

Ove Arup & Partners Ireland Ltd.

Grand Canal to Lucan Urban
Greenway

Stage 1 Road Safety Audit

Ove Arup & Partners Ireland Ltd.

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1 Introduction

1.1 General

This report results from a Stage 1 Road Safety Audit on the proposed Grand Canal to Lucan Urban Greenway carried out at the request of Ms Aisling Murphy of Ove Arup & Partners Ireland Ltd.

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

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(BE MSc CEng FIEI RSACert)
Road Safety Audit Team Leader

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(MSc, MIEI)
Road Safety Audit Team Member

The Road Safety Audit took place during August and September 2022 and comprised an examination of the documents provided by the designers (see Appendix B). In addition to examining the documents supplied the Road Safety Audit Team visited the site of the proposed measures on the 30th August 2022. 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 D. Where problems are general to the proposals sample drawing extracts are within the main body of the report where considered necessary.

This Stage 1 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: -

- Visibility splays.

2 Project Description

2.1 General

The proposed Scheme extends between the Grand Canal and Lucan Village and would consist of new and enhanced existing pedestrian & cyclist links to residential, educational, leisure and commercial areas.

The primary route of the scheme from the Grand Canal to Lucan Village is via the Griffeen Valley Park and would have a length of 4.2km approximately, of which approximately 3.54km would be through parks or other green areas.

The majority of the route would run along existing footpaths. As part of design development a number of secondary links have been identified along existing roads and footpaths to better connect the primary route into the surrounding areas. The secondary links will comprise small interventions such as the removal of 'kissing gates', installation of way finding signage, junction tightening, road markings and safe school treatments to improve permeability and access onto the primary route. The combined length of the proposed secondary links is approximately 4.29km.

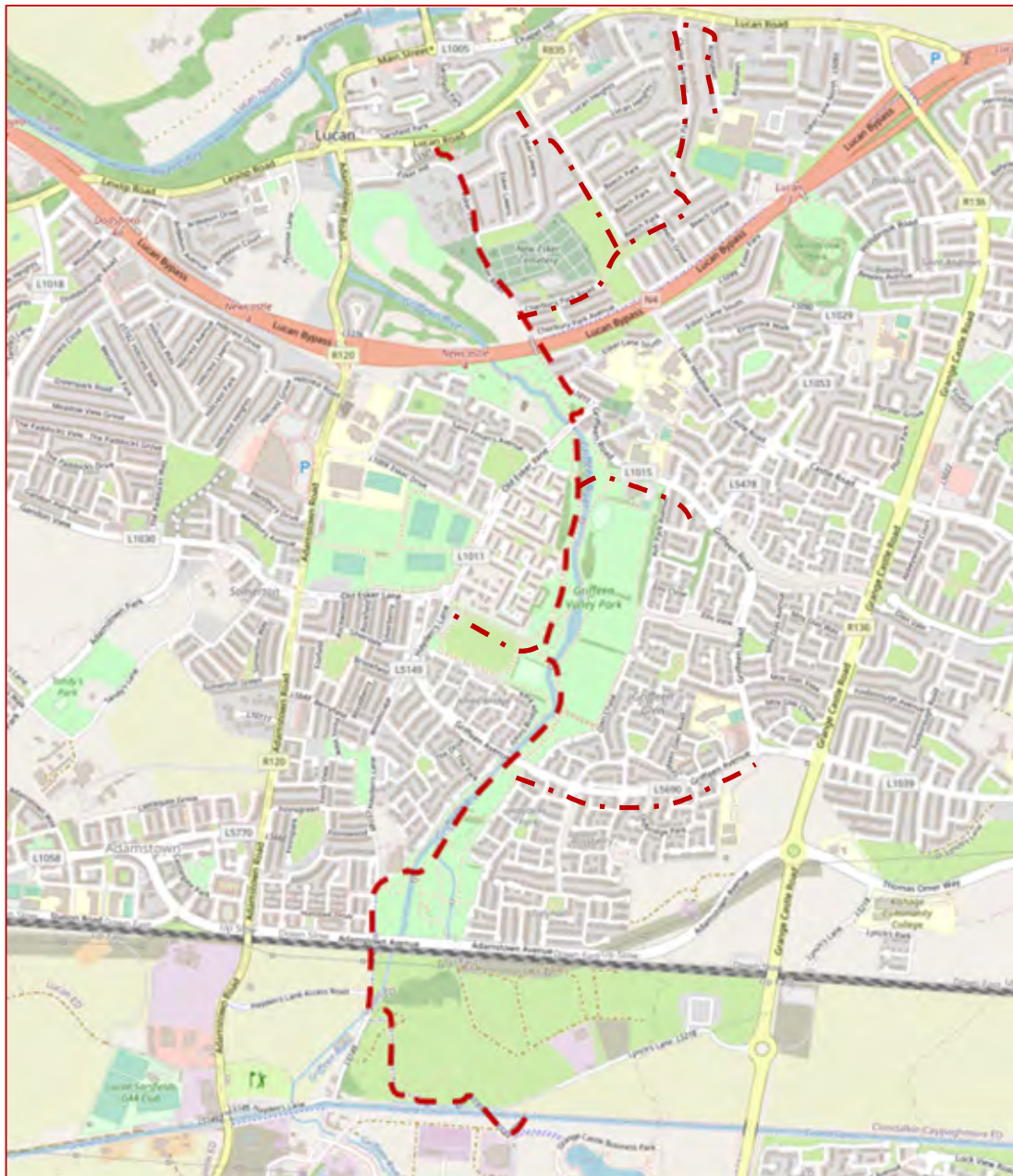


FIGURE 2-1: LOCATION PLAN (SOURCE: WWW.OPENSTREETMAP.ORG)

The proposed works will include;

- Formalised crossing facilities in the form of raised tables on side roads and minor access roads;
- Six new belisha beacon zebra and three toucan crossings are proposed to replace existing crossings and provide new crossing facilities;
- Widening of an existing footpath in Griffeen Valley Park to a 4m wide shared surface;
- Replacement of four existing bridges within Griffeen Valley Park with wider bridges to accommodate a 4m wide shared surface;
- Urban realm and landscaping improvements will be provided adjacent to Griffeen Valley Park on either side of Griffeen Avenue;
- A shared street along the Lucan-Newlands Road with accompanying speed reduction measures such as road narrowing, side road junction tightening & raised entry treatments, chicanes & road marking and street signs;
- A Shuttle system on the Lucan-Newlands Road adjacent to the entrance to Brookvale;
- A new path in Brookvale creating a cycling and walking link between the Lucan-Newlands Road and the Lucan Road, along with public realm and landscape improvements;
- The widening of existing footpaths on Esker Road, the Lucan-Newlands Road and the Lucan Road; and
- A new link from Lucan Road, at the base of Brookvale, and Lucan Village and Sarsfield Park by the provision of a new boardwalk adjacent to the Lucan Road.

