

2022

Stage 1 Road Safety Audit



Prepared by: JdK



Stage 1 Road Safety Audit

Proposed Re-development and Enhancement of Public Realm Market Square,
Letterkenny

Document Control Sheet

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1. Introduction

This report documents the findings of a Stage 1 Road Safety Audit (RSA) carried out with respect to a proposed Re-development and Enhancement of the Public Realm at Market Square, Letterkenny.

The audit team conducted the site visit on Tuesday the 17th of May 2022. The audit was carried out in the offices of ORS on Thursday the 12th of May 2022.

The audit team comprised of the following people:

Team Leader:

Adam Price BEng (Hons), CEng, MIEI
TII Reference Number: AP275695).

Audit Team Member:

David McCormack: BEng (Hons), Dip Eng., CEng, MIEI
(TII Reference Number: DM72291)

Team Member:

Johannes de Klerk BEng, MIEI
TII Reference Number: JD7437162

During the site visit the weather was dry and overcast. The road surface was dry, and the traffic levels were noted to be low across the audit period.

Previous Road Safety Audits were not available for review. The audit team reviewed the following documents and drawings provided by Donegal County Council.

- LKRMS_0000 - Site Location & Site Extent
- LKRMS_0001 - Site Location Map
- LKRMS_0002 - Existing Site Layout - Topographical Survey
- LKRMS_000x - Proposed Site Layout Plan

Documents/information not supplied:

- (A) Speed Survey
- (B) Traffic Count Data
- (C) Departures from standards

The terms of reference / procedure for the Audit were as per the relevant sections of the **Transport Infrastructure Ireland Road Safety Audit Standard GE-STY-01024**. The audit examined only those issues within the design relating to the road safety implications of the scheme and has therefore not examined or verified the compliance of the designs to any other criteria. The Road Safety Audit should not be treated as a design check.



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o: +353 1 5242060 | e: info@ors.ie | w: www.ors.ie

The problems identified and described in this report are considered by the Audit Team to require action to improve the safety of the development and minimise accident occurrence.

All comments, references and recommendations in this safety audit are in respect of the review of information supplied by Donegal County Council.

2. Description of the Proposed Development

The proposed development put forward by Donegal County Council will consist of the upgrade of an existing public open space in Letterkenny town centre. The works include resurfacing of existing roadways and all associated road works, new pedestrian footpaths, landscaping and new disabled parking bays including civil services above and below ground.

The proposed development will connect to the main road network

Please refer to **Figure 2.1** below for the location plan and **Figure 2.2** proposed scheme design layout prepared by Donegal County Council.

