CS CONSULTING

GROUP

DUBLIN | LONDON | LIMERICK

Road Infrastructure Design Report

Proposed Residential Development

Drumlark, Co. Cavan

Client: Drumlark Investments Ltd

Job No. D111

February 2024

CS CONSULTING
GROUP

ROAD INFRASTRUCTURE DESIGN REPORT

PROPOSED RESIDENTIAL DEVELOPMENT, DRUMLARK, CO. CAVAN

CONTENTS

Appendix A – DMURS Statement

File Location: Job-D111\B_DOCUMENTS\1.0 Planning\Reports\RIDR

BS 1192 FIELD	**D111-CSC-ZZ-XX-RP-C-0004**

Job Ref.	Author	Reviewed By	Authorised By	Issue Date	Rev. No.
D111	LJ	NB	OS	27.02.2024	P3
D111	LJ	NB	OS	21.02.2024	P2
D111	LJ	NB	OS	14.07.2023	P1

CS CONSULTING
GROUP

1.0 INTRODUCTION

Cronin & Sutton Consulting Engineers (CS Consulting) have been commissioned by Drumlark Investments Ltd to prepare a Road Infrastructure Design Report for a proposed 145-unit Large-scale Residential Development (LRD) at Drumlark, Cavan.

In preparing this report, CS Consulting has made reference to the following:

- Cavan County Development Plan 2022-2028;
- Cycle Design Manual 2023;
- Design Manual for Urban Roads and Streets (2019);
- Traffic Signs Manual 2019;
- DN-GEO-03060: Geometric Design of Junctions.

The Road Infrastructure Design Report is to be read in conjunction with the engineering drawings and documents submitted by CS Consulting and with the documentation submitted by the other members of the design team, which form part of the planning submission.

2.0 SITE LOCATION AND PROPOSED DEVELOPMENT

2.1 Site Location

The proposed development site in located approx. 3kms north from the Cavan Town Centre. The site is located in the administrative jurisdiction of Cavan County Council and has a development site area of circa 4.62ha.

Figure 1 – Location of proposed development site
(map data & imagery: EPA, NTA, OSM Contributors, Google)

The location of the proposed development site is shown in **Figure 1** above; the indicative extents of the development site, as well as relevant elements of the surrounding road network, are shown in more detail in **Figure 2**.

Figure 2 – Site Extents and elements of surrounding street network
(map data & imagery: NTA, OSM Contributors, Dublin Bus, Irish Rail, Google)

The subject site is bound by greenfield on all the sides. There are a few existing residential developments to the north-east of the development site.

2.2 Existing Land Use

The subject site is greenfield and do not generate vehicular traffic.

2.3 Description of Proposed Development

The development will consist of the provision of a total of 145no. residential units along with provision of a crèche. Particulars of the development comprise as follows:

a. Site excavation works to facilitate the proposed development to include excavation and general site preparation works.
b. The reprofiling of ground levels within the site as required.

c. The provision of a total of 91no. residential dwellings which will consist of 25no. 2 bed units, 55no. 3 bed units and 11no. 4 bed units. The dwellings range in height from single storey to two storey.
d. The provision of a total of 54no. duplex apartment units consisting of 15no.1 bed units and 39no. 2bed units. The duplex apartment blocks range in height from two storey to three storey in height.
e. Provision of a 2 storey creche with associated parking, bicycle and bin storage.
f. Provision of associated car parking at surface level via a combination of in-curtilage parking for dwellings and via on-street parking for the creche and duplex apartment units.
g. Provision of electric vehicle charge points with associated site infrastructure ducting to provide charge points for residents throughout the site.
h. Provision of associated bicycle storage facilities at surface level throughout the site and bin storage facilities
i. Creation of a new access point from the public road with associated works to include for a connections to the existing public footpath along with provision of a pedestrian crossing point with a raised table.
j. The provision of a new shared cycleway and footpath to serve the site.
k. Provision of internal access roads and footpaths and associated works.
l. Provision of residential communal open space areas to include formal play areas along with all hard and soft landscape works with public lighting, planting and boundary treatments to include boundary walls, railings & fencing.
m. Internal site works and attenuation systems which will include for provision of a hydrocarbon and silt interceptor prior to discharge into the surface water network.
n. All ancillary site development/construction works to facilitate foul, water and service networks for connection to the existing foul, water and ESB networks.