3 Main Report

3.1 Problem

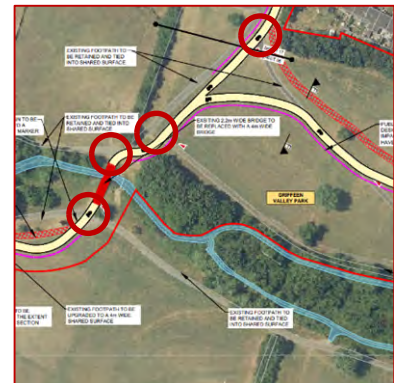
Location: Griffin River Valley Park

Summary: The proposal to provide a single, wide, shared path and to designate other existing paths as footpaths may increase the risk of pedestrian/cyclist collisions within the scheme.

It is proposed to widen successive sections of existing paths within Griffeen River Valley Park to create a wider Shared Path. The drawings provided indicate that the remaining existing paths will be retained as footpaths, which in many instances will run adjacent to, and cross, the newly widened shared path.

During the Site Visit it was noted that pedestrians and cyclists currently share many of the existing paths through the Park, and it is anticipated that the likely cyclist desire lines to/from the residential areas adjacent the park will remain.

For example, the existing footpath along the western side of the river, within Griffeen River Valley Park is proposed to be retained, and the existing kissing gates where this footpath joins the adjacent road network to the west of the park are to be replaced with bollards, presumably to better facilitate cyclist access to the park. It is expected that cyclists would continue to use these paths when travelling to/from the residential areas nearby.



The existing paths would cross the new wider shared path at many locations, creating potential conflict points between non-motorised road users. In order to cater for the needs of visually impaired pedestrians at these intersections, and to advise them of the expected presence of cyclists on the shared path, extensive Ladder & Tramline tactile paving would be required. However, this arrangement is unlikely to correctly reflect the situation that will pertain, with all other paths likely to also contain cyclists.

Recommendation

The existing paths within Griffeen River Valley Park should be considered to be shared-use paths. Ladder & Tramline tactile paving would not necessarily be required at the intersections between these paths and the proposed wider Shared Path, however appropriate tactile paving treatments should be provided where these paths transition to/from segregated surfaces (e.g. at the entrances to the park).

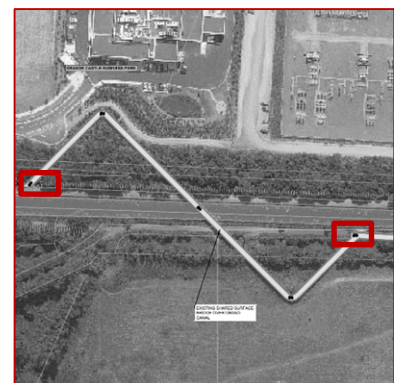
3.2 Problem

Location: Drawing no. 284399-ARUP-ZZ-XX-DR-C-0001 (P03)

Summary: Inter-visibility between non-motorised road users at the intersections between the approaches to the Grand Canal bridge and the towpath.

There is an existing pedestrian/cycle bridge over the Grand Canal between Hayden's Lane and the R136, which is intended to form part of the proposed Scheme.

Cyclists travelling downhill away from the overbridge may have limited visibility to pedestrians or other cyclists travelling along the towpath as they approach the intersection with the towpath. Insufficient inter-visibility could result in unsafe entry to the towpath at speed leading to collisions with a pedestrian, cyclist or electric scooter travelling along the towpath.



Recommendation

Adequate inter-visibility should be available between non-motorised road users approaching this intersection, and the adjacent vegetation should not impede inter-visibility.

3.3 Problem

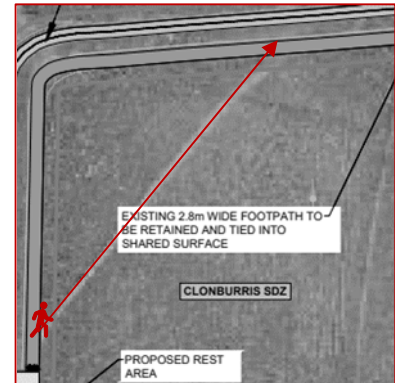
Location: Drawing no. 284399-ARUP-ZZ-XX-DR-C-0002 (P03)

Summary: Existing & proposed path alignment does not reflect pedestrian desire lines resulting in non-motorised road users traversing unpaved areas.

The existing, and proposed, alignment of the paths between Hayden’s Lane and the Grand Canal Bridge do not reflect the existing, and likely future, desire lines at this location.

It is noted that there is an existing, established, unpaved pedestrian desire line to the southeast of the access to the park from Hayden’s Lane leading to the Grand Canal.

Consequently, non-motorised road users are likely to continue to traverse this unpaved area with resulting increased risk of slips, trips or falls in particular during wet or icy weather.



Recommendation

Either a path should be provided which reflects NMU desire lines at this location, or measures provided to deter NMUs from travelling across unpaved ground.

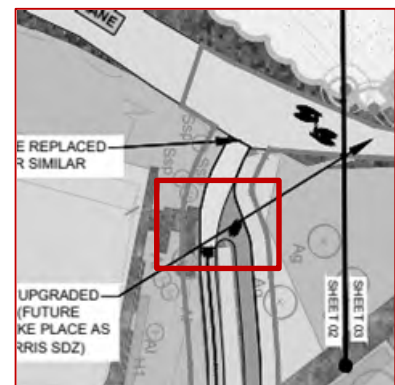
3.4 Problem

Location: Drawing no. 284399-ARUP-ZZ-XX-DR-C-0002 (P03)

Summary: Cyclists may sight onto the shared path adjacent Hayden’s lanes, where it meets the footpath, without due care and attention, leading to pedestrian/cyclist collisions.

Pedestrians travelling from Hayden’s Lane towards the Grand Canal bridge are likely to choose to travel within the cycle track rather than the footpath as it is the more direct route for them as they exit Hayden’s Lane.

