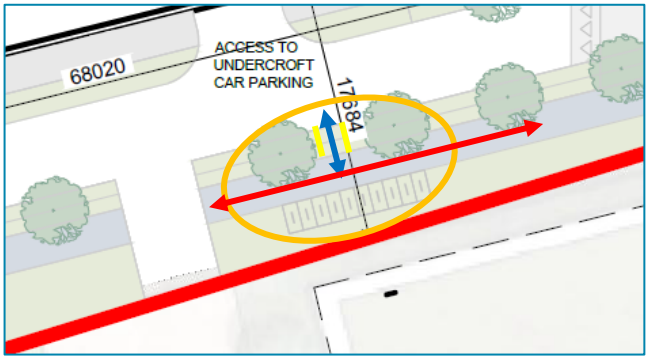
Recommendation

Ensure all of the bike storage areas can be easily and safely accessed by cyclist.

2.4 Problem: Cycling on Footpaths

Some of the bike storage areas require cyclists to travel along the footpath in order to access them. Some cyclists may not dismount and walk along the footpath but rather cycle on the footpath and risk colliding with a pedestrian.





Recommendation

Reduce the distance that cyclists need to travel on the footpath by providing more direct access points.

2.5 Problem: Bicycle Parking

Cycle parking is an integral part of any cycle network and a strategic approach to the provision of bicycle parking facilities will contribute to:

- Promoting modal shift – locating cycle parking conveniently to building entrances and reminding people of the bicycle;
- Improving the quality of cycling facilities – where cyclists and their needs are fully considered;
- Well-designed cycle parking in public spaces – well planned, considerate of the needs of pedestrians and other street users, visually attractive, and sufficient in terms of quantity and quality for the activities in the locality – resulting in less cycle parking against poles and railings;
- Security – where bicycle users are confident their bikes will not be stolen or vandalised;
- Support for mobility management plans – where early provision of cycle parking indicates a level of real commitment towards the bicycle.

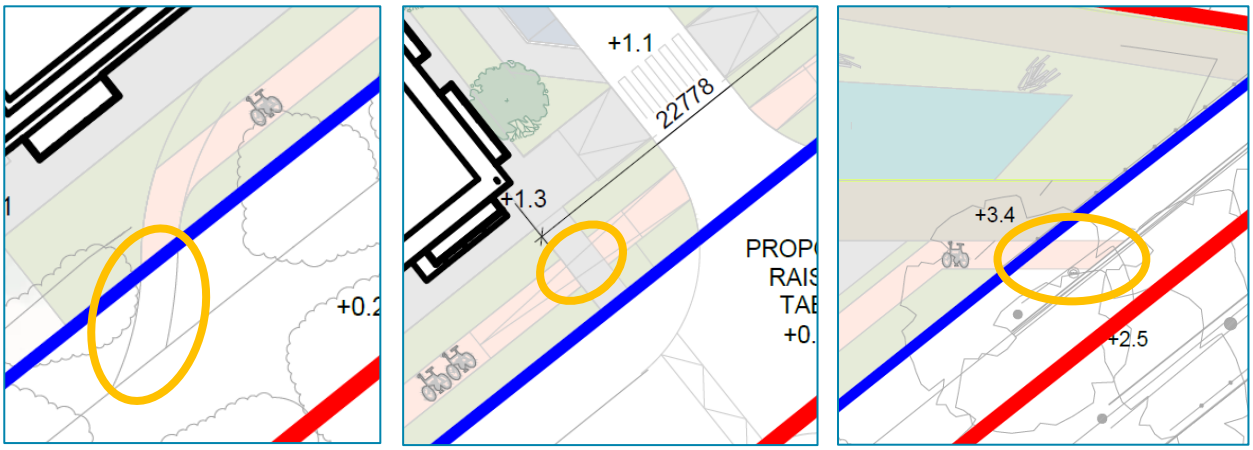
Recommendation

Cycle parking areas with a large number of parking places need careful design, and the parking area layout needs to be borne in mind when selecting the type of rack or stand to be used. Ensure that in general:

- Sufficient bicycle parking spaces are provided;
- Frame-supporting stands are more appropriate for small parking clusters of up to up to 10 or 15 stands;
- The length of a standard bicycle is approximately 2.0m;
- A well-designed parking facility should provide 2.5m between the rows to allow cyclists room to manoeuvre when parking and collecting their bicycles;
- Stands support the bicycle from falling over;
- Stands should protect against theft allowing the cyclist room to position/ lock / unlock the bike;
- Parking stations are well lit and Where possible, protected against the weather.

2.6 Problem: Priority at Shared Surfaces

It is not clear from the drawing as to how it is proposed to introduce the shared areas between pedestrians and cyclists. Failure to convey who has priority at the shared areas increases the risk of a collision between a pedestrian and a cyclist.

