

Punch Consulting

Park Redevelopment, Woodquay,
Galway City

Stage 1 & 2 Road Safety Audit

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Stage 1 & 2 Road Safety Audit

Document Ref:	P24110-PMCE-XX-XX-RP-SA-5_0001
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Rev	Prepared By	Reviewed By	Approved By	Issue Date	Reason for Revision
3.0	AOR	RIF	AOR	20 th Sept. 2024	Final
2.0	AOR	RIF	AOR	19 th Sept. 2024	Scope Amendment
1.0	RIF	AOR/TAG	AOR	30 th August 2024	Draft Report

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1 Introduction

1.1 General

This report results from a Stage 1 & 2 Road Safety Audit on the proposed Park Redevelopment, at Woodquay, in Galway City carried out at the request of Mr. Aiden O'Donoghue of Punch Consulting.

The members of the Road Safety Audit Team are independent of the design team, and include:

Mr. Alan O'Reilly

(BA, BAI, MSc, PGDip(PM), RSACert, CEng, MIEI)
Road Safety Audit Team Leader

Ms. Rebecca Farnan

(BA, MAI, MIEI)
Road Safety Audit Team Member

The Road Safety Audit took place between June and August 2024 and comprised an examination of the documents provided by the designers (see Appendix A). In addition to examining the documents supplied the Road Safety Audit Team visited the site of the proposed measures on the 18th June 2024. Weather conditions during the site visit were dry and the road surface was dry. Traffic volumes during the site visit were moderate, pedestrian and cyclist volumes were moderate and traffic speeds were considered to be generally within the posted speed limit.

Where problems are relevant to specific locations these are shown on drawing extracts within the main body of the report and their locations are shown in Appendix B. Where problems are general to the proposals sample drawing extracts are within the main body of the report, where considered necessary.

This Stage 1 & 2 Road Safety Audit has been carried out in accordance with the requirements of GE-STY-01024 - Road Safety Audit (December 2017), contained on the Transport Infrastructure Ireland (TII) Publications website.

The scheme has been examined and this report compiled in respect of the consideration of those matters that have an adverse effect on road safety and considers the perspective of all road users. It has not been examined or verified for compliance with any other standards or criteria. The problems identified in this report are considered to require action in order to improve the safety of the scheme and minimise collision occurrence.

If any of the recommendations within this road safety audit report are not accepted, a written response is required, stating reasons for non-acceptance. Comments made within the report under the heading of Observations are intended to be for information only. Written responses to Observations are not required.

1.2 Items Not Submitted for Auditing

Details of the following items were not submitted for audit; therefore, no specific problems have been identified at this stage relating to these design elements, however where the absence of this information has given rise to a safety concern it has been commented upon in Section 3:

- Personal Injury Collision data
- Vehicle swept paths
- Drainage
- Visibility splays

2 Project Description

The proposed site is located at Woodquay Park in the north of Galway City (see Figure 2.1). The site is bound on its western, northern and eastern side by local roads Corrib Terrace, Waterside and Riverside, respectively, and on its southern side by the Woodquay carpark which is accessed via the R866 Regional Road.

The R866 (Headford Road) is a two-way single carriageway road running in a southwest-northeast direction over a length of 0.8km. The road is approximately 8m wide in the vicinity of the development with footpaths and public lighting provided on both sides of the road. The local roads which border Woodquay Park are two-way single carriageway roads with footpaths and public lighting provided on the side of the roads opposite to the park. On-street parking is provided on the eastern side of Riverside and Corrib Terrace.