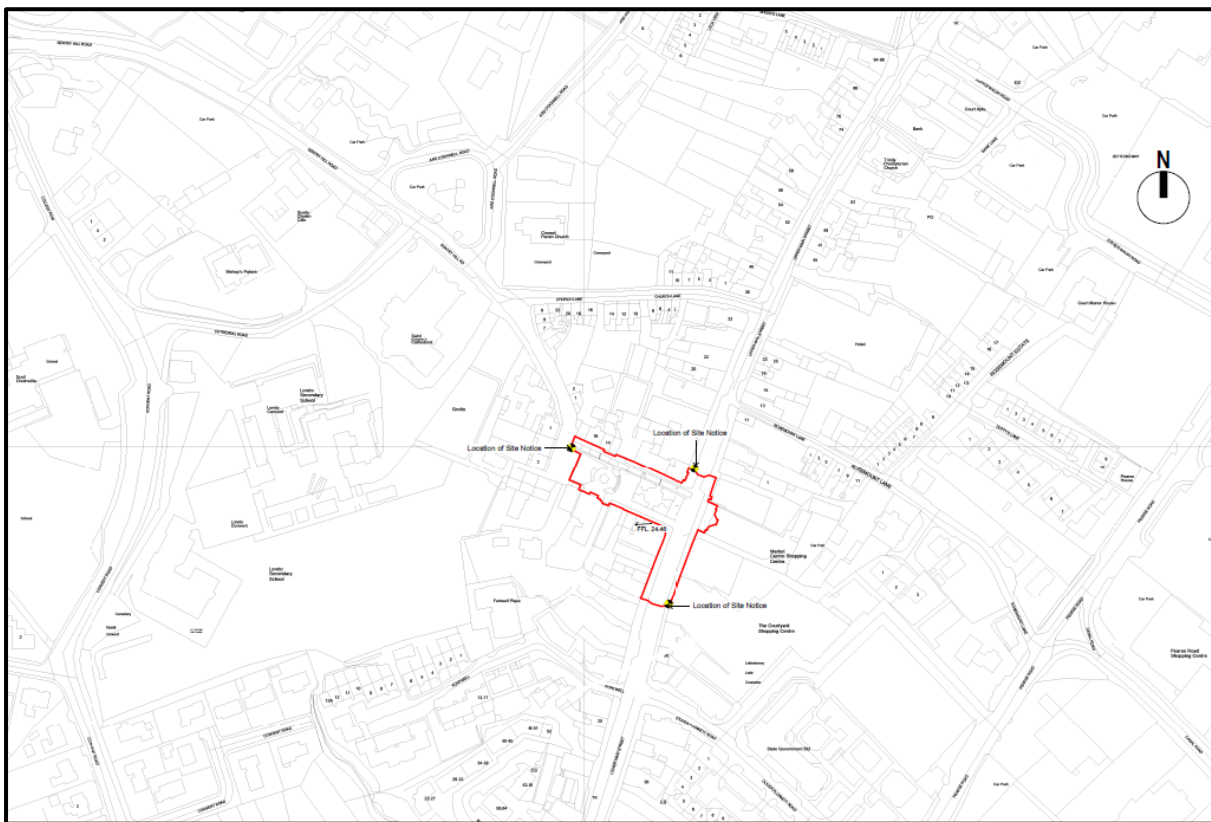


Figure 2.1: Location Plan – (source – Donegal Co Co)

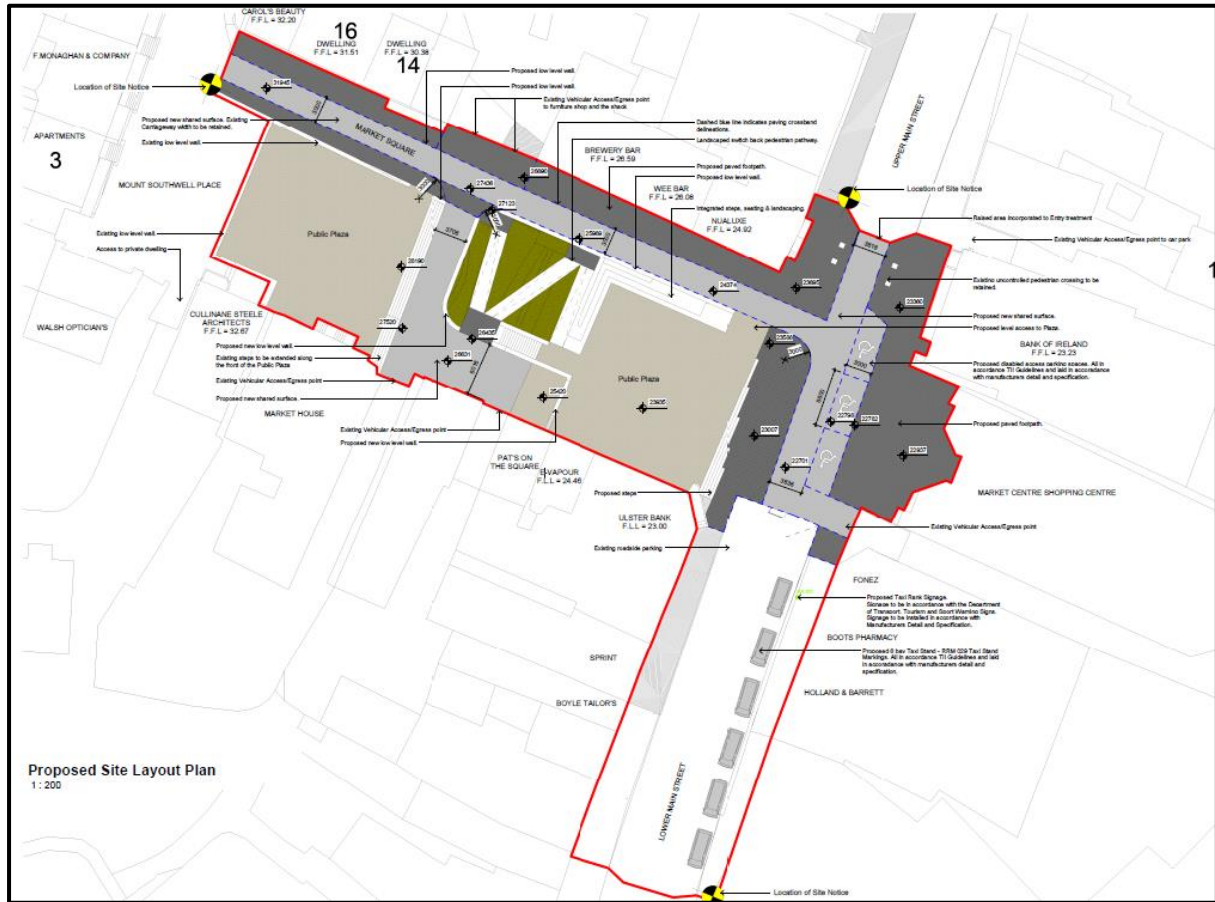


Figure 2.2: Site Plan Layout – (source – Donegal Co Co)