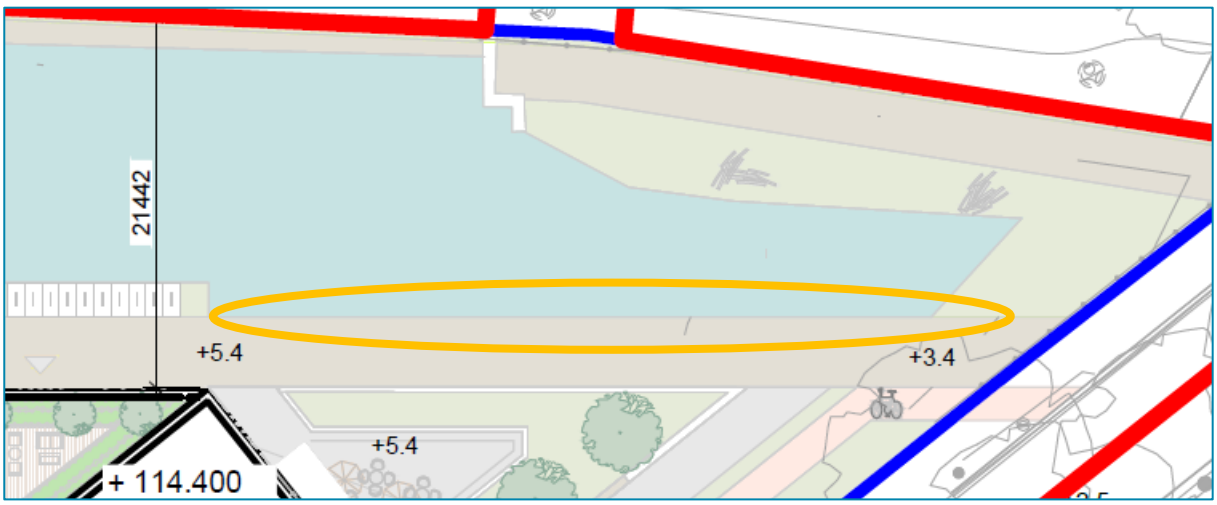


Recommendation

Prescribe the necessary road markings and warning paving such as tactile paving or corduroy paying.

2.7 Problem: Exposed Water Edge

It is not clear from the drawing if it is proposed to install additional protection along the exposed water edge. The change in land use to residential, commercial and more social use will generate new and once off visitor trips who may not be familiar to this danger especially at night. There is a risk that a cyclist especially a young cyclist could fall into water.

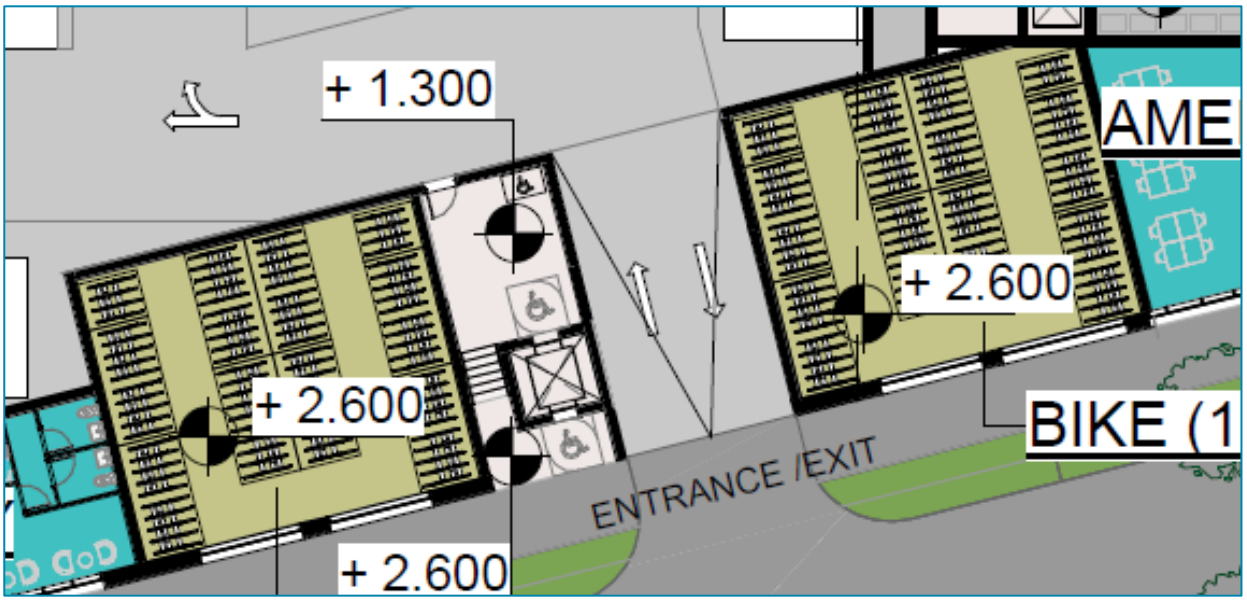


Recommendation

Provide adequate protection along the walkway. Ensure lifebuoys are provided. Ensure that the walkway is well lit at night.