3.0 ROAD INFRASTRUCTURE DESIGN

The objectives of the development's internal layout design are:

- to ensure ease of access for emergency services and for refuse collection and servicing operations;
- to encourage walking and cycling;
- to create a safe, secure, and pleasant environment for people, particularly vulnerable road users (VRUs) such as children.

Design measures have been implemented to support the above objectives in accordance with the core principles of the *Design Manual for Urban Roads and Streets* (DMURS).

The design of the road infrastructure within the subject development is primarily informed by principles contained within DMURS. However, reference has also been made to the following documents:

- Cavan County Development Plan 2022-2028
- Cycle Design Manual 2023
- Traffic Signs Manual 2019
- DN-GEO-03060: Geometric Design of Junctions

3.1 Road Classification

The existing road L1532 in the vicinity of the proposed development, is an Link street with a speed limit of 60km/h, and connects to Arterial Street N3 to the north, approx. 1.9kms from the subject site.

DMURS uses a hierarchy system to classify the movement function of a street. This system classifies streets into the following categories:

- Arterial Streets
- Link Streets
- Local Streets

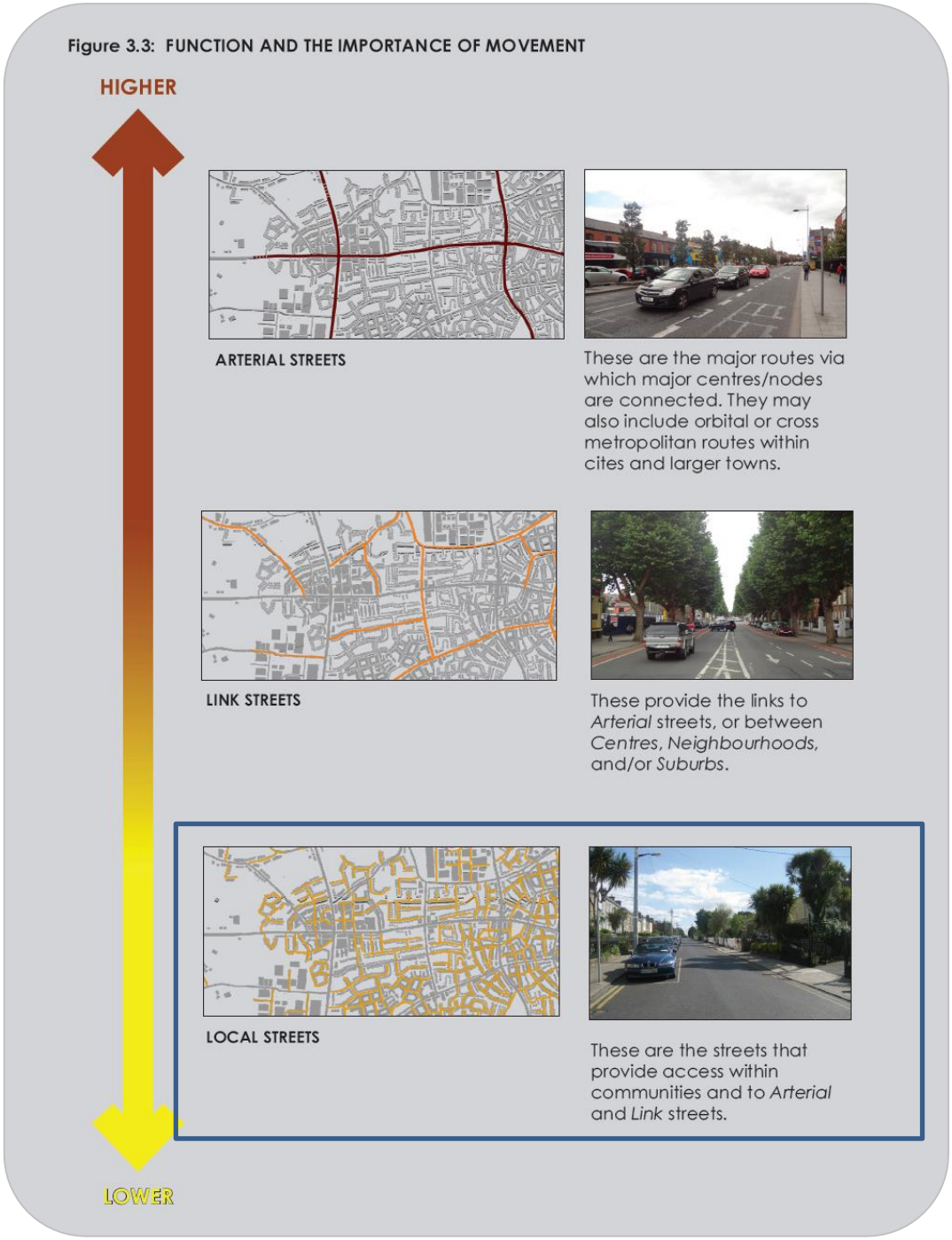

Figure 3 – DMURS Street Classification
(source: Design Manual for Urban Roads and Streets)