3. Problems Raised from the Road Safety Audit

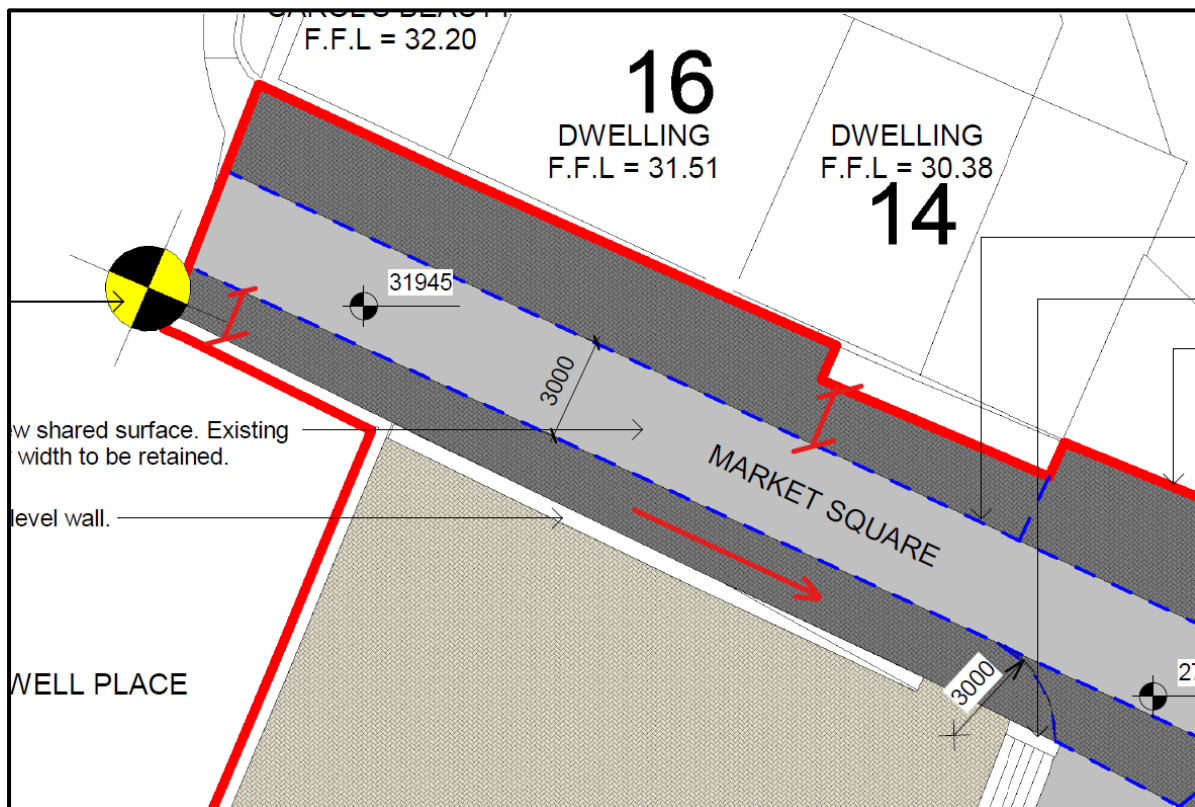
The following are problems and recommendations to address the safety issues associated with the proposal. The recommendations are proposed to the designer of the scheme to reduce any safety risks associated with it.

3.1 Potential Problem Identified

Problem No.01: Footpath Widths & Gradients

Location: Market Square Road

The audit team note that there is a lack of information for the proposed footpaths including widths and gradients. The audit team are concerned that the footpaths narrow down to inappropriate widths and include steep gradients at various locations throughout the scheme which creates an increased risk of potential conflicts both for footpath users and vehicles. Disabled road users may veer into the road at narrow sections and steep gradients which may result in wheelchair users for example losing control resulting in injury.