2.8 Comment: Bike Storage Access

It is not clear from the drawing how cyclists can access some of the bike stores.


+ 1.300
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ENTRANCE /EXIT
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Appendix 1: Drawings Provided

Table A: List of drawings/documents provided for audit

Drawing Title	Drawing No.	Revision
Site GA Plan-Lower Ground Level	PE21055-1999 (CWO'B)	P08
Site GA Plan-Upper Ground Level	PE21055-2000 (CWO'B)	P06
Proposed Site Plan	PE21055-0106 (CWO'B)	P03

Appendix 2: Feedback Form

Cycle Audit Feedback Form

Scheme: **Car Park Development at the Former Tedcastles Site, Centre Park Road, Cork**

Audit Stage: **Cycle Audit**

Date Audit Completed: **15 March 2022**

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)	Alternative measure (describe)	Alternative measure accepted by Auditors (yes/no)
2.1	Yes	No	It is not possible to increase the width to facilitate dedicated cycle lanes on the ramps. However, ramp lengths are short and gradients are 7% for Block C and E, and Block F facilitates cycle parking access from the street level. Appropriate surfacing and radii will be considered at detailed design stage.	Yes
2.2	Yes	No	All car park accesses will be two-way.	Yes
2.3	Yes	Yes		
2.4	Yes	Yes	Additional access points will be provided	Yes
2.5	Yes	Yes	All cycle parking areas will be provided in line with best practice.	Yes
2.6	Yes	Yes	The appropriate markings and advisory paving will be provided.	Yes
2.7	Yes	Yes	A railing will be provided and the area will be well lit.	Yes

Appendix 3: DMURS Street Design Audit

Design Manual for Urban Roads and Streets

Street Design Audit

Prepared in respect of: *City Park Development at the Former Tedcastles Site, Centre Park Road, Cork*

Prepared by: *J.B. Barry and Partners*

Date: *25 March 2022*

Formatting Notes:

- The following set of tables are taken directly from a DMURS Street Design Audits (May 2019) template and are meant as a checklist for both Auditors and Designers.
- Text in **Black** are check list items with some additional extracts taken from DMURS relevant to this project.
- A Green ☑ indicates that the Audit Team considers that the criteria has been satisfactory dealt with in the design.
- Text in **Red** indicates that further consideration may be required and prompts for a Design Response.

Connectivity		
Key Issues	**Key DMURS Reference.**	**Design Response**
Strategic routes/major desire lines been identified and are clearly incorporated into the design.	3.1 – Integrated Street Network The development has an efficient use of land, high quality urban design and effective integration in the provision of physical and social infrastructure such as public transport, schools, amenities and other facilities combine to create places people want to live in. ☑ 3.2.1 – Movement Function The development contains a new Local Access Road which forms a new junction with Centre Park Road (Link Street) which is in keeping with the appropriate street hierarchy of the area. ☑ 3.3.1 – Street layouts A cul-de-sac access road with parallel street park will require excessive turning. A second access point would remove the cul-de-sac and reduce turning or provide a second dedicated turning area midway along the access road. Alternatively	3.3.1 – Street Layouts Residents of the development will be primary users of the access road and will have access to the underground parking for turning. A limited amount of on-street parking is provided at street level, and a turning area is provided to accommodate this non-residential parking. A second access point is not proposed as part of this development on site at this time.

	perpendicular parking should also be considered. 3.3.4 – Wayfinding All journeys within the development are relatively straightforward. ☑	
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] Good pedestrian and cyclist links improved between Centre Park Road and The Marina. ☑	
Accessibility throughout the site is maximised for pedestrians and cyclists, ensuring route choice.	3.3.1 – Street Layouts More clarity needed on raised surfaces, shared surfaces, dropped kerbs, tactile paving and public lighting. 3.3.2 – Block Sizes Block sizes are optimal for pedestrian movement. ☑ 3.4.1 – Vehicle Permeability Lack of a nearby turning area along the section of access road near the main entrance will result in difficulty for motorists exiting the street-side parking. Vehicles will turn at the car park entrance.	3.3.1 – Street Layouts Raised surfaces, shared surfaces, dropped kerbs, tactile paving and public lighting will all be employed to ensure layouts are permeable and legible in line with best practice and will be developed further at detailed design stage to the satisfaction of Cork City Council. 3.4.1 Vehicle Permeability The reduced street width of 5.5m will discourage this u-turn manoeuvre and encourage vehicles to use the turning area provided.
Through movements by private vehicles on local streets are discouraged by an appropriate level of traffic calming measures.	3.2.1 – Movement Function Internal access road designed appropriately as a local street used for access purposes only. ☑ 3.2.3 – Place Context	