Following the above classification, the proposed development's internal road network comprises of Local Street. This is the development's primary internal

access road, which extends westward from the proposed vehicular access along L1532 and turns north and south, following the shape of the development site. This local street gives access to all the surface level car parking spaces within the development.

The internal road network of the proposed development shall be restricted to a speed limit of 30kph.

Table 3.1 of DMURS (reproduced in **Figure 4** below) outlines how road hierarchy terminology used in DMURS relates to other relevant publications.

DMURS Description	Roads Act/ DN-GEO-03031	Traffic Management Guidelines	National Cycle Manual
Arterial	National	Primary Distributor Roads	Distributor
Link	Regional (see note 1)	District Distributor Local Collector (see Notes 1 and 2)	Local Collector
Local	Local	Access	Access

Notes

Note 1: Larger Regional/District Distributors may fall into the category of *Arterial* where they are the main links between major centres (i.e. towns) or have an orbital function.

Note 2: Local Distributors may fall into the category of *Local* street where they are relatively short in length and simply link a neighbourhood to the broader street network.

Figure 4 – DMURS terminology compared to other key publications
(source: Design Manual for Urban Roads and Streets)

3.2 Road Design Speeds

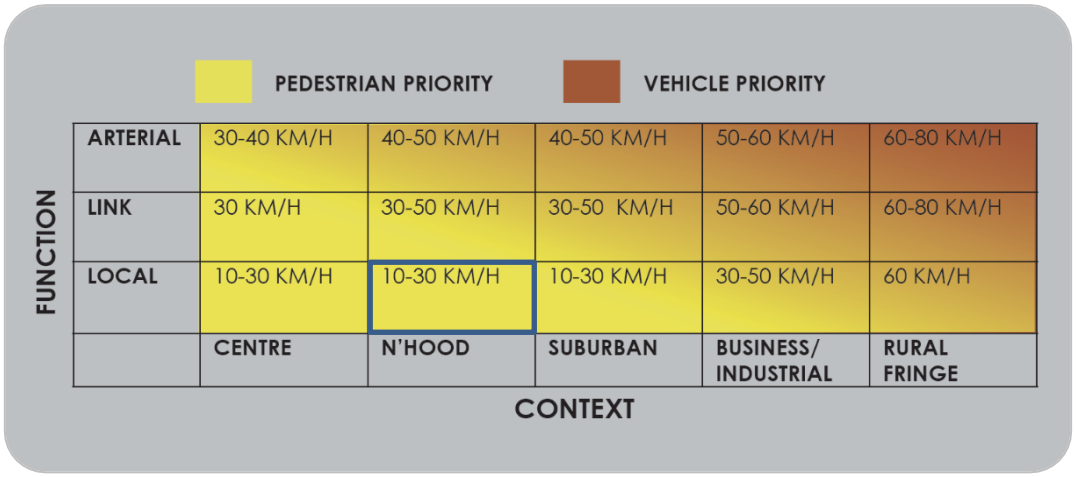

Figure 5– Design Speed Selection Matrix
(source: Design Manual for Urban Roads and Streets)

The existing road L1532 in the vicinity of the proposed development, is a Link Street with a speed limit of 60km/h and connects to Arterial Street N3 to the north. It is proposed to provide a vehicular access to the development site from this road.

All internal roads within the development have been designed for a max vehicular traffic speed of 30km/h in order to prioritise movement of vulnerable road users.