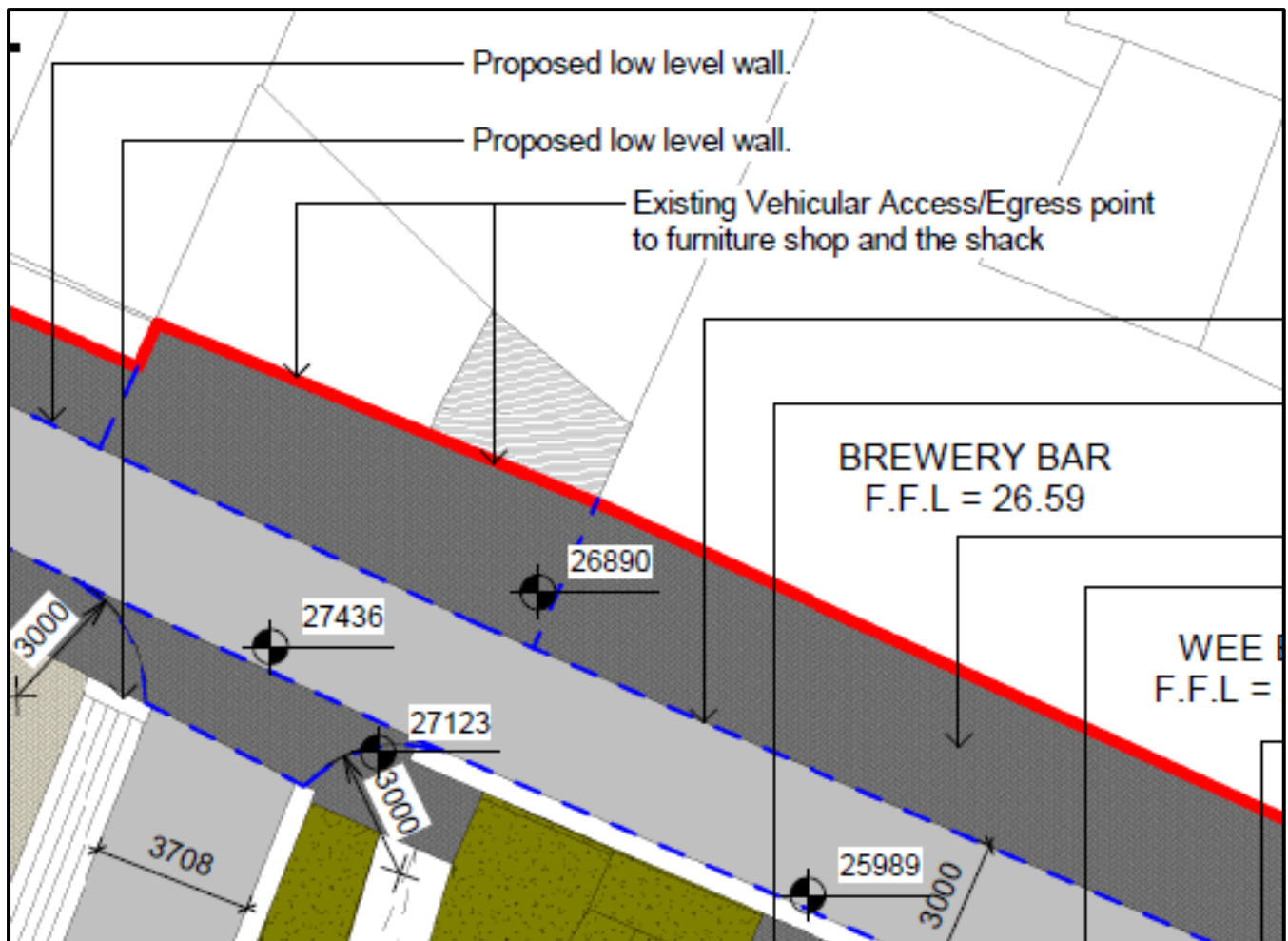
Recommendation:

The design team should ensure that appropriate footpath and roads widths are provided for throughout the scheme and steep gradients be reduced within acceptable guidelines with intermittent level sections in accordance with DMURS guidelines and national Disabled Authority guidelines.

Problem No.02: Pedestrian Disabled Access

Location: Vehicle Access /Egress point

The audit team note that paving differentiation is not specified throughout the scheme and at existing vehicle access/egress points to differentiate clearly between pedestrian and vehicle surfaces. Shared surfaces can cause problems for disabled users with cognitive difficulties who may find the environment difficult to interpret and the absence of conventional kerbing poses problems for blind or partially sighted people to find their way around. The omission may result in vulnerable road users travelling in the roadway putting them at risk of conflict with vehicles.