[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).*

	We classify this development as having a 'neighbourhood' status with new and existing areas which are intensively developed with higher density housing and contain a broad mix of uses. It includes older areas that represent the first stages of urban expansions and more recently developed compact communities located towards the periphery of the city centre. Pedestrian / cycling activity ranges from higher to more moderate levels. The highest levels of pedestrian activity occur along major streets which connect destinations, where public transport services run. Such streets may also contain dispersed retail and commercial frontages. ☑ 3.4.1 – Vehicle Permeability The local street design offering no through route through the site will provide for higher level of accessibility for slow modes (i.e. slow-moving cars, pedestrians and cyclists) while not attracting through traffic. ☑	

Self-Regulating Street Environment		
Key Issues	**Key DMURS Reference.**	**Design Response**
A suitable range of design speeds have been applied with regard to context and function.	3.2.1 – Movement Function. The Local Street design promotes traffic speeds of between 10-30 km/h. This is appropriate for the 50km/h speed limit on Centre Park Road. ☑ 3.2.3 – Place Context. The higher level of integration between users in this 'neighbourhood' setting will calm traffic and increase ease of movement for more vulnerable users. ☑ 4.1.1 – A Balanced Approach to Speed[2] There is a good balance between movement and place. Vehicle movement priorities are low on *Local Streets* and a 10-30km/h Design Speed would be appropriate.	4.1.1 – A Balanced Approach to Speed A low design speed will be implemented and reinforced through the reduced street width of 5.5m and the extensive areas with pedestrian priority.
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 The building height : Street width radio gives a strong to very strong sense of enclosure. ☑ 4.2.2 – Street Trees The street trees add to the very strong sense of enclosure. Smaller species with a	

[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.*

	canopy spread of 2-6m are best suited for Local Streets. To be effective, trees should be planted at intervals of 14-20m and allow for street lighting. ☑ 4.2.3 – Active Street Edges The site layout promotes active street edges by placing buildings in close proximity of the street with a high frequency of entrances and openings. ☑ 4.2.4 – Signage and Line Marking Limited detailed provided. We recommend that road lining and signage be kept to a minimum to promote traffic calming and more towards a self-regulating street environment. 4.2.7 – Planting Planting is generally located in the verges and promotes 'softer' landscape elements and a greener 'living' character. ☑ One key consideration needs to be given to the ongoing maintenance and size of street trees/planting at maturity and that these trees don't infringe on movement or reduce visibility at accesses. Care needs also need to select species suitable for planting over the lower-level carpark. 4.4.2 – Carriageway Surfaces No surfacing details are provided. All raised surfaces should be distinct from more mainstream road surface which use a 125mm high kerb. Consideration should be giving to a shared street surface. The use of standard materials, such as macadam/asphalt should generally be confined to streets with moderate design speeds (i.e. 40-60km/h). Where low design	4.2.4 – Signage and Line Marking Road lining and signage will be kept to a minimum to promote traffic calming and a self-regulating street environment. Road lining should be confined to a Stop Line accompanied with a Stop sign and a shorth 8m long section of centre line, as per other comments. 4.2.7 – Planting Smaller species with a canopy spread of 2-6m will be best suited to narrower streets such as *Local* streets and where buildings are located in close proximity to the street edge carriageway and above lower-level carpark. 4.4.2 – Carriageway Surfaces All raised surfaces will be distinct from mainstream road surface and will be separated by a 125mm high kerb. Low design speed of 30km/h will be complimented by changes in the colour and texture of the carriageway at crossings and other strategic locations such as carparking entrances.