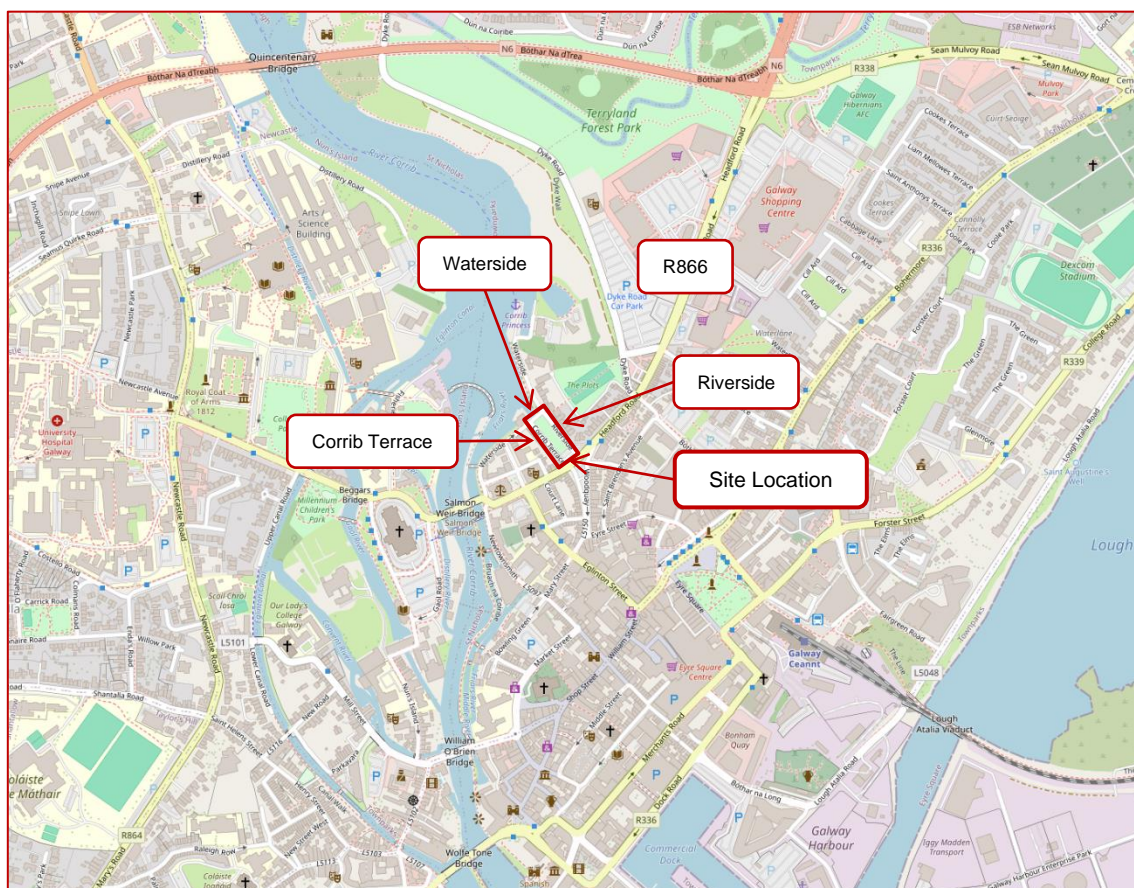


FIGURE 2.1: LOCATION PLAN (SOURCE: WWW.OPENSTREETMAP.ORG)

The proposed works at Woodquay Park would include:

- Extending Woodquay Park to the south and removing the existing carpark on the park's southeastern side.
- Provision of a new footpath on the park's northwestern side.
- Provision of uncontrolled pedestrian crossings on each side of the park, including a new raised table pedestrian crossing at the park's northwestern side.
- Extending the footpath on the eastern side of Riverside where it intersects Headford Road. The extended footpath would include the provision of a vehicular access lane between Riverside and an existing property, two mobility-impaired parking spaces and two EV parking spaces.
- Relocating an area of bicycle hire stands to the eastern side of the park.
- Improvement works within Woodquay Park including new pathways within the park, seating, a "Natural Play Landform" and rain gardens.

3 Items Arising from the Audit

3.1 General Arrangement at Woodquay Park

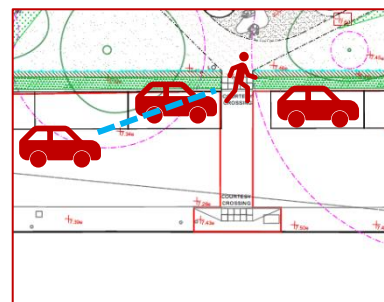
3.1.1 Inter-Visibility Restricted by Parking Spaces

Location: Drawing No. 12357-LUC-XX-00-DR-L-0100 (Rev. P06)

Summary: Inter-visibility between drivers and pedestrians crossing Corrib Terrace from Woodquay Park may be restricted by parked cars on both sides of the crossing.

An uncontrolled pedestrian crossing has been indicated on Corrib Terrace. The pedestrian crossing point exiting Woodquay Park would, however, be located between two parking spaces.