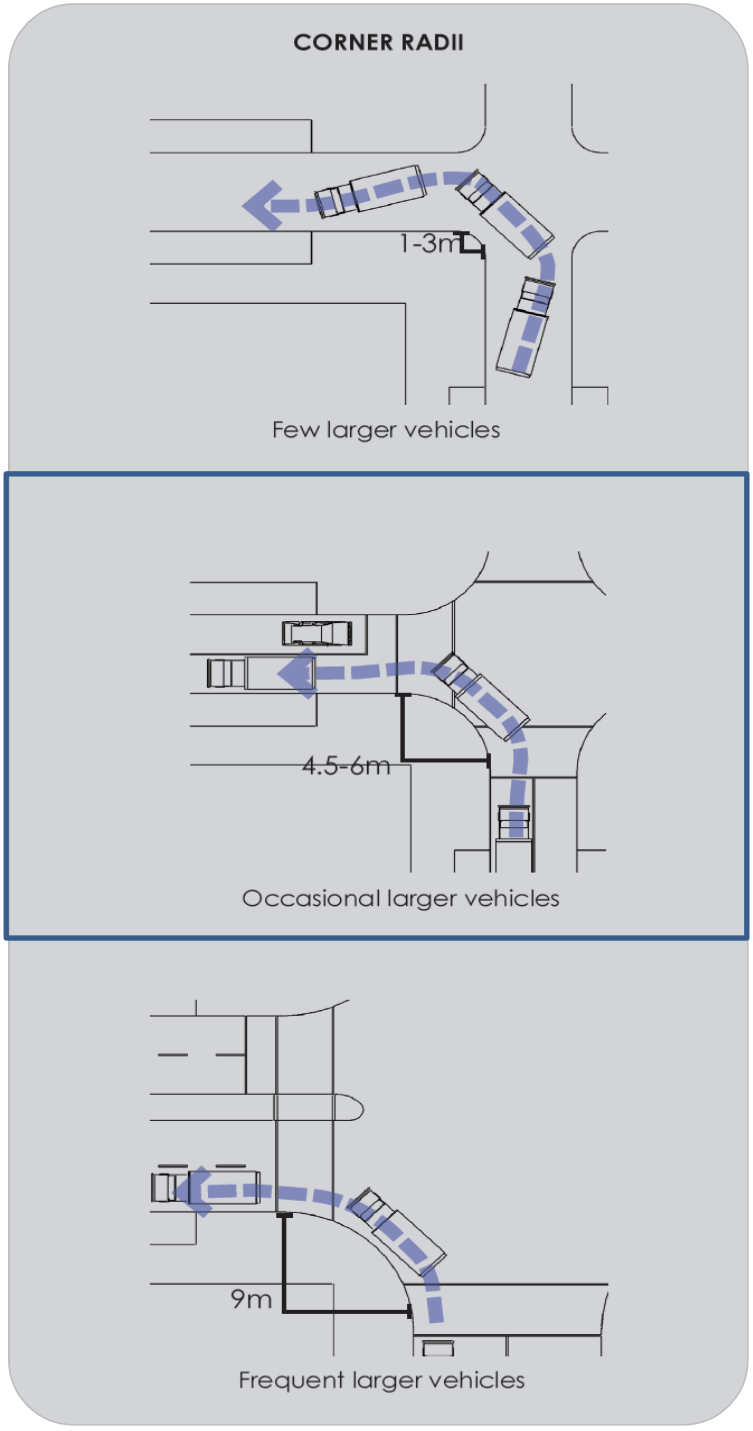

Figure 6 – Design Speed Selection Matrix
(source: Design Manual for Urban Roads and Streets)

In accordance with DMURS, kerb radii at internal junctions have generally been restricted to a maximum of 4.5m. This serves to discourage high vehicle

speeds, while also allowing for occasional larger vehicles such as refuse collection trucks and fire tenders. Visibility splays of at least 23m will be achieved at internal junctions in accordance with DMURS.

3.3 Road Cross-Section (Road 1)

The road carriageway widths of Road 1 within the internal road network have been determined in accordance with DMURS. The proposed Road 1 shall have a carriageway width of 6.0m, comprising one traffic lane in each direction. Raised footpaths with a minimum width of 2.0m are provided along this road network. Refer to **Figure 7** and CS Consulting drawing no. **D111-CSC-XX-XX-DR-C-0009** for details.