	speeds (i.e. 30km/h) are desirable then changes in the colour or texture of the carriageway should be used periodically, such as at crossings or at strategic locations, such as Focal Points. Where shared carriageways are proposed (i.e. 10-20 km/h) changes in colour and texture should be applied to the full length of the street. 4.4.9 - On-Street Parking Advice Note 1 – Transitions and Gateways The on-street parking calms traffic, adds to the vitality of communities, provides a buffer to the footpath, regulates parking and provides passive security. ☑ However overall parking provision needs to be carefully considered in order not to promote driving over other more sustainable modes of travel. Perpendicular street spaces may be provided in lower speed environments such as *Local S*treets to cater for increased demands around commercial units. Parallel street parking on a cul-de-sac local access road requires a nearby turning area. To reduce the visual impact of parking the number of parking spaces per bay are generally limited to three parallel spaces (or six perpendicular spaces). ☑ No loading areas are shown on the layouts. Loading facilities should preferably, be provided off-street.	4.4.9 – On-Street Parking A minimal number of car parking spaces have been provided while excess bike parking has been provided for both residents and visitors. Parallel parking spaces are proposed in order to limit the intrusion of perpendicular spaces into the adjacent spaces. A very limited number of on-street non-residential spaces are proposed, and a turning area is provided. The on-street non-residential spaces will accommodate loading and servicing requirements on site.

	To reinforce narrower carriageways (particularly when spaces are empty) parking bays should be finished so that it is clearly distinguishable from the main carriageway.	Parking bays will have a distinctive surface finish to distinguish them from the main carriageway to reinforce the narrower carriageway.
A suitable range of design standards/measures have been applied that are consistent with the applied design speeds.	4.4.1 - Carriageway Widths The standard carriageway width for Local Streets should be 5-5.5m and 4.8m with a shared surface carriageway. 4.4.4 – Forward Visibility A reduced Stopping Sight Distance (SSD) of 33m should be applied in keeping with a Local Access Road in a Neighbourhood setting. 4.4.5 – Visibility Splays A reduced sight distance (Y value) of 33m should be applied to all carpark exits and of 59m at the access to Centre Park Road. An setback distance (X value) of 2.4m should be used in conjunction with STOP controlled junctions. 4.4.6 – Alignment and curvature The local access street consists of two straight sections of joined with a sharp bend midway along the length of the street which will help reduce traffic speeds. ☑ Vertical gradients are all less than 4%. ☑ 4.4.7 – Horizontal and Vertical Deflections Advice Note 1 – Transitions and Gateways A section of access road between a table top junction at Centre Park Road and the internal bend in the access road and also	4.4.1 – Carriageway Widths Standard carriageway width of 5.5m throughout (no shared surface). 4.4.4 – Forward Visibility Noted. 4.4.5 – Visibility Splays Noted.

	a smaller area between building blocks between D and F are raised. ☑	
Pedestrian and Cycling Environment		
Key Issues	**Key DMURS Reference.**	**Design Response**
The built environment contributes to the creation of a safe and comfortable pedestrian environment.	4.2.1 – Building Height and Street Width A good sense of enclosure is achieved in this Neighbourhood stye setting with the building height to street width ratio provided with a continuous line of street trees are planted along the street. ☑ 4.2.3 – Active Street Edges The buildings and street side parking provide passive surveillance of the street environment and promote pedestrian activity. ☑ Care is needed to ensure that the larger more secluded park area to the west of the development and also along the water channel are safe and feel safe especially at night. 4.2.5 – Street Furniture No details provided at this stage. Street furniture serves many purposes that relate to both place and function and includes a variety of commonly found items within a street such as public art, lighting, bollards, guardrails, seating and cycle parking. 4.4.9 - On-Street parking	4.2.3 – Active Street Edges Area along water channel will be overlooked by Blocks A, B, D & F which will provide ample passive surveillance. Area will be well lit with public lighting to promote safe environment. Park area to the west of the development will be overlooked by Block F which will provide passive surveillance. Area will be well lit with public lighting to promote safe environment. 4.2.5 – Street Furniture A variety of high-quality and well considered street furniture such as lighting, seating and cycle parking will be included in the street design.

	The on-street parking calms traffic, adds to the vitality of communities, provides a buffer to the footpath, regulates parking and provide passive security. ☑	
Junctions been designed to ensure the needs of pedestrians and cyclists are prioritised[4].	4.3.2 - Pedestrian Crossings Crossings are raised across the main access road. ☑ More thought needs to be given to ensuring pedestrian crossings across Centre Park Road are provided to correspond to desire lines. 4.3.3 – Corner Radii More details required. Corner Radii appear to be compact. ☑ Corner radii for this development should be between 1-3m for few larger vehicles and allows the occasion HGV to cross centrelines if required. 4.4.3 - Junction Design The proposed junction is a Priority Junction. These generally have low capacity and are appropriate for low to medium flows. They should generally be applied where *Local* streets meet *Arterial* or *Link* streets. ☑ However the proposed access on Centre Park Road is directly opposite another proposed development access (i.e. forms a crossroad) which is no longer considered very safe. Consider a staggered arrangement. Consider a	4.3.2 – Pedestrian Crossings Once the Ford site is developed opposite, there will be a pedestrian route and a corresponding desire line, and this will be considered through discussions with Cork City Council and Glenveagh regarding the optimum junction control at this location. In the interim the pedestrian desire lines will be at the Marina and at the Marquee Road junctions. 4.3.3 – Corner Radii Corner radii for this development will be set at 3m maximum unless alternative radii are necessary to meet other requirements. 4.4.3 – Junction Design A stop-controlled junction will be implemented at the Priority Junction on to Centre Park Road. This aligns with the opposing site access junction in order to facilitate future upgrade to a potential signal-controlled junction (it is noted that Centre Park Road is the indicated route of the future LRT system for Cork and as such signal control will likely be required along this route).