In addition, cyclists approaching the intersection with the footpath adjacent to Hayden’s Lane may fail to adequately moderate their speeds approaching the intersection of the footpath or the exit onto Hayden’s Lane, leading to an increased risk of pedestrian/cyclist collisions at the footpath intersection or vehicle/cyclist collisions at the exit onto Hayden’s Lane.



Recommendation

The cycle track layout at this location should be amended so that the cycle track approaches the shared path & the exit onto Hayden’s Lane in a way that encourages reduced cyclist speeds.

3.5 Problem

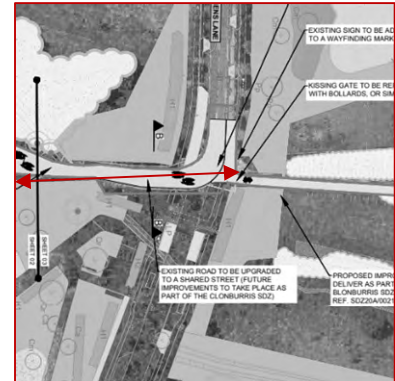
Location: Drawing no. 284399-ARUP-ZZ-XX-DR-C-0002 (P03)

Summary: Pedestrians and cyclists sharing narrow carriageway with vehicles on Hayden's Lane.

A section of Hayden's Lane is to be utilised as part of the active travel route connecting the Grand Canal greenway with the L1058 (Adamstown Avenue) overbridge leading to Griffeen River Valley Park.

Consequently, pedestrians and cyclists will be required to share the carriageway with vehicles, leading to an increased risk of vehicle/NMU collisions.

This issue may be exacerbated by reduced visibility on the eastbound approach to the 90° bend in Hayden's Lane, at the location where pedestrians/cyclists are likely to be travelling towards the existing railway overbridge.



Recommendation

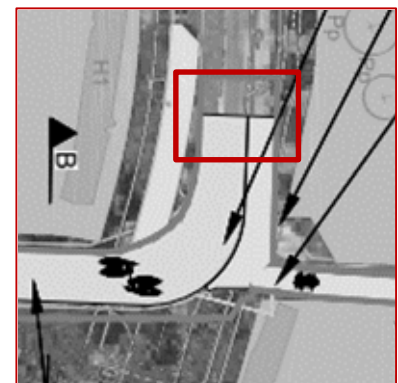
The proposed route should be amended so that non-motorised road users are not required to share a carriageway with vehicles. A possible route is available through the adjacent field to the east of Hayden's Lane, which forms part of the Clonburris SDZ, and which would require an overbridge over the watercourse.

3.6 Problem

Location: Drawing no. 284399-ARUP-ZZ-XX-DR-C-0003 (P03)

Summary: Proposed road layout at the tie-in to the Hayden's Lane to the west of the 90° bend.

The section of Hayden's Lane which forms part of the active travel route is indicated as being improved as part of the Clonburris SDZ. It is unclear if the improvements proposed/required along Hayden's Lane will be carried out before, at the same time, or after implementation of the active travel scheme. There is a potential for discontinuity in provision along this section of the route which is exacerbated by the proposal to have non-motorised road users share the carriageway with vehicles.



In addition, it is unclear if the proposed scheme ties in with the existing road layout on Hayden's Lane to the west. If a safe transition is not provided between the proposed scheme and the tie-ins are not fully considered at this early stage, there is a risk that locked-in land and road constraints could lead to unsafe road layouts being developed at the next design stage.

Recommendation

Ensure the amended sections of carriageway and NMU (Non-Motorised Road User) facilities sufficiently align with the existing road layout at the scheme tie-ins ensuring a smooth transition between the upgraded sections of carriageway to the old sections of carriageway.

Where the scheme relies on sections to be constructed as part of other schemes/projects, then care will be required to ensure that the proposed route remains safe for all road users during intervening stages until all elements are completed.

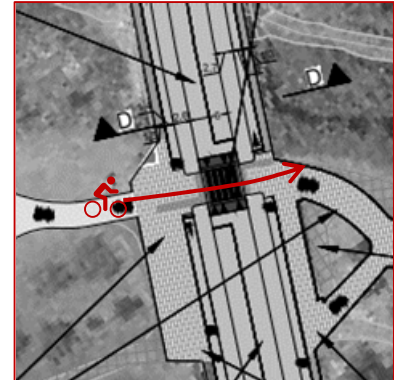
3.7 Problem

Location: Drawing no. 284399-ARUP-ZZ-XX-DR-C-0005 (P03)

Summary: Potential for cyclists to fail to slow sufficiently at the zebra crossing of Griffeen Avenue.

It is proposed to replace the existing signalised pedestrian crossing of Griffith Avenue with a zebra crossing. It is unclear if it is proposed that the plaza area should function as a shared space, however it is assumed that this is not the proposal as separate cycle lanes have been indicated along Griffith Avenue up to the crossing location.

Consequently, the Audit Team understand that it is intended that cyclists would dismount at the end of the shared pedestrian/cyclist path and cross the plaza & zebra crossing on foot.



This is considered unlikely, resulting in some cyclists approaching the zebra crossing at speed, leading to sudden entry into the crossing which may not be anticipated by approaching drivers, resulting in them having insufficient time to react and leading to vehicular/cyclist collisions.

This concern would be more pronounced where those approaching along the shared path are on an electrically powered scooter or bicycle.

Recommendation

Landscaping features (e.g. raised beds) should be provided within the plaza area and positioned to encourage cyclists to slow down on the approach to the interface with the crossing.

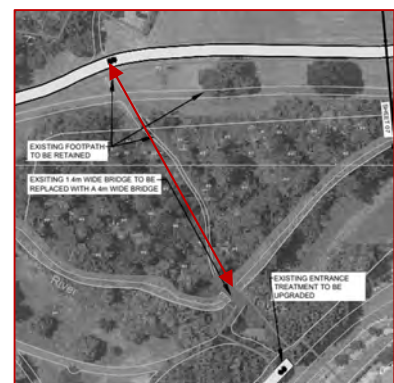
3.8 Problem

Location: Drawing no. 284399-ARUP-ZZ-XX-DR-C-0007 (P03)

Summary: The footpaths connecting the shared facilities between Esker Manor and Griffin River Valley Park may be too narrow to safely accommodate the expected volumes of pedestrians and cyclists.

A shared facility is proposed along Esker Manor, however it does not extend to meet the proposed shared facility within Griffin River Valley Park.

It is highly unlikely that cyclists would dismount and walk along the short length of path between these two shared facilities. Should the path between the two shared facilities be of insufficient width to cater for the expected volumes of pedestrians & cyclists, in particular given its proximity to nearby schools, which could increase the risk of pedestrian/cyclist collisions.