Should one, or both, of these parking spaces be occupied, this may lead to the inter-visibility between approaching drivers and pedestrians waiting at the eastern side of the crossing being restricted. This may lead to a pedestrian entering the carriageway when a driver may not anticipate them to do so resulting in a subsequent risk of vehicle-pedestrian collisions.



Recommendation

The parking spaces should be removed or relocated such that sufficient inter-visibility between a driver, approaching from either direction, and a pedestrian exiting the park at the crossing is provided at this location.

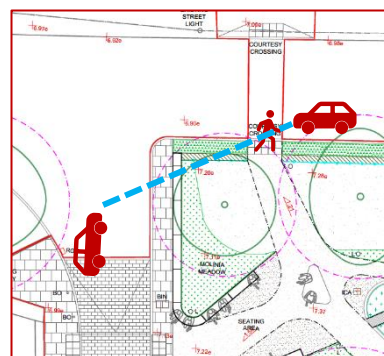
3.1.2 Inter-visibility Restricted by Hedge Line

Location: Drawing No. 12357-LUC-XX-00-DR-L-0100 (Rev. P06)

Summary: Inter-visibility between drivers and all road users at the northeastern corner of Woodquay Park may be restricted by hedge planting/fencing.

A row of hedge planting, which would initially be supported by a timber post and rail fence, has been indicated around the border of Woodquay Park. A new uncontrolled pedestrian crossing has also been indicated on Riverside at the northeastern corner of the park.

Information in relation to the intended height of the hedgerow has not been provided and, should it grow too high, this may lead to inter-visibility between drivers approaching this corner from each direction, or southbound drivers and pedestrians waiting at the western side of the crossing being restricted.



This may lead to a southbound driver cutting the corner ahead of an opposing driver turning onto Riverside resulting in a subsequent risk of low-speed head-on collisions, or to a pedestrian entering the carriageway when a driver may not anticipate them to do so and a subsequent risk of vehicle-pedestrian collisions.

Recommendation

The hedgerow planting should be routinely maintained and cut to a height which provides sufficient inter-visibility between all road users at this location.

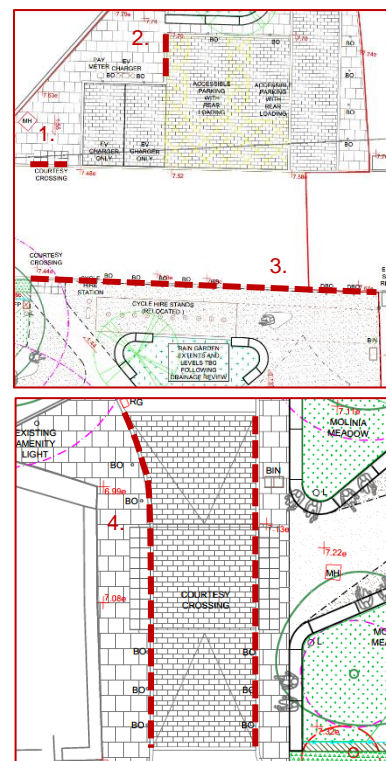
3.1.3 Kerb Heights

Location: Drawing No. 12357-LUC-XX-00-DR-L-0100 (Rev. P06)

Summary: It is unclear if kerbs of an appropriate height would be provided at all locations within the scheme.

The proposed kerbs within the scheme have been indicated as having a varying height within the legend on the drawing provided and it is, therefore, unclear whether kerbs of an appropriate height would be provided at all locations, including the following:

1. All pedestrian crossings where the provision of kerbs with an upstand greater than 6mm may present trip hazards to pedestrians, or barriers to mobility impaired pedestrians, particularly wheelchair users.
2. Adjacent the mobility-impaired parking spaces at the southeastern corner of the scheme where the absence of a dropped kerb with an appropriate upstand could lead to mobility-impaired vehicle occupants experiencing difficulties entering/exiting their vehicle.
3. At the eastern and western boundary of Woodquay Park at its southern end, where the absence of full height kerbs, outside of pedestrian crossing points, may lead to visually-impaired pedestrians inadvertently entering the carriageway where there is a risk of being struck by a vehicle.
4. At the raised table, indicated at the northern boundary of Woodquay Park, where the provision of flush kerbs outside of the pedestrian crossing may lead to visually-impaired pedestrians inadvertently entering the carriageway where there is a risk of being struck by a vehicle.



Recommendation

Kerbs of a suitable height, appropriate for their location and use, should be provided throughout the scheme.