[4] *Refer also to the National Cycle Manual (2011)*

	left/right staggered junction arrangement. Ensure a Stop control is used rather than a Yield control. 4.4.7 - Horizontal and Vertical Deflections No detail provided. All crossings should be raised indicating that pedestrians have priority over vehicles.	4.4.7 – Horizontal and Vertical Deflections All crossings will be raised to indicate that pedestrians have priority.
Footpaths are continuous and wide enough to cater for the anticipated number of pedestrian movements.	3.2.1 – Movement Function. The access road is designed as a Local Street which is suitable for this type of development and the number of pedestrians and cyclists it generates. ☑ 3.2.3 – Place Context. The development is considered a Neighbourhood where caters for high moderate levels pedestrian activity. ☑ 4.2.5 – Street Furniture Limited details provided. Bike stands are to be placed within the verges at regular intervals. ☑ Street Furniture should be kept outside the footpath and should not impede on movement and kept outside the visibility splays at junctions. The number of items used should be balanced with other facilities (including signage and line marking) to reduce clutter. To reduce street clutter designers should consider combining lighting with other installations. The use of guardrails should be limited if used at all.	4.2.5 – Street Furniture High-quality street furniture shall be included and organised in such a way as to reduce clutter. A balance will be struck between required facilities such as street markings and signage and supplementary furniture. Guardrails will be limited to use along the open water edge. Lanterns shall not be installed at heights greater than 6m.

	On Local Streets, the mounting heights of lanterns should be no greater than 6 metres. 4.3.1 - Footways, Verges and Strips A minimum footpath width of 2.0m is required along the local street. ☑ The verges should be wide enough to prevent any encroachment of street furniture into the footpath. ☑ Footpaths along commercial frontages should be wider than 2.0m to compensate for the lack of strips and allow for doors to open etc. 4.3.2 - Pedestrian Crossings Local streets, due to their lightly-trafficked/ low-speed nature, generally do not require the provision of controlled crossings. However zebra crossings or courtesy crossings should be considered where pedestrian demands are higher such as around Focal Points. ☑	4.3.1 – Footways, Verges and Strips A minimum width of 2m is provided along the local street, with widths in excess of 2m provided along commercial frontages to compensate for the lack of strips and to allow for doors to open. Noted.

Pedestrian and Cycling Environment (cont)		
Key Issues	**Key DMURS Reference.**	**Response**
The particular needs of visually and mobility impaired users been identified and incorporated in the design.	4.2.5 - Street Furniture No details provided at this stage. The space used in verges will allow most of the street furniture to be located outside the footpath. ☑	4.2.5 – Street Furniture A limited palette of high-quality items will promote visual cohesion while contrasting with the background and providing amenity to users.

	Items used should be chosen from a limited palette that promotes visual cohesion while contrasting with the background to assist the visually impaired. Public Lighting is of particular importance in aiding the movement of visually and mobility impaired. 4.3.1 - Footways, Verges and Strips Well-designed footpaths are free of obstacles and generally wide enough to allow pedestrians to pass each other in comfort. ☑ A min. footway width of 1.8m allows for two wheelchairs to pass each other. Where public steps are encountered, an alternative ramped route is available. Verges offer a buffer between the footpath and the carriageway/parallel parking bays and accommodates street lighting. 4.3.2 - Pedestrian Crossings All crossings should be a minimum width of 2-3m. All crossings should be raised and well-lit to aid those with a visual or mobility impairment. All crossing lengths should be less than 6.0m long and be located to match desire lines. Forward visibility should be 33m at all crossings with trees remove if they obscure a pedestrian waiting to cross. 4.3.4 - Pedestrianised and Shared Surfaces No details are provided at this stage. There doesn't appear to be any significant section of shared	4.3.1 – Footways, Verges and Strips Alternative ramped routes are provided whenever public steps are encountered. A minimum width of 1.8m is provided. A verge is provided to act as a buffer between the footpath and the carriageway. 4.3.2 – Pedestrian Crossings All crossings will be a minimum of 3m wide. All crossing lengths will be less than 6m long and be located to match desire lines. All crossings and car park entrances will be raised. The relevant forward visibility will be provided. 4.3.4 – Pedestrianised and Shared Surfaces Sections of tactile paving that direct movement along or across spaces will be provided. Use of tactile or other surface treatments will be used to create distinct zones that delineate pedestrian only space from shared space. Flush kerbs, drainage lines and/or paving changes that can assist guide