Recommendation

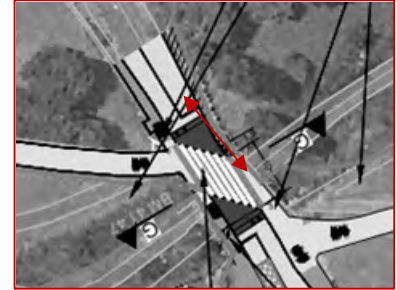
The path within Griffin River Valley Park between Esker Manor and the proposed Shared Path should be amended to be a Shared Path and widened to cater for the expected volumes of pedestrians and cyclists.

3.9 Problem

Location: Drawing no. 284399-ARUP-ZZ-XX-DR-C-0008 (P03)

Summary: Insufficient inter-visibility between approaching drivers and a Non-Motorised Road User (NMU) approaching the proposed zebra crossing of Arthur Griffith Court.

The orientation, layout and height of the existing parapet on the western side of the bridge on Arthur Griffith Court is such that it could impede inter-visibility between an NMU approaching the western side of the proposed zebra crossing and a northbound driver, in particular if the NMU is a child or wheelchair user. This could result in a failure to stop and possible vehicle/NMU collisions.



Recommendation

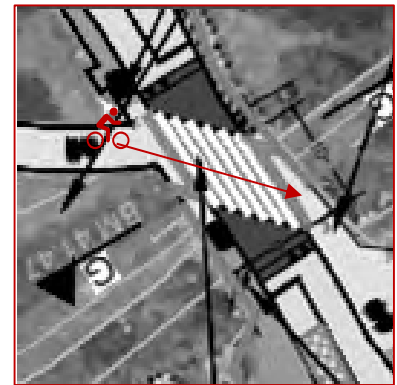
The proposed zebra crossing should be replaced with a toucan crossing.

3.10 Problem

Location: Drawing no. 284399-ARUP-ZZ-XX-DR-C-0008 (P03)

Summary: Cyclists entering zebra crossing of Arthur Griffith Court at speed, leading to possible vehicular/cyclist collisions.

It is proposed to provide a zebra crossing of Arthur Griffith Court on an orientation and layout which is aligned with the shared path approaches to the north & south.



A cyclist approaching the zebra crossing may fail to adequately moderate their speed, leading to sudden entry into the crossing which may not be anticipated by approaching drivers, resulting in them having insufficient time to react and leading to vehicular/cyclist collisions.

This concern would be more pronounced where those approaching along the shared path are on an electrically powered scooter or bicycle.

Recommendation

Either the zebra crossing should be amended to be a toucan crossing, or measures should be provided on the shared path approaches to the crossing which would ensure sufficiently reduced bicycle/scooter speeds.

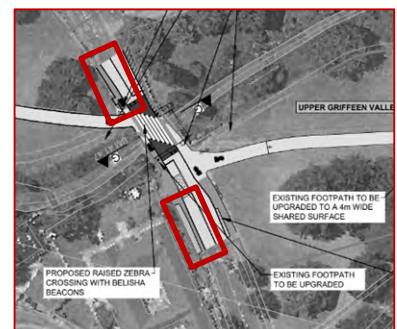
3.11 Problem

Location: Drawing no. 284399-ARUP-ZZ-XX-DR-C-0008 (P03)

Summary: Footpath width insufficient to cater for cyclists and pedestrians.

The drawings provided indicates that the existing paths on either side of Arthur Griffith Court approaching the proposed zebra crossing are shared paths.

During the Site Visit these were noted as being footpaths only, and of insufficient width to act as shared paths. If the footpath is used by both cyclists and pedestrians this could increase the risk of pedestrian/cyclist collisions.



Recommendation

The existing paths along Arthur Griffith Court area should be retained for pedestrian use only, with appropriate Ladder & Tramline tactile paving provided at the intersection with the shared path.

3.12 Problem

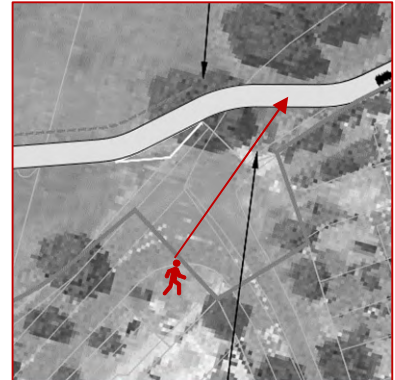
Location: Drawing no. 284399-ARUP-ZZ-XX-DR-C-0008 (P03)

Summary: No connectivity indicated between the existing footpaths on Esker Lane and the shared path.

It is unclear from the drawings provided whether it is intended to provide paths to/from the roads to the east of the proposed shared path at the 90° bend in Esker Lane.

It is likely that pedestrian trips generated by the shared path will originate in the areas along Esker Lane to the east of the proposed shared path, and that there will be a pedestrian desire line along and across Esker Lane.

Should no connectivity be provided, including the required road crossings, this could result in pedestrians traversing unpaved ground with a consequent risk of slips, trips or falls or to unsafe crossing manoeuvres with an increased risk of vehicle-pedestrian collisions.



Recommendation

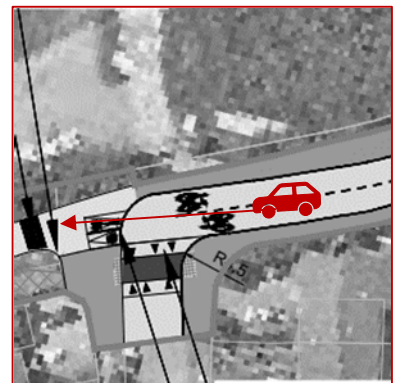
The likely pedestrian desire lines to/from the shared path at this location should be identified, and measures provided to cater for these desire lines safely.

3.13 Problem

Location: Drawing no. 284399-ARUP-ZZ-XX-DR-C-0008 (P03) & Drawing no. 284399-ARUP-ZZ-XX-DR-C-0008 (P03)

Summary: Potential for vehicles to intentionally, or inadvertently, enter the shared path at the Cherbury Park junction with the Lucan-Newlands Road.

There is a risk that some drivers may intentionally, or inadvertently, attempt to enter the shared path where it meets the Lucan-Newlands Road, presenting a hazard to non-motorised road users on the path.



Recommendation

Measures should be provided to ensure vehicles are prevented from entering the shared surface (e.g. staggered fence/gate arrangement).