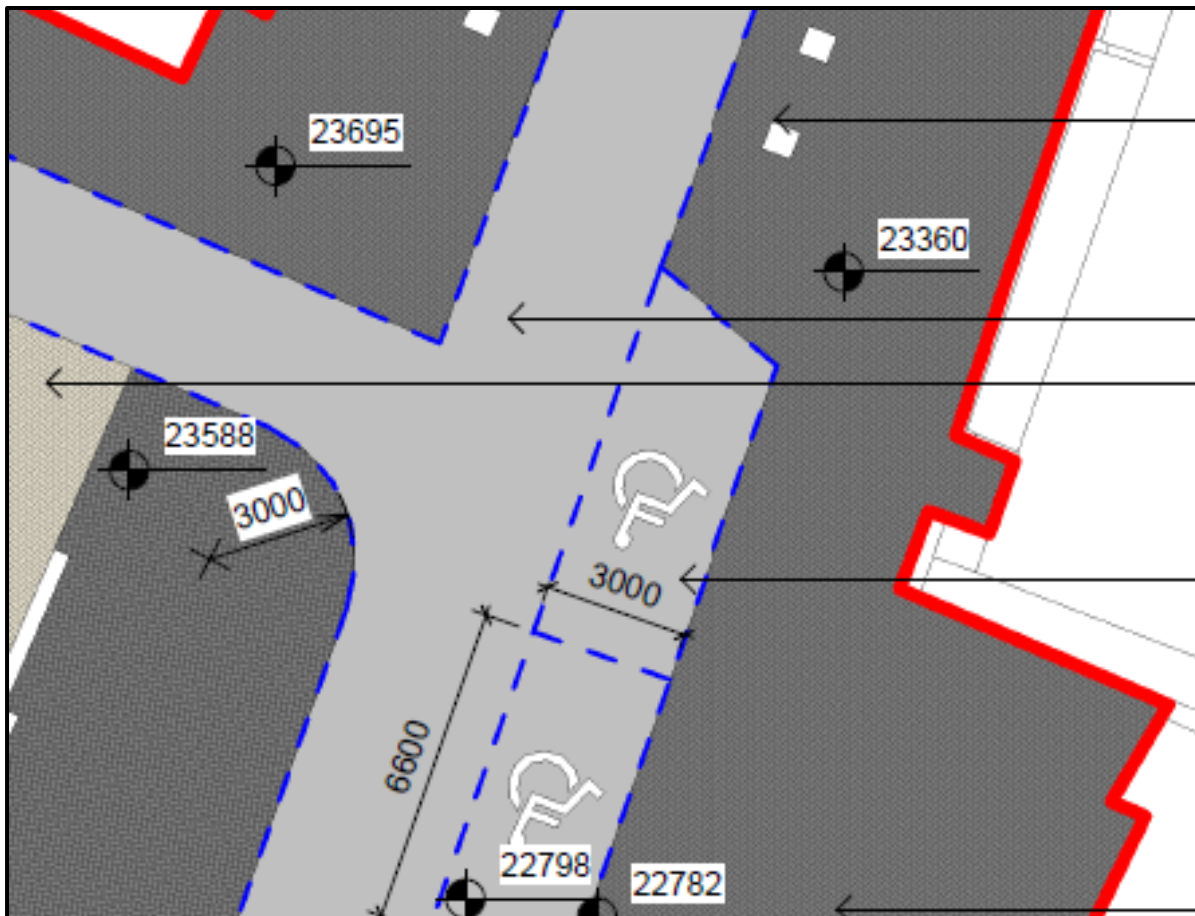
Recommendation:

The design team should ensure that shared surfaces and roadways are clearly distinguishable throughout the scheme. The design team should also ensure that details and locations of 'drop kerbs' and tactile paving is provided throughout the scheme at proposed crossing points

Problem No. 03: Signage & Road Markings

Location: Site entrance and internal roads

The audit team note that there is a lack of signage and markings for the site access junction and internal roadways on the drawings provided. Signage and markings aid in informing road users of the direction of travel and presence of vulnerable road users and ramps. Inadequate signage and road markings may lead road users not being alerted to the shared space which may result in vehicle-vehicle or vehicle-cycle conflicts causing injury.



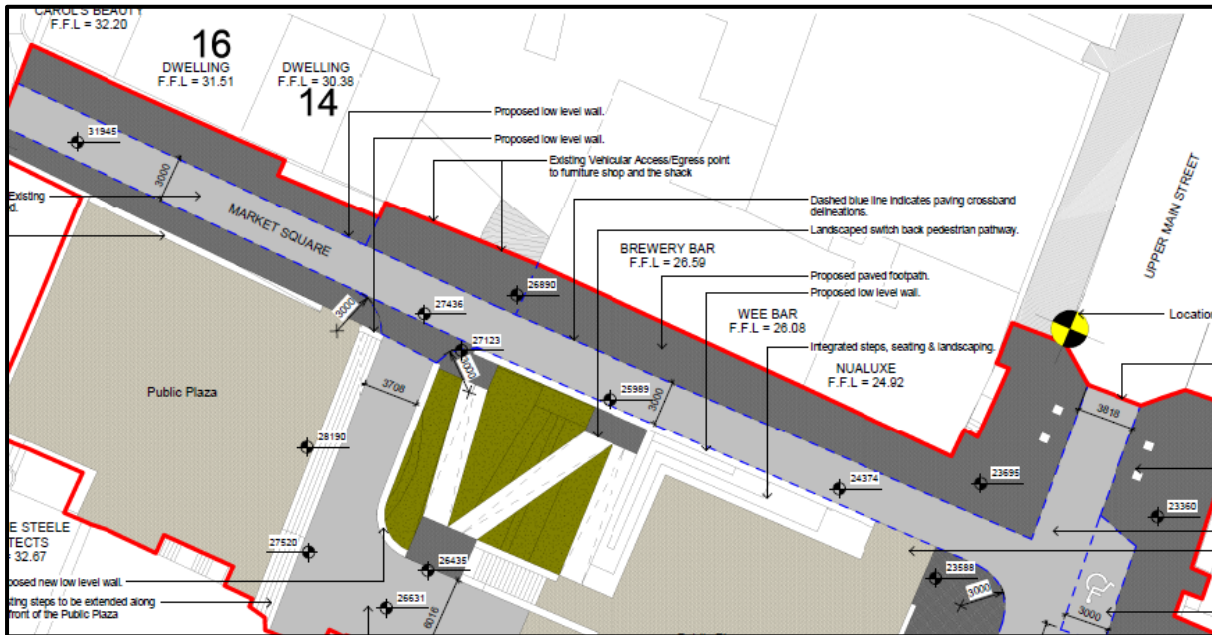
Recommendation:

The design team should include signage and marking on the shared roadways in line with the applicable Traffic Signs Manual.