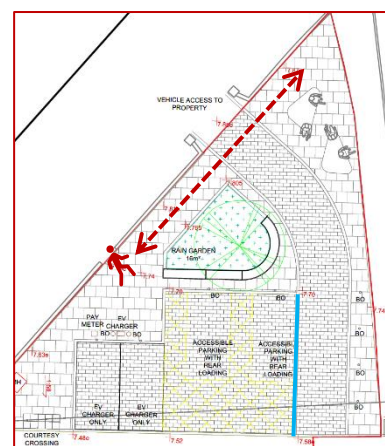
3.1.4 Layout of Vehicular Access Driveway

Location: Drawing No. 12357-LUC-XX-00-DR-L-0100 (Rev. P06)

Summary: The layout of the proposed vehicular lane providing access to an existing property is unclear and may result in mobility and visually-impaired pedestrians experiencing difficulties navigating the road layout at this location.

A new access lane has been indicated at the southeastern corner of the scheme to facilitate vehicular access to an existing property at this location. It is, however, unclear if there would be a level difference between the lane and the footpath which bounds it on both sides. Should there be a level difference between these two surfaces, the absence of a pedestrian crossing along the likely pedestrian desire line, adjacent the property boundary line, may lead to mobility and visually-impaired pedestrians experiencing difficulties navigating the road layout.

In addition, should there be a level difference, it is unclear if this kerb would extend across the southern side of the mobility-impaired parking space at this location. Should a kerb be provided across the southern side of the mobility-impaired parking space, this may result in the parking space being of an insufficient size and vehicle occupants may experience difficulties entering/exiting their vehicle from this side.



Alternatively, should there be no level difference between the lane and the surrounding footpath, this may lead to visually-impaired pedestrians inadvertently entering the lane where there is a risk of being struck by a vehicle.

Recommendation

Should there be a level difference between the vehicular access lane and its surrounding footpath, a pedestrian crossing including tactile paving should be provided across the access and a flush kerb provided along the southern side of the mobility-impaired parking space.

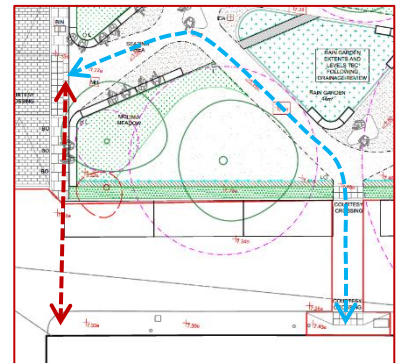
Should there be no level difference, suitable measures should be provided to guide visually-impaired pedestrians through this area.

3.1.5 Unaccommodated Pedestrian Desire Line

Location: Drawing No. 12357-LUC-XX-00-DR-L-0100 (Rev. P06)

Summary: *The provision of a footpath along the northern boundary of the park without associated pedestrian crossings at both ends may lead to pedestrians crossing Corrib Terrace or Riverside from this footpath where drivers may not anticipate them to do so.*

A new footpath is indicated at the northern boundary of Woodquay Park. No pedestrian crossings have been indicated at either end of the footpath to provide a connection across Corrib Terrace or Riverside, however, this would be the most direct route for pedestrians between these roads, particularly those who wish to travel south on Corrib Terrace. This may, therefore, lead to pedestrians choosing to cross Corrib Terrace or Riverside at the end of the proposed footpath, away from the pedestrian crossings, where drivers may not anticipate them to do so, resulting in an increased risk of vehicle-pedestrian collisions.



Recommendation

The pedestrian routes to the east and west at the park's northern end should be made unattractive to deter their use and thus pedestrians crossing Corrib Terrace or Riverside at these locations. This may be achieved by extending the grassed verges at either end of the footpath northwards across the proposed footpaths, or by an alternative appropriate measure.

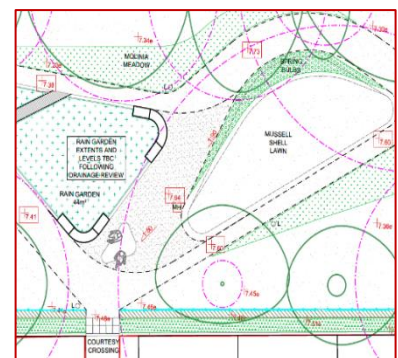
3.1.6 Width of Internal Paths

Location: Drawing No. 12357-LUC-XX-00-DR-L-0100 (Rev. P06)

Summary: *The width of the paths within Woodquay Park may not be sufficient to accommodate its intended users.*

A new path network is proposed within Woodquay Park. No information in relation to the width of the paths has been provided, however, sections of the path have been measured as being approximately 1m wide. This width may lead to mobility-impaired pedestrians, particularly wheelchair users, experiencing difficulties when travelling through the park.