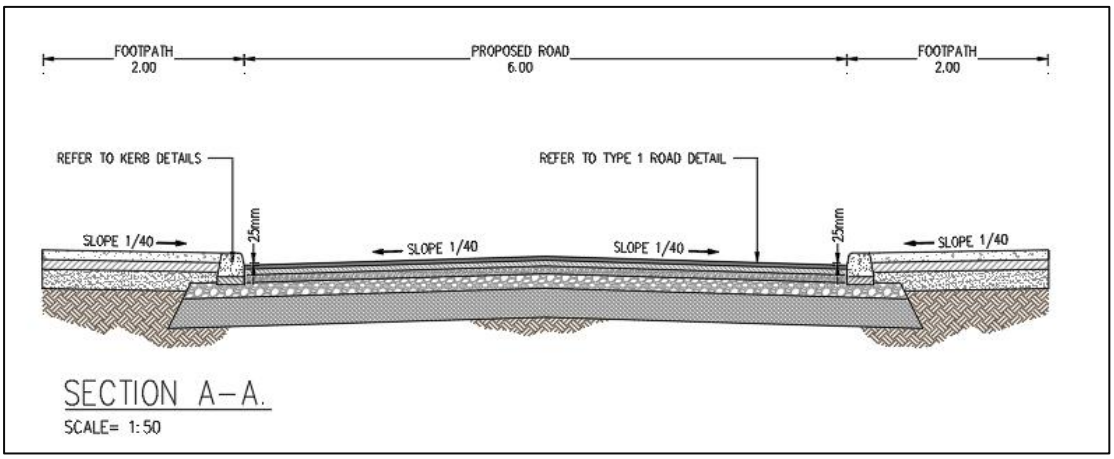

Figure 7 – Cross-section of Road 1 within the development's internal road network