	carriageway. There are small areas where pedestrian are required to share space with cyclists such at crossings. Shared surface streets and smaller shared spaces at crossings can be very intimidating for impaired users. Visually-impaired users in particular usually rely on kerb lines to navigate streets. To assist navigation and movement through shared spaces, designers should apply design measures such as: • Sections of tactile paving that direct movement along the street or across spaces. • The creation of distinct zones that delineate pedestrian only space from shared space. • Flush kerbs, drainage lines and/or sections of tactile paving to assist guide dogs and indicate movement from a pedestrian only space to a shared carriageway.	dogs and indicate movement from pedestrian only to a shared carriageway will be implemented.
Cycling facilities will cater for cyclists of all ages and abilities.[5]	3.2.1 – Movement Function. A Local Street design was applied which consists of a mixed or shared street which is suitable in low traffic single lane environments where cyclists take precedence over vehicular traffic. ☑ More consideration by the designer is required for what cyclists are required to do at shared spaces with pedestrians at	3.2.1 – Movement Function Appropriate markings and advisory paving will be provided to inform cyclists of what they are required to do at shared spaces with pedestrians at crossings and with motorists at the main entrance.

[5] *Refer also to the National Cycle Manual (2011)*

	crossings and across with motorists at the main entrance. 3.2.3 – Place Context. A Neighbourhood design is generally a good environment for cyclists in terms of low traffic speeds and volumes, lighting, sense of place etc. ☑ 4.3.5 - Cycle facilities. The National Cycle Manual recommends that on lightly-trafficked/low-speed streets, designers are generally directed to create *Shared Streets* where cyclists and motor vehicles share the carriageway. A shared street mitigates the need for cyclists to cross the carriageway internally and allows cyclists to turn at carpark access and at the main access with Centre Park Road. ☑	

Visual Quality		
Key Issues	**Key Considerations and DMURS Ref:**	**Design Response**
The landscape plan responds to the street hierarchy and the value of the place.	3.2.1 – Movement Function. The Local Street design appropriately has trees planted within its verges on both sides. ☑ 3.2.3 – Place Context. The Neighbourhood style of development is well suited for trees planted within the verges and along walkways between the building blocks. ☑ 4.2.2 – Street Trees No details are provided. Smaller species with a canopy spread of 2-6m will be best suited to narrower streets such as *Local* streets and where buildings are located in close proximity to the street edge carriageway (i.e. to take account of overshadowing, growth restrictions). To be effective, trees are planted at intervals of 14-20m. ☑ Consideration needed as to the impact of root growth. Tree roots may need to be contained within individual tree pits, continuous soil planting strips or using other methods to restrict growth under pavements/toward services. Attention is needed for trees planted over the lover-level carpark.	4.2.2 – Street Trees Smaller species with a canopy spread of 2-6m will be best suited to narrower streets such as *Local* streets and where buildings are located in close proximity to the street edge carriageway and above lower-level carpark. Consideration to selection of tree species will be given to ensure that negative impact on adjacent surfaces and below ground car parking is avoided.

	4.2.7 – Planting Advice Note 1 – Transitions and Gateways Limited details provided. Plants are proposed within the road verges and along walkways between buildings. ☑ In Neighbourhood settings, emphasis should be placed on the use of planted materials to promote 'softer' landscape elements and a greener 'living' character. There is more scope for a greater variety of trees, shrubs and other plants that can be used with the larger green area located to the west of the development. Designers should also consider the size of trees, shrubs and other landscape elements at full maturity. In general designers should avoid planting that will grow to obstruct movement and surveillance.	4.2.7 – Planting A greater variety of trees, shrubs and other plants will be used in the green area to the west of the development to promote a greener 'living' character. Full consideration will be given to ensure that planting is avoided that will have a future negative impact on the movement through and surveillance of the space.
Street furniture is orderly placed.	3.2.1 – Movement Function. Street furniture can serve many purposes that relate to both place and function. 3.2.3 – Place Context. The placement of street furniture should be considered as part of a wider strategy, such as part of an integrated landscape plan which includes Centre Park Road and The Marina. 4.2.5 - Street Furniture. No exact details provided at this stage. Street furniture includes a variety of	