In addition, it is unclear if it is intended for the paths to be used by both pedestrians and cyclists. Should the path network be shared by pedestrians and cyclists, narrow paths may result in an increased risk of conflicts between these road users.



Recommendation

If the paths within Woodquay Park are intended to be shared surfaces, they should be a minimum of 2.5m wide. If these are intended to be used only by pedestrians, they should be a minimum of 1.2m wide, but preferably 1.8m wide.

3.1.7 Depth of Tactile Paving

Location: Drawing No. 12357-LUC-XX-00-DR-L-0100 (Rev. P06)

Summary: The depth of tactile paving provided at various locations would not be sufficient for an in-line pedestrian crossing.

New uncontrolled pedestrian crossings have been indicated at various locations within the scheme. A number of these crossings may be considered as in-line pedestrian crossings, where pedestrians cross the road in their direction of travel, due to the alignment of the paths within Woodquay Park on their approach to the crossings. These locations include the raised table crossing and the northern crossing on Riverside.

The tactile paving indicated at these crossings is not of a sufficient depth for an in-line pedestrian crossing and this may lead to a visually-impaired pedestrian stepping over the tactile paving and inadvertently entering the carriageway where there is an increased risk of being struck by a vehicle.

In addition, the existing tactile paving at the crossing of Corrib Terrace and Riverside, at their junctions with Headford Road, are also not deep enough for an in-line pedestrian crossing.



Recommendation

Tactile paving at all in-line pedestrian crossings should be a minimum of 1.2m in depth.

3.1.8 Visibility of Bollards

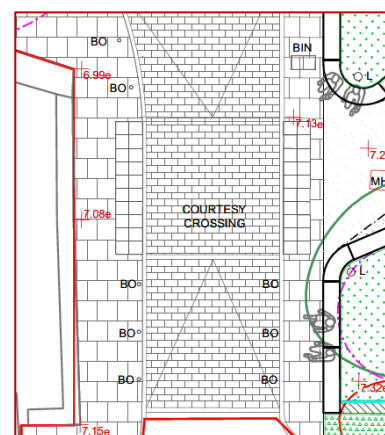
Location: Drawing No. 12357-LUC-XX-00-DR-L-0100 (Rev. P06)

Summary: It is unclear if the proposed bollards would be sufficiently visible during the hours of darkness.

A number of stainless steel bollards have been indicated within the scheme, including on the western side of Riverside and on both sides of the proposed raised table at the park's northwestern boundary. Should the bollards not include reflective measures, there is a risk that they would not be sufficiently visible during the hours of darkness.

In addition, it is unclear if the bollards would be sufficiently setback from the edge of the carriageway.

If the bollards are not sufficiently visible to approaching drivers during the hours of darkness, or should they be located too close to the edge of the carriageway, there is a risk of vehicles striking the bollards and material damage collisions.



Recommendation

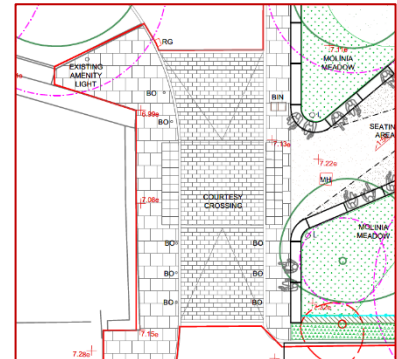
The proposed bollards should include reflective measures, such as a reflective band, and be located a minimum of 450mm from the edge of the carriageway.

3.1.9 Absence of Drainage Measures

Location: Drawing No. 12357-LUC-XX-00-DR-L-0100 (Rev. P06)

Summary: It is unclear if the carriageway would sufficiently shed surface water at the raised table.