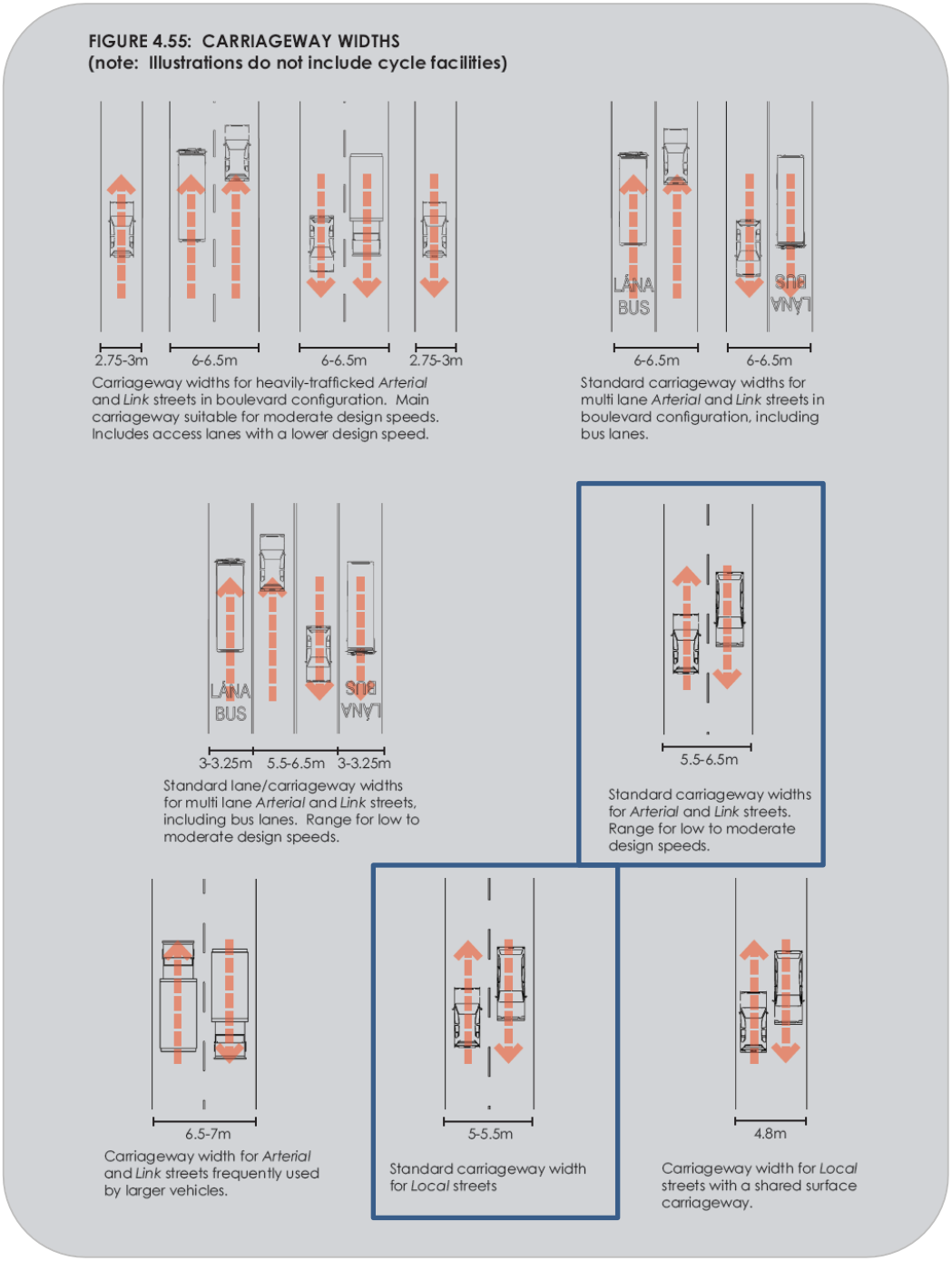

Figure 8 – Carriageway Widths
(*source: Design Manual for Urban Roads and Streets*)

3.4 Footpaths

Footpath widths within the proposed development have been designed in accordance with DMURS. It is proposed to provide a minimum footpath width of 2.0m along all internal roads within the proposed development.

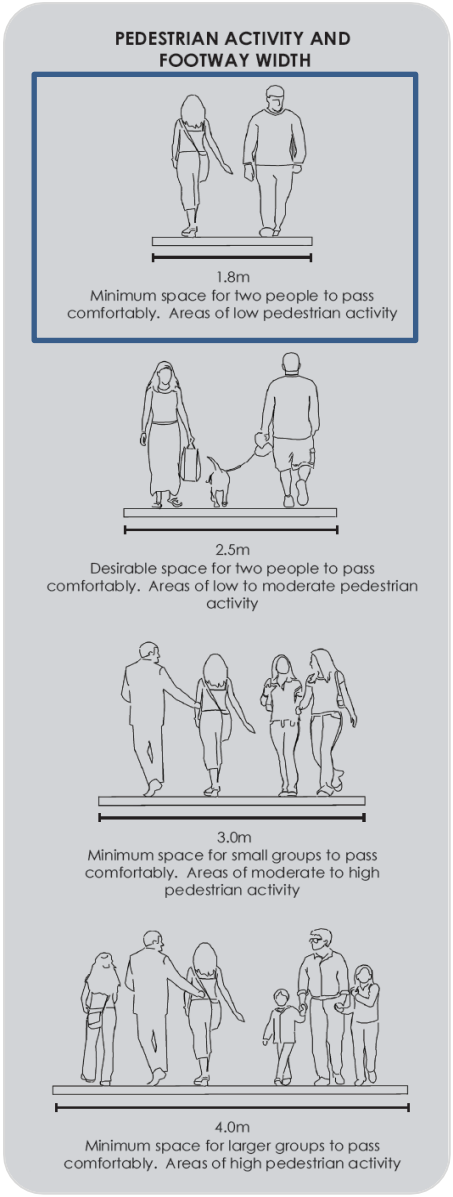

Figure 9 – Pedestrian activity and footpath widths
(*source: Design Manual for Urban Roads and Streets*)

4.0 DEVELOPMENT LAYOUT, PEDESTRIANS AND CYCLISTS

4.1 Development Access

It is proposed to provide a priority-controlled access along L1532 to the east of the development site.

The minor arm of the proposed development access junction shall have a carriageway width of 6.0m, allowing 2-way traffic flow into and out from the development.

An unobstructed sight distance of 59m in both directions of L1532 shall be achieved at the development access, as measured from a set-back of 2.4m in accordance with Design Manual for Urban Roads and Streets (DMURS), the sightline envelope shall remain free of any obstructions.

It should also be noted that, under the present application it is proposed to provide a raised zebra crossing approx. 20m south of the development access which shall act as a traffic calming measure along the southern section of the road.

An uncontrolled pedestrian crossing shall be provided across the development access at its junction with L1532, with buff-coloured tactile paving and dropped kerbs to either side. STOP road markings shall be placed at the exit from the development, and kerb radii at the development access junction shall be restricted to a maximum of 6.0m, to discourage high vehicle speeds on entrance or exit to/from the development.

For further detail of the development's proposed internal road network, refer to CS Consulting drawing no. **D111-CSC-ZZ-XX-DR-C-0001** (Proposed Road Layout).

4.2 Internal Site Layout

The internal road layout of the proposed development is designed in accordance with the guidance provided in the Design Manual for Urban Roads and Streets (DMURS).