Problem No.04: Speed Control Measures

Location: Market Square Street

The audit team note from the drawings provided that there are limited speed control measures proposed within the site. The audit team are concerned that the long sections of straight road with steep downhill gradient could result in higher speeds which could put vulnerable users within the shared surface at risk.



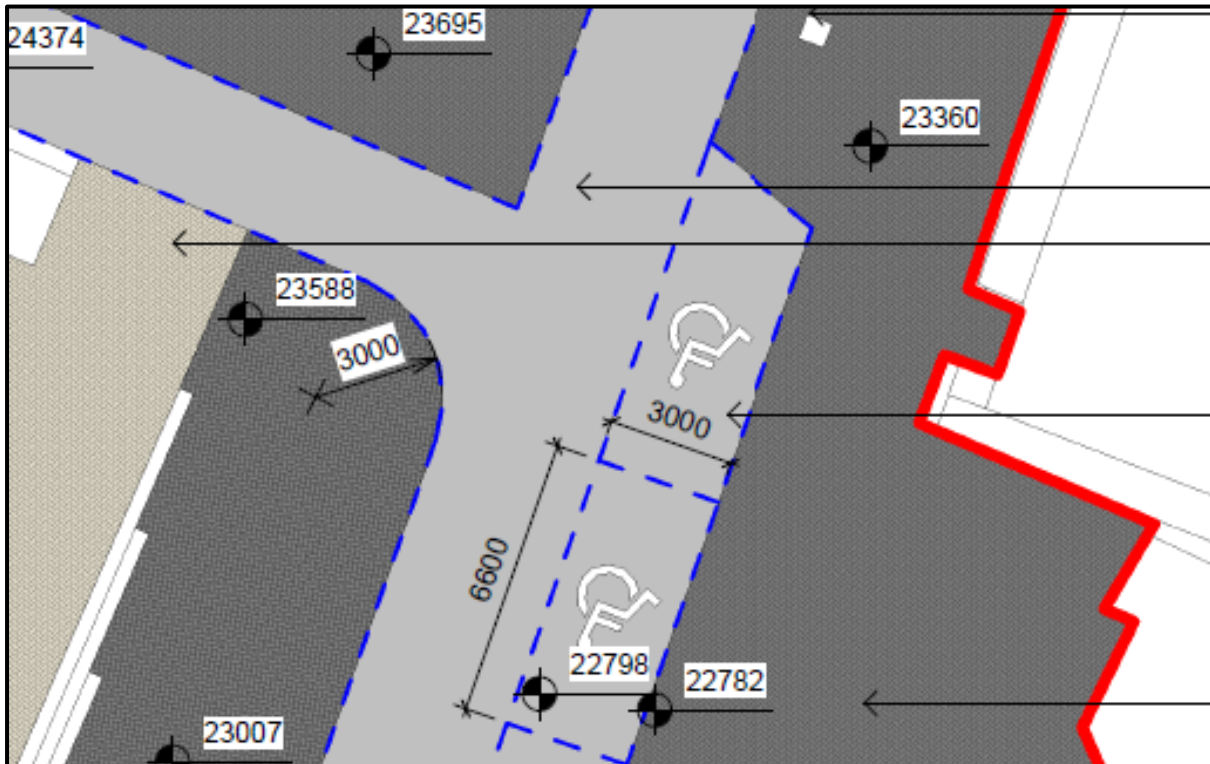
Recommendations:

The design team should ensure that appropriate speed control measures are incorporated within the schemes to reduce vehicular speeds.

Problem No. 05: Pedestrian Vehicle Separation

Location: Market Square / Lower Main Street Junction

The audit team note from the drawings provided that the proposed shared space does not include protection for pedestrians at locations where vehicles conduct turning movements which may result in pedestrian vehicle conflicts and injury.