In addition, during the design development, the proposed road layout should be designed such that it is readily understood by approaching drivers, who understand that they must turn left/right as necessary and also that they are aware of the likelihood of cyclist travelling to/from the shared path.

3.14 Problem

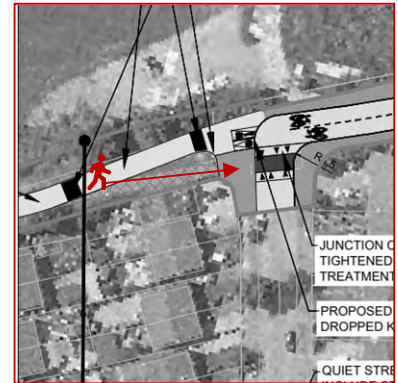
Location: Drawing no. 284399-ARUP-ZZ-XX-DR-C-0009 (P03)

Summary: Pedestrian desire line to/from pedestrian crossing of Cherbury Park not catered for, resulting in non-motorised road users traversing unpaved areas possibly leading to slips, trips or falls particularly during wet or icy weather.

The layout of the shared path on the approach to the 90° bend where Cherbury Park meets the Lucan-Newlands Road does not align with the location of the proposed uncontrolled pedestrian crossing, possibly leading to pedestrians choosing to traverse the grassed area as they take a more direct line to/from the crossing, with resulting increased risk of slips, trips and falls, in particular during wet weather.

Recommendation

The alignment or width of the shared path should be amended to cater for the likely pedestrian desire line to/from the uncontrolled pedestrian crossing.



3.15 Problem

Location: Drawing no. 284399-ARUP-ZZ-XX-DR-C-0009 (P03)

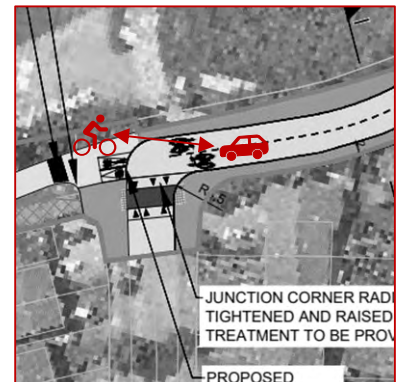
Summary: Cyclist or vehicle priority unclear where the shared path meets Lucan-Newlands Road.

The proposed road layout indicates Cherbury Park meeting the Lucan-Newlands Road, where a shared street arrangement is proposed, at a 90° bend.

This arrangement could result in confusion for drivers and/or cyclists as to who has priority at this location, resulting in unsafe manoeuvres and possible cyclist/vehicle collisions.

Recommendation

Cyclist and vehicle priority should be clearly defined for cyclists and vehicles at this location.



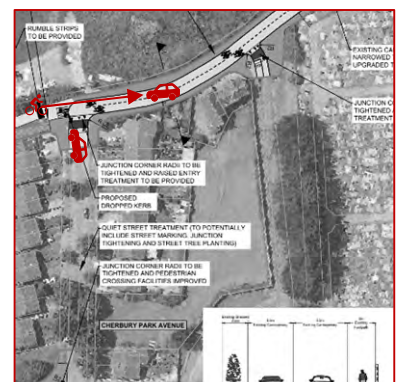
3.16 Problem

Location: Drawing no. 284399-ARUP-ZZ-XX-DR-C-0009 (P03)

Summary: Cyclists exiting the shared path onto Lucan-Newlands Road at speed, leading to possible vehicular/cyclist collisions.

Northbound cyclists approaching the junction between the Lucan-Newlands Road and Cherbury Park may approach at inappropriate speeds as they are on a down-gradient from the overbridge, leading to overshoot into the carriageway and possible collisions with vehicles exiting Cherbury Park.

It is acknowledged that rumble strips are proposed, however these rumble strips could be misinterpreted by visually impaired pedestrians as "Ladder" tactile paving.



Recommendation

The proposed layout of the shared path should be amended by introducing additional landscaping (e.g. raised beds) to produce a layout which encourages cyclists to slow down sufficiently before joining the carriageway.

3.17 Problem

Location: Drawing no. 284399-ARUP-ZZ-XX-DR-C-0009 (P03)

Summary: Unclear if available visibility is sufficient for 'Yield' control at the Cherbury Park side road junction.

A 'Yield' priority is proposed at the junction between Cherbury Park and its side road to the south. The available visibility at this location may be insufficient for this type of junction control. This could lead to unsafe exiting manoeuvres and possible side-on collisions.



Recommendation

Ensure that the required junction visibility splay is available for exiting side road drivers, or amend the junction priority to a "Stop" control.

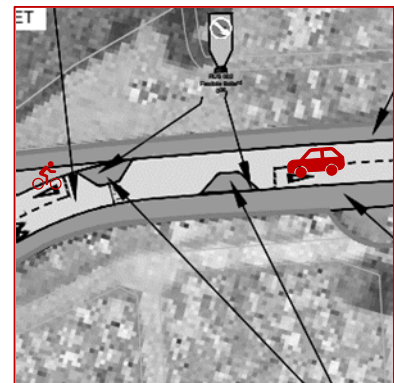
3.18 Problem

Location: Drawing no. 284399-ARUP-ZZ-XX-DR-C-0009 (P03)

Summary: Potential for drivers to fail to give way to a cyclist at the proposed chicanes along Lucan-Newlands Road.

Three 'Give/Take' chicane arrangements have been indicated on the Lucan-Newlands Road, presumably as a means to reduce the overall speed environment along this section of shared street.

As cyclists navigate the chicanes drivers of oncoming vehicles may fail to give way to oncoming cyclists in the same way that they would give way to an oncoming vehicle, resulting in an increased risk of vehicle/cyclist collisions.



Recommendation

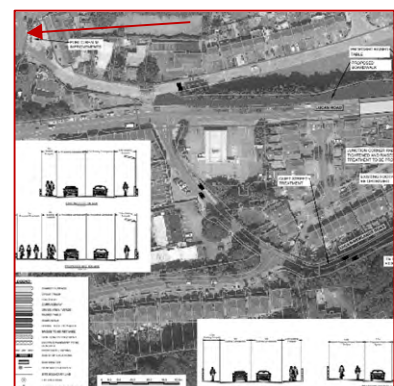
An alternate, safe, route for cyclists should be provided through chicanes along this road.

3.19 Problem

Location: Drawing no. 284399-ARUP-ZZ-XX-DR-C-0010 (P03)

Summary: Unclear where northbound cyclists are intended to continue travelling at the northernmost terminal of the proposed scheme.