All internal roads (except Road 1) shall have a carriageway width of 5.5m with 2.0m wide footpath along the road, kerb radii at the internal road junctions have been restricted to a maximum of 4.5m. This serves to discourage high vehicle speeds, while also allowing for the occasional circulation of large vehicles such as refuse collection trucks and fire tenders.

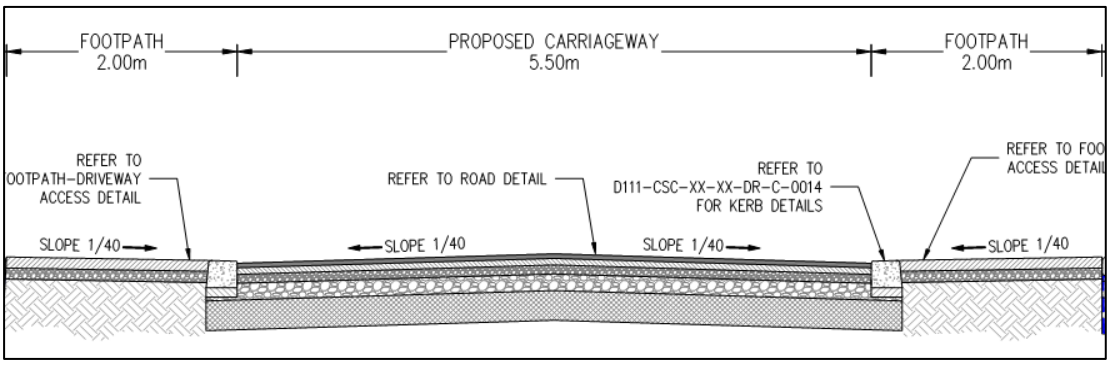

Figure 10 – Cross-section of the development's internal road network

The internal road network also provides access to a total of 112no. on-street car parking spaces. The on-street car parking spaces shall be placed parallel and perpendicular to the road. Where the car parking spaces is perpendicular to the road a minimum of 6.0m clearance width provided.

The proposed development shall cater for the possibility of a future link road to development lands along the northern and southern boundaries of the development site.

The provision of good permeability for pedestrians and cyclists, as well as efficient access to public transport, are all key objectives of the proposed site layout.

The objectives of the site layout design are:

- to keep vehicle speeds low;
- to minimise the intrusion of vehicle traffic;
- to ensure ease of access for emergency services;
- to encourage walking and cycling;
- to create a safe, secure, and pleasant environment for people, particularly vulnerable road users (VRUs).

Traffic calming and VRU protection measures to be implemented in the design include:

- designated and marked pedestrian crossing points;
- horizontal alignment constraints to restrict vehicle speeds;

4.3 Road Alignment and Traffic Calming Measures

- Internal roads within the proposed office site will be designed for traffic speeds of 30 km/h.
- Kerb radii will be restricted to a maximum of 4.5m.
- Visibility splays of at least 24m will be achieved at internal junctions in accordance with DMURS.
- All road infrastructure designed in accordance with DMURS.

4.4 Pedestrians and Cyclists

Pedestrian and cyclist access to the development shall be accommodated via the main access on L1532. Footpaths with a minimum width of 2.0m shall be provided along the extents of all internal roads. No on road cycle lanes

have been provided within the development; cyclists will share the use of the internal access road with vehicles.

60no. secure and sheltered long-term bicycle parking spaces for the residents of the apartment units shall be provided within a safe and secure area.

A further 10no. cycle parking spaces (in the form of 5no. Sheffield stands) shall be provided to serve the crèche.

4.5 Shared Surface

As part of this application, it is proposed to provide a new 3.25m wide shared surface (3.0m + 0.25m buffer[1]) to cater for both pedestrian and cyclists in accordance with Cycle Design Manual (CDM) 2023. This shared surface will provide greater connectivity from the internal road layout to the existing public L1532 road. The proposed shared surface shall have a gradient of 5%.

Figure 11 – Shared surface extract from Cycle Design Manual (2023)

It is also proposed to provide a new zebra crossing over the existing L1532 road where the shared surface connects to allow pedestrians to cross safely on to

[1] On gradients greater than 3%, cycle track width should be increased by 0.25m to allow for greater lateral movement in accordance with CDM 2023.

the existing footpath. The zebra crossing shall have a width of 4m to allow for two-way crossing of both pedestrians and cyclists.

A full extent of 2m wide footpath from the development access junction to the proposed zebra crossing is proposed as part of the application along the development site boundary of the L1532.