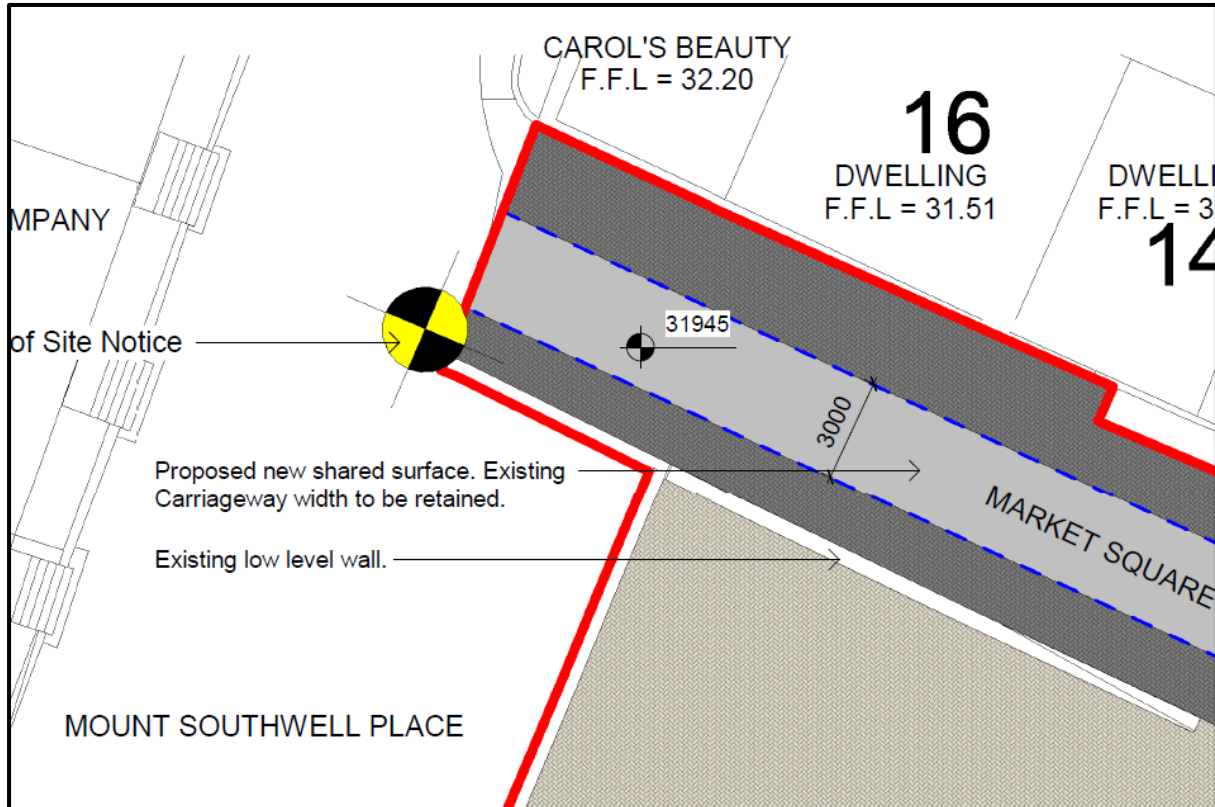
Recommendation:

The design team should consider measures for physical separation at locations where vehicles may enter pedestrian zones including junctions and parking bays.

Problem No. 06: Connections to Existing Infrastructure

Location: North-West Tie-In Point

The audit team note from the drawings provided and site visit that the proposed new footpath to the north-west does not tie into existing footpath infrastructure. It appears the footpath terminates abruptly and leads pedestrians into the roadway in this area on both sides of the road. This could put users at serious risk of conflict with vehicles which could result in injury.



Recommendation:

The design team should ensure that appropriate infrastructure is proposed at this location to ensure that appropriate footpath provisions are provided for to mitigate the risk of conflict with vehicles.

Problem No.07: Landscaping & Street Furniture**Location: Internal Site Layout**

The audit team note from the drawings provided that proposed landscaping within the development is not detailed and the audit team is not able to assess the impact on visibility for road users. Trees, high bushes, and shrubbery should be avoided in areas where visibility is to be maintained to ensure that drivers of vehicles are clearly able to see approaching vehicles and pedestrians at exit/egress points, junctions and designated pedestrian crossing locations. This could potentially lead to instances of vehicle-vehicle or pedestrian-vehicle collisions resulting in injury.

Recommendation:

The design team should ensure that any proposed landscaping does not impact on visibility of the internal roads and junctions or forward visibility at proposed pedestrian crossings.

Problem No.08: Traffic Volumes on Proposed Shared Surface**Location: Throughout the Scheme**

The audit team note that there is a lack of information relating to speed surveys, vehicle counts and pedestrian counts for the proposed scheme. The conversion of conventional separated street to a shared surface requires interrogation of traffic and pedestrian volumes in order to assess the feasibility and safety of the scheme. High traffic volumes within shared surfaces may result in pedestrian vehicle conflicts resulting in injury.

Recommendation:

The design team should confirm that projected traffic volumes are in line with national guidelines for shared surface in public spaces.