A new raised table has been indicated at the northern boundary of Woodquay Park. There appears to be an existing gully at the northeastern corner of the raised table, however no additional drainage measures appear to be proposed at this location. The existing drainage measures may fail to sufficiently shed surface water which may accumulate at the bottom of the raised table. If the carriageway is not sufficiently drained there is a risk of ponding and loss of traction resulting in the potential for loss of control type incidents, particularly during wet and icy weather conditions.



Recommendation

Sufficient drainage measures should be provided at the raised table such that the carriageway on both sides sufficiently sheds surface water.

3.1.10 Mounting Height of Trees

Location: Drawing No. 12357-LUC-XX-00-DR-L-0100 (Rev. P06)

Summary: It is unclear if sufficient vertical clearance would be provided for pedestrians and cyclists beneath tree canopies within the scheme.

Existing trees within Woodquay Park are proposed to be retained at locations where they may overhang the proposed paths and routes that may be shared by pedestrians and cyclists. No information has been provided in relation to the mounting height of these trees and it is, therefore, unclear if sufficient vertical clearance would be provided between the tree canopies and the footpath/shared path. Should trees be mounted too low, tree canopies may present a hazard to pedestrians and cyclists traveling beneath them, resulting in personal injuries if collided with.

Recommendation

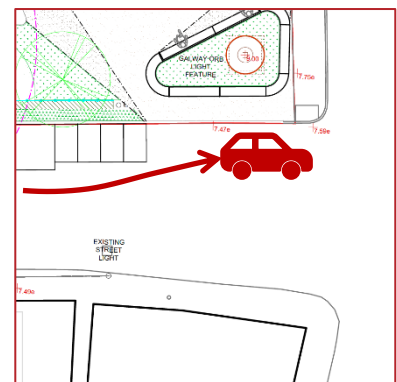
Trees which would overhang the footpath, or routes shared by pedestrians and cyclists, should be mounted at a height such that a vertical clearance of 2.3m or 2.5m, respectively, would be provided beneath them.

3.1.11 Location of Motorcycle Parking Spaces

Location: Drawing No. 12357-LUC-XX-00-DR-L-0100 (Rev. P06)

Summary: It is unclear if the swept path of drivers taking up a position at the Stop line on Corrib Terrace would be accommodated due to the location of the motorcycle parking spaces.

A row of motorcycle parking spaces has been indicated on the western side of Corrib Terrace a short distance upstream of its junction with Headford Road. Due to the location of these parking spaces, it is unclear if a driver taking up a position at the Stop line would be able to do so comfortably if these spaces were occupied. Should sufficient space not be available for these drivers, this may result in material damage collisions between vehicles and parked motorcycles.

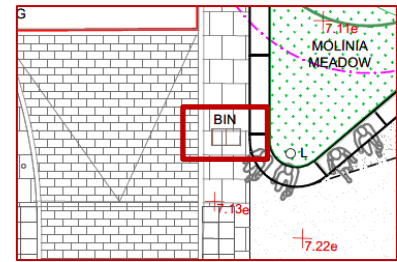


Recommendation

Confirm, via a swept path analysis, that a driver can safely position themselves at the Stop line when the motorcycle parking spaces are occupied.

4 Observations

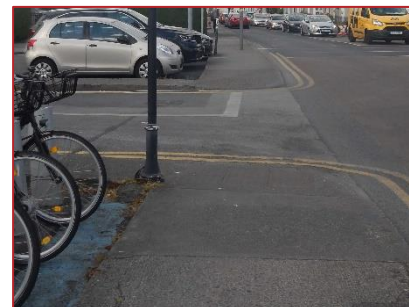
- 4.1 A bin has been indicated in a central position within the proposed footpath at the northern boundary of Woodquay Park immediately to the east of the raised table pedestrian crossing. The bin may obstruct the path of pedestrians travelling within the footpath and it should, therefore, be relocated.



- 4.2 It was noted during the site visit that the tactile paving layout at the existing signalised crossing on Headford Road, to the east of its junction with Riverside, is incorrect. This may lead to visually-impaired pedestrians misinterpreting the type of pedestrian crossing and impacting their ability to navigate the road layout. Should it fall within the scope of the scheme, the tactile paving layout on both sides of this crossing should be updated to be 'L-shaped,' and red in colour, with the stem of the tactile paving located on the right-hand side and extending to the back of the footpath.