4.6 Swept Path Analysis

Swept path analyses have been carried out for cars manoeuvring within the proposed development, as well as for a refuse vehicle and a fire tender. These analyses, provided on drawings **D111-CSC-XX-XX-DR-C-0011** and **D111-CSC-XX-XX-DR-C-0012** within this planning application, indicate that the design of the development accesses and internal layout can accommodate these vehicle movements where required.

Appendix A – DMURS Statement

CS CONSULTING GROUP

HEAD OFFICE: 19-22 Dame Street, Dublin 2, D02 E267, Ireland

T | +353 1 5480863 | E | info@csconsulting.ie | www.csconsulting.ie

Cavan County Council,

Cavan Courthouse, Farnham St,

Abbeyland, Cavan.

H12 R6V2

Sent By: Email

Job Ref: D111

A – LJ/ NB

Date: 28-Feb-24

RE: Proposed Large-scale Residential Development (LRD) at Drumlark Developments, Cavan. DMURS Statement of Consistency to Cavan County Council.

INTRODUCTION

Cronin & Sutton Consulting Engineers (CS Consulting), as part of a multi-disciplinary design team, have been commissioned by Drumlark Developments to develop a DMURS Statement of Consistency to accompany a planning application for a proposed 145-unit Large-scale Residential Development (LRD) at Drumlark, Cavan.

Traffic & Transportation

The proposed scheme is designed in compliance with the following:

- Design Manual for Urban Roads and Streets (2019)
- Cavan County Development Plan 2022-2028
- Cycle Design Manual (2023)
- Traffic Signs Manual (2019)
- DN-GEO-03060: Geometric Design of Junctions.

Internal Road Layout

The internal road layout of the proposed development is designed in accordance with the guidance provided in the *Design Manual for Urban Roads and Streets* (DMURS). As stated in the introduction to the DMURS:

> *"Better street design in urban areas will facilitate the implementation of policy on sustainable living by achieving a better balance between all modes of transport and road users. It will*

encourage more people to choose to walk, cycle or use public transport by making the experience safer and more pleasant."

Given the location, shape and topography of the site, and the scale and type of the residential development proposed, we submit that the proposed site layout is well suited to this site.

The development layout design put forward provides for a local street with perpendicular car parking spaces, plantings and high-quality pedestrian facilities. The development design ensures pedestrian permeability with the internal road network.

The development layout incorporates features that benefit vulnerable road users by encouraging low vehicle speeds (such as reduced road corner radii, kerb buildouts, plantings, etc.), following the principle that roads should serve a community and not dominate it. The provision of good permeability for pedestrians, cyclists & public transport are all key objectives of the proposed site layout.

The objectives of the site layout design are:

- to keep vehicle speeds low;
- to minimise the intrusion of vehicle traffic;
- to ensure ease of access for emergency services;
- to encourage walking and cycling;
- to create a safe, secure, and pleasant environment for people, particularly vulnerable road users (VRUs) such as children.

Traffic calming and VRU protection measures implemented in the design include:

- designated pedestrian crossing points;
- smaller junction corner radii;
- cul-de-sac road layout;
- landscaping to frame vehicle sightlines internally;
- a road design for a maximum vehicle speed of 30km/h.

The proposed internal service road has a width of 5.5m to permit safe access for service and emergency vehicles, with a vehicle turning head provided at the far end of the cul-de-sac development. Car parking areas are arranged so as to minimise conflicts with pedestrian movements. Raised footpaths flank the service road to either side.

Large vehicles such as waste collection trucks and furniture lorries are allowed for in the design, notwithstanding that their movements shall be infrequent in comparison to passenger cars. The swept paths of these vehicles have been considered to ensure circulation without overdesigning the kerb

radii. Overdesign would result in the negative effect of encouraging car drivers to travel at higher than desired speeds. Kerb radii at all internal junctions have been restricted to a maximum of 4.5m.

With reference to carparking, the proposed development incorporates:

- Surface level car parking in proximity to dwelling entrances.
- Perpendicular spaces along internal roads to promote lower vehicle speeds.

The internal layout of the proposed development incorporates numerous design features such as distinctive surface materials and colours, strong landscaping proposals and modern furniture structures, in order to establish a sense of place within an urban neighbourhood environment.

Linganand Jewargi

Civil and Traffic Engineer

BEng. (Hons), MEng, MIEI

for Cronin & Sutton Consulting