North-westbound cyclists travelling along the proposed boardwalk towards Lucan Village are directed to travel west along Sarsfield Park, from where they will join the R121 which is a one-way, southbound only, section of road. Those cyclists who wish to continue north may choose to travel against the flow of traffic along the R121/R109 with resulting increased risk of collisions with oncoming vehicles.



Recommendation

The proposed northern terminal of the scheme should be amended so that northbound cyclists are brought to an appropriate location where they can continue north safely.

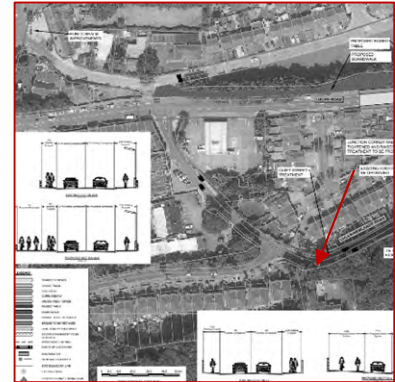
3.20 Problem

Location: Drawing no. 284399-ARUP-ZZ-XX-DR-C-0010 (P03)

Summary: The proposed route may not adequately cater for cyclist wishing to proceed west along Lucan Road.

Cyclists travelling towards Lucan Village, and who then wish to proceed west along Lucan Road, are unlikely to use the proposed ramps/steps arrangement at Brookvale, and are more likely to travel north along the Lucan-Newlands Road towards the junction adjacent to the service station, which is not indicated as being improved and from there west along the Lucan Road.

No measures have been indicated along this section of the Lucan-Newlands Road or at the junction between the Lucan-Newlands Road and the Lucan Road. The absence of measures along this likely cyclist route could result in increased potential for conflicts between cyclists and vehicles.



Recommendation

Ensure the proposed cyclist route sufficiently tie-in with the existing road layout at the scheme tie-ins ensuring a smooth transition between the upgraded sections of cyclist facilities to the old sections of carriageway.

3.21 Problem

Location: Drawing no. 284399-ARUP-ZZ-XX-DR-C-0011 (P03)

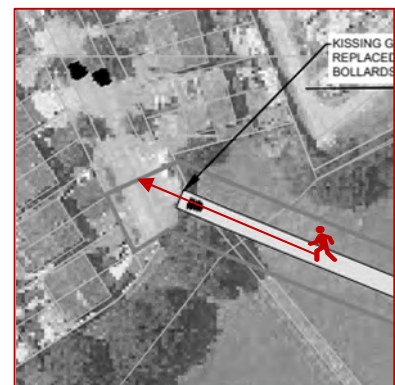
Summary: The proposed shared path connecting Beech Park to Cherbury Park does not tie in with an existing footpath.

It is proposed to provide a shared path linking the footpath on Beech Park with Cherbury Park.

However, there is no footpath where the shared path terminates at Cherbury Park which would result in pedestrians entering the carriageway leading to an increased risk of vehicle/pedestrian collisions.

Recommendation

The proposed shared path should extend to and tie-in with the existing footpaths on the adjacent road network.



3.22 Problem

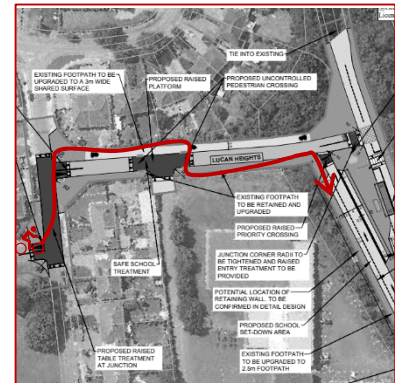
Location: Drawing no. 284399-ARUP-ZZ-XX-DR-C-0012 (P03)

Summary: Possible pedestrian and cyclist desire lines wishing to access the school not catered for.

A short section of a shared path is indicated on the northern side of Lucan Heights, to the west of its junction with Lucan Road and within a proposed safe school zone.

It is unclear how which cyclists it is intended the shared path should be catered to, and where the cyclists should go once they reach the Lucan Road. Should no measures be provided to allow cyclist to safely transition onto the Lucan Road, and in particular to cross the Lucan Road, this could result in unsafe entry to the carriageway or unsafe crossings leading to vehicle/cyclist collisions.

It is expected that many of the cyclists approaching this area from the south will wish to access the school to the northeast, and are likely to travel within the path on the opposite side of Lucan Heights. As this path is not indicated as being widened, this could result in an increased risk of cyclist/pedestrian collisions.



Recommendation

The likely NMU desire lines in this area should be reviewed and appropriate measures provided to cater for the identified desire lines.

Where measures are provided for cyclists, they should terminate appropriately allowing safe entry to the carriageway downstream, and where required safe crossing arrangements.

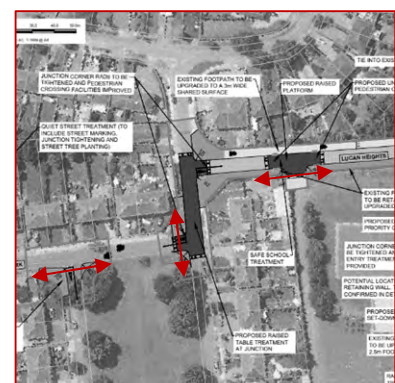
3.23 Problem

Location: Drawing no. 284399-ARUP-ZZ-XX-DR-C-0012 (P03)

Summary: No pedestrian crossing indicated across Beech Park, Lucan Height East & School Access.

No pedestrian crossings have been indicated on Beech Park at its junction with Lucan Heights, on Lucan Heights East at its junction with Beech Park & at the School Southern Access at its junction with Lucan Heights.

An absence of a crossing arrangements at these locations could lead to difficulties for the mobility impaired, resulting in them travelling or remaining within the carriageway until they reach a location where they can rejoin the footpath.



Recommendation

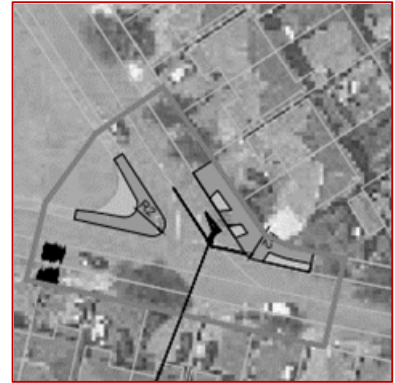
Uncontrolled pedestrian crossings, including dropped kerbs and associated tactile paving, should be provided at these locations.