Problem No.09: Lighting**Location: Throughout the Scheme**

The audit team have not received drawings detailing lighting for the development and it is not clear if new lighting will be specified for the development. Areas in low light conditions may result in slips trips and falls on pedestrian paths. Drivers may be unable to see pedestrians in the internal road network and at pedestrian crossings which has the potential to lead to pedestrian-vehicle collisions resulting in injury to pedestrians.

Recommendation:

The design team should ensure that details and locations of all public lighting columns are provided for at detailed design and to ensure that positioning of columns does not cause any obstruction or hazard to vulnerable users.

Problem No.10: Drainage**Location: Internal Site Layout**

The audit team note from the drawings provided that there is no provision for drainage channels/ gullies positions for the proposed stormwater network throughout the proposed development. Inadequate gully positioning may lead to issues of ponding in areas of the development which poses a risk of slips, trips or falls to vulnerable road users.

Recommendation:

The design team should ensure that details and locations of all drainage gullies etc are provided for across the site and positioned strategically to avoid the risk of ponding across the site.

Problem No.011: Vehicle Swept Path Analysis**Location: Proposed Scheme**

The audit team note from the drawings provided that no vehicle swept path analysis has been completed. Swept path analysis should be conducted with the appropriate design vehicles to confirm the road layout is suitable for emergency and service vehicle turning movements. The swept path analysis should confirm that vehicles will not mount kerbs at curves, resulting in vehicle/pedestrian conflicts. The analysis should also analyse all applicable vehicle maneuverers and turning movements to ensure sufficient dimensions for carriageways and passenger vehicle parking bays.

Recommendation:

The design team should analyse vehicle swept paths with industry standard software to assess vehicle wheel paths during turning movements to confirm the suitability of the road layout for intended vehicle purposes.

4. Audit Team Statement

We certify that we have examined the drawings listed in Appendix A and examined the site by means of a site visit. This examination has been carried out with the sole purpose of identifying any features of the design that could be removed or modified to improve the safety of the scheme. The issues that we have identified have been noted in the report, together with suggestions for improvement, which we recommend should be studied for implementation.

Audit Team Leader: Adam Price: BEng (Hons), CEng, MIEI
ORS

Signed:

A handwritten signature in black ink, appearing to read 'A Price'.

Date: 12th May 2022

Audit Team Member: David McCormack: BEng (Hons), Dip Eng., CEng, MIEI
ORS

Signed:

A handwritten signature in black ink, appearing to read 'David McCormack'.

Date: 12th May 2022

Audit Team Member: Johannes de Klerk : BEng, MIEI
ORS

Signed:

A handwritten signature in black ink, appearing to read 'J de Klerk'.

Date: 12th May 2022

Appendix A – Inspected Documentation

The audit team reviewed the following drawings and documents provided by Donegal County Council.

- LKRMS_0000 - Site Location & Site Extent
- LKRMS_0001 - Site Location Map
- LKRMS_0002 - Existing Site Layout - Topographical Survey
- LKRMS_000x - Proposed Site Layout Plan

Appendix B – Designer Response Form

Road Safety Audit Feedback Form


Job: Proposed Re-development and Enhancement of Public Realm Market Square, Letterkenny

Stage of Audit: Stage 1

Date Audit Completed: 12/05/2022

Problem Reference in Safety Audit Report	To Be Completed by the Designer			To Be Completed Audit Team Leader
	Problem Accepted (Yes/No)	Recommendation Accepted (Yes/No)	Alternative Option (Describe) (Only complete if recommendation not accepted)	Alternative Option Accepted by Auditors (Yes/No)
P1	No	No	<p>The Designer has considered Problem No. 1 and the associated recommendation to ensure that appropriate footpath and road widths are provided for and steep gradients reduced within acceptable guidelines with intermittent level sections.</p> <p>In response, the Designer clarifies that proposed footpath and road widths are either equal to or greater than existing as a result of the removal of on-street car parking that currently represents an obstruction thus providing appropriate capacity for both footpath users and vehicles that will have the effect of reducing the risk of potential conflicts. In addition, the pedestrian environment will be further enhanced as a result of additional design interventions, included ramps and boundary treatment to create a transition zone from the existing deficient environment on Castle Street to the Shared Space at Market Square. Please refer to the attached Proposed Site Layout Plan and cover letter for further detail.</p> <p>As a result, the Designer confirms that appropriate footpath and road widths are provided for throughout the scheme and that steep gradients are reduced in so far as practical within the naturally occurring topography of the site and that the scheme provides intermittent level sections in accordance with DMURS.</p>	YES


P2	Yes	Yes		
P3	Yes	Yes		
P4	Yes	Yes		
P5	Yes	Yes		
P6	Yes	Yes		
P7	Yes	Yes		
P8	Yes	Yes		
P9	Yes	Yes		
P10	Yes	Yes		
P11	Yes	Yes		

Signed:  Designer

Date: 7th July 2022

Signed:  Audit Team Leader

Date: 8th July 2022

Signed:  Employer

Date: 7th July 2022