	commonly found items within a street such as public art, lighting, bollards, guardrails, seating and cycle parking. Bike stands and seating are included. ☑ 4.3.1 Footways, Verges and Strips Footpaths remain clear of street furniture. Street furniture should be placed within a designated zone, such as in a verge or in a strip. ☑ Outdoor seating is placed within strips around the water feature. ☑	
The use of signage and line marking has been minimised.	3.2.1 – Movement Function. More details are required. Minimal signage is required on Local Streets due to their low-speed nature and low movement function. The generally lightly trafficked nature of these streets means that the use of signage can be minimised, and in some cases eliminated altogether. The requirements for signage on Arterial and Link streets will be higher than on Local streets. 3.2.3 – Place Context. An emphasis on the values of place also requires the visual impact of signage to be considered in order to reduce visual clutter. As noted in the Manual for Streets (2007), there may also be traffic-calming benefits of a 'less is more' approach to reinforce lower design speeds. The TSM warns against over providing signage and line marking. The TSM states in relation to signage in general, 'signs should only be erected where there is a	3.2.3 – Place Context Careful consideration will be given to the balance between under and over-providing signage to ensure an environment that is legible, yet not visually cluttered.

	demonstrable need, because unnecessary, incorrect or inconsistent signs detract from the effectiveness of those that are required and tends to lead to disrespect for all signs'. There is also a limit to how many signs/line markings drivers can absorb in a short period. 4.2.4 - Signage and Line Marking. Limited details provided. Road lining should be confined to a Stop Line accompanied with a Stop sign and a shorth 8m long section of centre line. We recommend no centre line be used elsewhere.	4.2.4 Signage and Line Marking Road lining will be confined to a Stop Line accompanied with a Stop sign and a short 8m long section of centre line, as per recommendations.
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. Apply a hierarchical approach to the application of materials. Altering the palette according to the street hierarchy and/or importance of place will assist in way finding. 3.2.3 – Place Context. Higher quality design solutions should be implemented that highlight and promote the importance of place. 4.2.6 – Materials and Finishes The use of higher quality materials has wide economic benefits. In relation to shopping streets, research has shown that streets finished with better quality materials result in better market prices, better rents and better retail sales. Capital costs should also be measured against savings that result from a reduction in the need for barriers,	3.2.1 – Movement Function The selection and application of surface materials will be developed and a hierarchical approach to use and implementation will be established to ensure ease of way finding and place making. 3.2.3 – Place Context Design solutions, such as the amphitheatre and village plaza, are used to highlight and promote the importance of place – particularly at the heart of the scheme.

	signage, line marking and longer-term costs related to durability and maintenance. 4.2.8 – Historic Contexts. No details submitted at this stage. 4.3.2 – Pedestrian Crossings Materials and finishes at crossings should promote visual cohesion, while contrasting with the background to assist the visually impaired. The layout and colour of tactile paving should ensure that a consistent logic is applied. This includes the cumulative impact of tactile paving with other material choices. For example, the use of strong red or yellow tactile paving may not be appropriate to avoid visual clutter associated with too many surface types or colours. In such instances an approach which balances the need for visual contrast (to aid the visually impaired) whilst promoting visual cohesion is preferable 4.4.2 – Carriageway Surfaces Use of contrasting materials and textures to inform pedestrians and motorists of changes to the function of space (i.e. at verges, footpaths, strips, cycle track, pedestrian crossings, road-side parking bays, car park entrances and shared surfaces) and in particular to guide the visually impaired. Advice Note 2 – Materials and Specifications	4.3.2 – Pedestrian Crossings The selection of materials for use at crossing will promote visual cohesion, while contrasting with the background to assist the visually impaired. 4.4.2 – Carriageway Surfaces Use of changing materials and textures, such as using robust materials at crossings, will inform pedestrians and motorists of changes to the function of a space. Additional surface changes or edge treatments will be used to denote other changes in uses such as for car parking, car park entrances, footpaths, verges, cycle tracks and so forth.

Additional Comments		
This DMURS Street Design Audit is an evolving document and should be updated during various stages of the design. This audit accompanies a Stage 1 RSA among other separated individual design audits and together forms part of an overall Quality Audit report commenced during the Preliminary Design Stage and before a Planning Application was made. The design team should focus on the street design in terms of place making with priority for vulnerable road users such as pedestrians and cyclists. Given its central location, the movement of residents should be focused on walking and cycling. This scheme could show case a high-quality street environment for people rather than for private cars. Motorists are accommodated but the designer should place pedestrians and cyclists at the top of the user hierarchy, particularly for this development, given its proximity to the city centre and amenity facilities in the area. For example, pedestrian crossing points and cycle tracks should be maintained through the access junction indicating that pedestrians/cyclists have priority over the private car.		

Personnel Information			
	Name	**Date**	**Signature**
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