3.24 Problem

Location: Drawing no. 284399-ARUP-ZZ-XX-DR-C-0014 (P03)

Summary: Exit from side road at an acute angle to Beech Park.

The proposed improvement works include amendments to an existing junction between a side road and Beech Park. The existing acute angle at this junction is being retained, which may make it difficult for exiting drivers to comfortably observe vehicles approaching from right hand side. Reduced visibility to approaching vehicles may result in unsafe exits and possible side-swipe collisions.



Recommendation

The amendments to the junction at this location should bring the angle between side road and Beech Park to 90°, or as close to 90° as possible.

3.25 Problem

Location: Drawing no. 284399-ARUP-ZZ-XX-DR-C-0015 (P03) & Drawing no. 284399-ARUP-ZZ-XX-DR-C-0015 (P03)

Summary: Risk of pedestrians misunderstanding the crossing layout.

The layout of the uncontrolled pedestrian crossings at the junction between Roselawn and its side road and Sarsfield Park and its side road are shown on the corners of the junction.

There is a risk of pedestrians approaching these crossings misinterpreting them as crossings of the main road, leading to unsafe crossings and possible vehicle/pedestrian collisions.



Recommendation

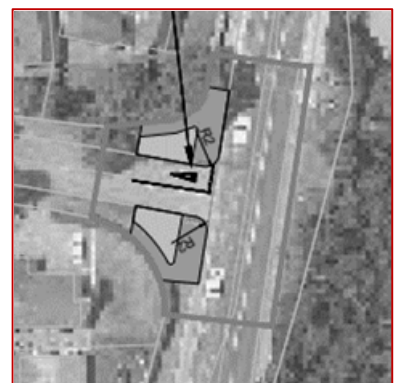
The dropped kerb locations should be moved further down the side roads, away from the main roads, such that they do not confuse approaching pedestrians as to the direction of the crossing.

3.26 Problem

Location: Drawing no. 284399-ARUP-ZZ-XX-DR-C-0015 (P03)

Summary: Unclear if available visibility is sufficient for 'Yield' control at the junction between Roselawn and Lucan Road.

A 'Yield' control is proposed at the junction between Roselawn and Lucan Road. The available visibility at this locations may not be sufficient for this type of junction control. This could lead to unsafe exiting manoeuvres and possible side-on collisions.



Recommendation

The required junction visibility should be available for exiting side road drivers, or the junction priority amended to a "Stop" control.

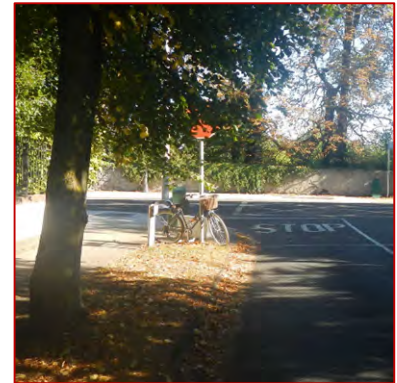
3.27 Problem

Location: Throughout the scheme.

Summary: Existing trees reduce visibility towards signage and for drivers exiting junctions within the scheme.

The location of existing trees and road furniture may obstruct visibility for drivers towards signage on the approaches to junctions within the scheme (e.g. the junction between Chalet Gardens and Lucan Road).

This could result in drivers failing to understand the upcoming road layout, and in particular the need to come to a halt at the junction, resulting in unsafe manoeuvres and possible collisions.



Recommendation

Adequate visibility towards all signage should be available on the approaches to junctions within the scheme.

4 Observations

4.1 At this early stage in the design process and number of elements of the amended road layout will not have been prepared. Nevertheless, the Audit Team recommend that as the design develops care should be taken in relation to the following: -

- a. Tactile Paving and dropped kerbs – Tactile paving of appropriate depth and dropped kerbs should be provided at all pedestrian crossing points and at locations where vertical hazards may exist (i.e. buff coloured corduroy paving).

Ladder and Tramline tactile paving should be provided at interfaces between shared and segregated surfaces to ensure that visually-impaired pedestrians are informed of the transition to/from segregated facilities and shared facilities.

- b. Bollards - Bollards adjacent carriageways should be passively safe, and reflective bands should be provided on all bollards within pedestrian areas of the scheme.
- c. Lighting - adequate lighting should be provided within along all paths, and in particular at proposed crossing locations where existing lighting may be insufficient.

4.2 A footpath with both cycleway and pedestrian road markings has been indicated linking the shared path from the Grand Canal bridge to the segregated two-way cycleway and footpath near Hayden's Lane.

The Audit Team have assumed that this is a draughting error, and that this section of path should have been indicated as a shared path.



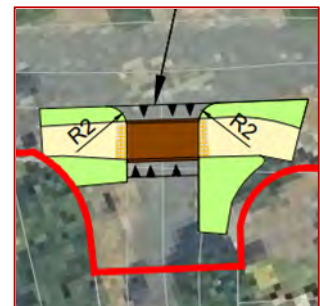
4.3 It is unclear at this early stage in the design development what gradients will be proposed on the ramps within Brookvale. The ramps should have gradients & landings appropriate for mobility-impaired access, and where necessary incorporate suitable rest areas.



4.4 A discontinuous footpath, albeit on a raised table with associated tactile paving, has been indicated across the entrance to Gael Scoil Eiscir Riada on Esker Manor.

This arrangement prioritises vehicular traffic entering/exiting the school over pedestrians and cyclists.

To support pedestrian and cyclist movement through the scheme, a continuous footpath across this access could be considered, with vehicles required to give way to NMUs on the path upon entering/exiting the school.



5 Road Safety 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

Peter Monahan

Signed:



Dated:

6th Sept. 2022

ROAD SAFETY AUDIT TEAM MEMBER

Antonios Papadakis

Signed:



Dated:

6th Sept. 2022

Appendix A – Road Safety Audit Brief Checklist

Have the following been included in the audit brief?: (if 'No', reasons should be given below)

	Yes	No
1. The Design Brief	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Departures from Standard	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Scheme Drawings	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Scheme Details such as signs schedules, traffic signal staging	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Collision data for existing roads affected by scheme	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Traffic surveys	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7. Previous Road Safety Audit Reports and Designer's Responses/Feedback Form	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. Previous Exception Reports	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9. Start date for construction and expected opening date	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10. Any elements to be excluded from audit	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Any other information?