- 4.3 The tactile paving indicated at the in-line pedestrian crossings at Riverside and Corrib Terrace, where pedestrians cross the road in their direction of travel, would be of an insufficient depth for this type of crossing. This may lead to a visually-impaired pedestrian stepping over the tactile paving and inadvertently entering the carriageway where there is an increased risk of being struck by a vehicle. Tactile paving at all in-line pedestrian crossings should be a minimum of 1.2m in depth.



5 Audit Team Statement

We certify that we have examined the drawings referred to in this report. The examination has been carried out with the sole purpose of identifying any features of the design that could be removed or modified in order to improve the safety of the scheme.

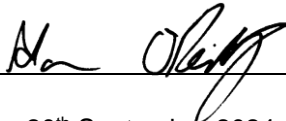
The problems identified have been noted in this report together with associated safety improvement suggestions, which we would recommend should be studied for implementation.

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

ROAD SAFETY AUDIT TEAM LEADER

Alan O'Reilly

Signed:




Dated:

20th September 2024

ROAD SAFETY AUDIT TEAM MEMBER

Rebecca Farnan

Signed:



Dated:

20th September 2024

6 Road Safety Audit Feedback Form

Road Safety Audit Feedback Form

Scheme: Park Redevelopment, Woodquay, Galway City

Route No.: R866, Corrib Terrace, Riverside

Audit Stage: 1 & 2 **Date Audit Completed:** 23rd August 2024

To be Completed by Designer				To be Completed by Audit Team Leader
Paragraph No. in Safety Audit Report	Problem Accepted (Yes/No)	Recommended Measure(s) Accepted (Yes/No)	Describe Alternative Measure(s). Give reasons for not accepting recommended measure. Only complete if recommended measure is not accepted	Alternative Measures or Reasons Accepted by Auditors (Yes/No)
3.1.1	Y	N	Location of crossing point has been moved east to improve visibility. A build-out has been incorporated to improve inter-visibility between drivers and pedestrians	Yes
3.1.2	Y	N	Hedge planting has been removed from this location	Yes
3.1.3	Y	Y	LUC Hard Landscape drawings 12357-LUC-XX-00-DR-L-0106 and 12357-LUC-XX-00-DR-L-0107 provide full details of kerbs	
3.1.4	Y	Y	There is no level difference between surfaces. Hazard warning paving has been introduced at location indicated to raise awareness to visually-impaired	
3.1.5	Y	Y	Planting has been extended across to block the ends of the routes	
3.1.6	Y	Y	Paths are only intended to be used by pedestrians. All paths widened to 1.2m minimum. Main paths are 2.0m wide.	
3.1.7	Y	Y	Tactile paving at all in-line crossings extended to 1.2m depth	
3.1.8	Y	Y	Bollards have been repositioned 450mm away from edge of carriageway and reflective strips included within specification shown on Hard Landscape plans 12357-LUC-XX-00-DR-L-0106 and 12357-LUC-XX-00-DR-L-0107	

Road Safety Audit Feedback Form

Scheme: Park Redevelopment, Woodquay, Galway City

Route No.: R866, Corrib Terrace, Riverside

Audit Stage: 1 & 2 **Date Audit Completed:** 23rd August 2024

To be Completed by Designer				To be Completed by Audit Team Leader
Paragraph No. in Safety Audit Report	Problem Accepted (Yes/No)	Recommended Measure(s) Accepted (Yes/No)	Describe Alternative Measure(s). Give reasons for not accepting recommended measure. Only complete if recommended measure is not accepted	Alternative Measures or Reasons Accepted by Auditors (Yes/No)
3.1.9	Y	Y	Additional gulleys shown on PUNCH drainage drawing 31101-PUNCH-01-XX-DR-C-0101	
3.1.10	Y	Y	No cycle access is proposed within the park.	
3.1.11	Y	Y	Refer to PUNCH swept path drawings 231101-PUNCH-01-XX-DR-C-0601, 0602, 0603. Parking spaces have been adjusted to ensure no clash with swept path of drivers taking up a position at the Stop line	

Signed:  **Designer** **Date** 23 September 2024

Signed:  **Audit Team Leader** **Date** 20th September 2024

Signed:  **Employer** **Date** 23rd September 2024

Appendix A - Documents Submitted to the Road Safety Audit Team

DOCUMENT/DRAWING TITLE	DOCUMENT/DRAWING NO.	REVISION
General Arrangement Plan	12357-LUC-XX-00-DR-L-0100	P06

Appendix B – Problem Locations