(if 'Yes', describe below)

Yes No

Appendix B – Documents Submitted to the Road Safety Audit Team

DOCUMENT/DRAWING TITLE	DOCUMENT/DRAWING NO.	REVISION
Part 8 Planning Report	284399-00	Draft1
Addendum – Section 2A Review: Post Non-Statutory Public Consultation	284399-00	Issue 3
Feasibility & Options Selection Report	18410-BT-GN-XX-RP-Z-00014	P07
Feasibility & Options Selection Report (Appendix A-E)	18410-BT-GN-XX-RP-Z-00014	P07
General Arrangement 01 of 01	284399-ARUP-ZZ-XX-DR-C-0000	P03
General Arrangement 01 of 21	284399-ARUP-ZZ-XX-DR-C-0001	P03
General Arrangement 02 of 21	284399-ARUP-ZZ-XX-DR-C-0002	P03
General Arrangement 03 of 21	284399-ARUP-ZZ-XX-DR-C-0003	P03
General Arrangement 04 of 21	284399-ARUP-ZZ-XX-DR-C-0004	P03
General Arrangement 05 of 21	284399-ARUP-ZZ-XX-DR-C-0005	P03
General Arrangement 06 of 21	284399-ARUP-ZZ-XX-DR-C-0006	P03
General Arrangement 07 of 21	284399-ARUP-ZZ-XX-DR-C-0007	P03
General Arrangement 08 of 21	284399-ARUP-ZZ-XX-DR-C-0008	P03
General Arrangement 09 of 21	284399-ARUP-ZZ-XX-DR-C-0009	P03
General Arrangement 10 of 21	284399-ARUP-ZZ-XX-DR-C-0010	P03
General Arrangement 11 of 21	284399-ARUP-ZZ-XX-DR-C-0011	P03
General Arrangement 12 of 21	284399-ARUP-ZZ-XX-DR-C-0012	P03
General Arrangement 13 of 21	284399-ARUP-ZZ-XX-DR-C-0013	P03
General Arrangement 14 of 21	284399-ARUP-ZZ-XX-DR-C-0014	P03
General Arrangement 15 of 21	284399-ARUP-ZZ-XX-DR-C-0015	P03
General Arrangement 16 of 21	284399-ARUP-ZZ-XX-DR-C-0016	P03
General Arrangement 17 of 21	284399-ARUP-ZZ-XX-DR-C-0017	P03
General Arrangement 18 of 21	284399-ARUP-ZZ-XX-DR-C-0018	P03
General Arrangement 19 of 21	284399-ARUP-ZZ-XX-DR-C-0019	P03
General Arrangement 20 of 21	284399-ARUP-ZZ-XX-DR-C-0020	P03
General Arrangement 21 of 21	284399-ARUP-ZZ-XX-DR-C-0021	P03
Outline Landscape Proposals Sheet number 00	284399-ARUP-ZZ-XX-DR-L-0000	02
Outline Landscape Proposals Sheet number 01	284399-ARUP-ZZ-XX-DR-L-0000	02
Outline Landscape Proposals Sheet number 02	284399-ARUP-ZZ-XX-DR-L-0000	02
Outline Landscape Proposals Sheet number 03	284399-ARUP-ZZ-XX-DR-L-0000	02
Outline Landscape Proposals Sheet number 04	284399-ARUP-ZZ-XX-DR-L-0000	02
Outline Landscape Proposals Sheet number 05	284399-ARUP-ZZ-XX-DR-L-0000	02
Outline Landscape Proposals Sheet number 06	284399-ARUP-ZZ-XX-DR-L-0000	02
Outline Landscape Proposals Sheet number 07	284399-ARUP-ZZ-XX-DR-L-0000	02
Outline Landscape Proposals Sheet number 08	284399-ARUP-ZZ-XX-DR-L-0000	02

Appendix C – Feedback Form

Road Safety Audit Feedback Form

Scheme: Grand Canal to Lucan Urban Greenway

Route No.: Grand Canal Greenway, Griffeen Park, Griffeen Avenue, Lucan Road

Audit Stage: 1 **Date Audit Completed:** 2nd September 2022

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	Alternative Measures or Reasons Accepted by Auditors (Yes/No)
3.1	Yes	Yes		
3.2	Yes	Yes		
3.3	Yes	No	No new paths are proposed as this area will be developed as part of the Clonburris SDZ. Landscaping measures will be provided during the detailed design phase to deter pedestrians crossing the grassed areas.	Yes
3.4	Yes	Yes		
3.5	Yes	No	Measures (e.g. signage and road markings) will be provided along Hayden's Lane during detailed design to ensure a safe environment for all road users along the shared road.	
3.6	Yes	Yes		
3.7	Yes	Yes		
3.8	Yes	Yes		
3.9	No	No	Existing carriageway will be reduced to 6m, from 8m, which will allow adequate visibility.	Yes
3.10	Yes	Yes	Measures will be provided on the shared path approaches to the crossing to ensure sufficiently reduced bicycle/scooter speeds.	
3.11	Yes	Yes		
3.12	Yes	Yes		
3.13	Yes	Yes		
3.14	Yes	Yes		
3.15	Yes	Yes		
3.16	Yes	Yes		
3.17	Yes	Yes		

Road Safety Audit Feedback Form

Scheme: Grand Canal to Lucan Urban Greenway

Route No.: Grand Canal Greenway, Griffeen Park, Griffeen Avenue, Lucan Road

Audit Stage: 1 **Date Audit Completed:** 2nd September 2022

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	Alternative Measures or Reasons Accepted by Auditors (Yes/No)
3.18	Yes	No	The existing space constraints do not allow for a segregated cycle track. Due to low traffic volumes, cyclists will utilise the chicanes in the same manner as motorised vehicles. Signage will be provided to alert vehicles to yield to cyclists.	Yes
3.19	Yes	No	Bicycle parking will be provided to accommodate cyclists whose destination is Lucan Village. Wayfinding Signage will be provided to direct westbound cyclists onto the Lucan Road towards Lucan Demesne and to direct northbound cyclists east along Sarsfield Park & then left to join Chapel Hill.	Yes
3.20	Yes	Yes		
3.21	Yes	Yes		
3.22	Yes	Yes		
3.23	Yes	Yes		
3.24	Yes	Yes		
3.25	Yes	Yes		
3.26	Yes	Yes		
3.27	Yes	Yes		

Signed:  Designer **Date** 6th Sept. 2022

Signed:  Audit Team Leader **Date** 6th Sept. 2022

Signed:  Employer **Date** 6th Sept. 2022

Appendix D – Problem Locations

