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Road Infrastructure Design Report

Proposed Residential Development

Bridgegate, Mulladrillen and Rathgory, Drogheda Road, Ardee, Co. Louth

Client: The Ardee Partnership

Job No. R086

March 2022

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ROAD INFRASTRUCTURE DESIGN REPORT

PROPOSED RESIDENTIAL DEVELOPMENT, BRIDGEGATE, MULLADRILLEN AND RATHGORY, DROGHEDA ROAD, ARDEE, CO. LOUTH

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1.0 INTRODUCTION

Cronin & Sutton Consulting Engineers (CS Consulting) have been commissioned by Ardee Partnership to prepare a Road Infrastructure Design Report for a proposed 272-unit residential development at Bridgegate, Mulladrillen and Rathgory, Drogheda Road, Ardee, County Louth.

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

- Louth County Development Plan 2021-2027
- National Cycle Manual 2011
- Design Manual for Urban Roads and Streets

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 site of the proposed development lies on the outskirts of Ardee in County Louth, approx. 800m to the south-east of the town centre, in the townland of Rathgory and Mulladrillen. The site has a total area of 13.03ha and is located in the operational area of Louth County Council.

Figure 1 – Location of proposed development site
(*map data & imagery: EPA, 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.

The site is bounded to the north and north-east by the existing De la Salle Crescent and Moorehall residential developments, to the west by the existing Cherrybrook residential estate and by lands currently under development (planning ref. 10/174), and on all other sides by agricultural lands.

Figure 2 – Site extents, access and transport infrastructure
(*map data & imagery: NTA, OSM Contributors, Microsoft*)

2.2 Existing Land Use

The subject site is greenfield and currently generates no vehicular traffic.

2.3 Description of Proposed Development

The proposed development site extends to c. 13.03 ha at Bridgegate, Rathgory & Mulladrillen, Drogheda Road, Ardee, County Louth and adjoins Phases 1-3 at Bridgegate (under construction) on lands to the west, accessed from the N2 Drogheda Road. The proposals overlap the boundary of permitted development Reg. Ref.: 10174; ABP Ref: PL15.238053 (as amended) at the western boundary and will supersede granted development in this area which consists of 31 no. dwellings, crèche and community building and public open space.

The development will consist of:

A) The construction of 272 no. residential units comprising a mix of 206 no. 2, 3 and 4 bedroom houses (all 2 storeys) including 50 no. 2-bedroom houses (Type 1), 145 no. 3-bedroom houses (Types 2, 3, 6) and 11 no. 4-bedroom houses (Types 4, 5) all with private open space and car parking, alongside 66 no. duplex units (all 3 storeys) including 17 no. 1-bedroom units (Types D5, D8), 24 no. 2-bedroom units (Types D1, D3, D6) and 25 no. 3-bedroom units (Types D2, D4, D7), all with private open space in the form of terrace at upper floor level and external garden space, with 499 sqm of communal open space serving Duplex Blocks A-B (48 no. units) (served by 2 no. bin and bike stores [each c. 51 sqm] adjacent) at Bridgegate Avenue, providing a total residential gross floor area of c. 28,168.9 sqm;

B) A part 1, part 2 no. storey crèche (c. 484.1 sqm) and playground and a single storey community building (c. 165 sqm) located adjacent at a central community hub (with bin and bike store [c. 23 sqm]) accessed from Bridgegate Avenue served by car parking located on Bridgegate Green and Bridgegate Avenue;

C) A landscaped Public Park located in the northern part of the site extending to c. 3.6 ha accessed from the community hub and between duplex Blocks B & C at Bridgegate Avenue, with 2 no. pedestrian links to permitted public park adjoining to the west and 1 no. pedestrian footpath extending to the northern perimeter at Hale Street, with a reservation for a future link road to lands to the east facilitated in the northern section of the park;

D) Works to the Rathgory Tributary located to the south of Bridgegate Avenue comprising the realignment of the channel and regrading and reprofiling of land (as required), implementation of 2 no. vehicular crossings (including culverts and mammal passes) and the provision of a riparian corridor based around the open watercourse comprising landscaping and planting with safe access to the watercourse provided for maintenance purposes and 1 no. pedestrian and cyclist crossing;

E) A series of landscaped public open spaces provided throughout the site with Public Open Space 01 (c. 1.05 ha) and Public Open Space 2 (c. 0.43 ha) located within the linear park (including riparian corridor) adjacent to the Rathgory Tributary with Public Open Space 03 (c. 0.29 ha) centrally located in the southern part of the site; open spaces will provide a mix of hard and soft landscaping, pedestrian and cycle access (cycle lanes provided at POS 1 and POS 2) and a range of activities including fitness spaces, kickabout area, amphitheatre and nature based play areas;

F) Provision of shared surfaces, landscaped streetscapes including planting and landscaping at two neighbourhood streets in the southern part of the site, with roads provided to site boundaries to the east, south and west to facilitate possible future connections;

G) All landscaping including planting to consolidate treelines and hedgerows forming existing site boundaries with agricultural lands to the east and Cherrybrook residential development to the west and all boundary treatments;

H) Roads and access infrastructure taken from Bridgegate Avenue (permitted under Reg. Ref.: 10/174; ABP Ref: PL15.238053 [as amended]), the provision of a bus stop on the south side of Bridgegate Avenue adjacent to community hub and provision of cycle lanes at this location (continued through Public Open Space 01); a total of 480 no. car parking spaces (362 no. serving houses, 84 no. serving duplexes, 23 no. serving crèche and community building and 11 no. visitor and public open spaces), a total of 296 no. bicycle parking spaces (204 no. spaces serving duplexes [60 visitor spaces], 32 no. spaces at the community hub and 60 no. visitor spaces);

l) Provision of 2 no. ESB substations, all associated drainage and services infrastructure (surface water, foul and water supply), public lighting, SUDS drainage and works to facilitate the development.

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 short walking routes to shops, public transport, etc.;
- 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:

- Louth County Development Plan 2021-2027
- National Cycle Manual 2011
- Traffic Signs Manual 2019
- DN-GEO-03060: Geometric Design of Junctions
- Sustainable Urban Housing: Design Standards for New Apartments (Guidelines for Planning Authorities)
- National Cycle Manual 2011

3.1 Road Classification

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

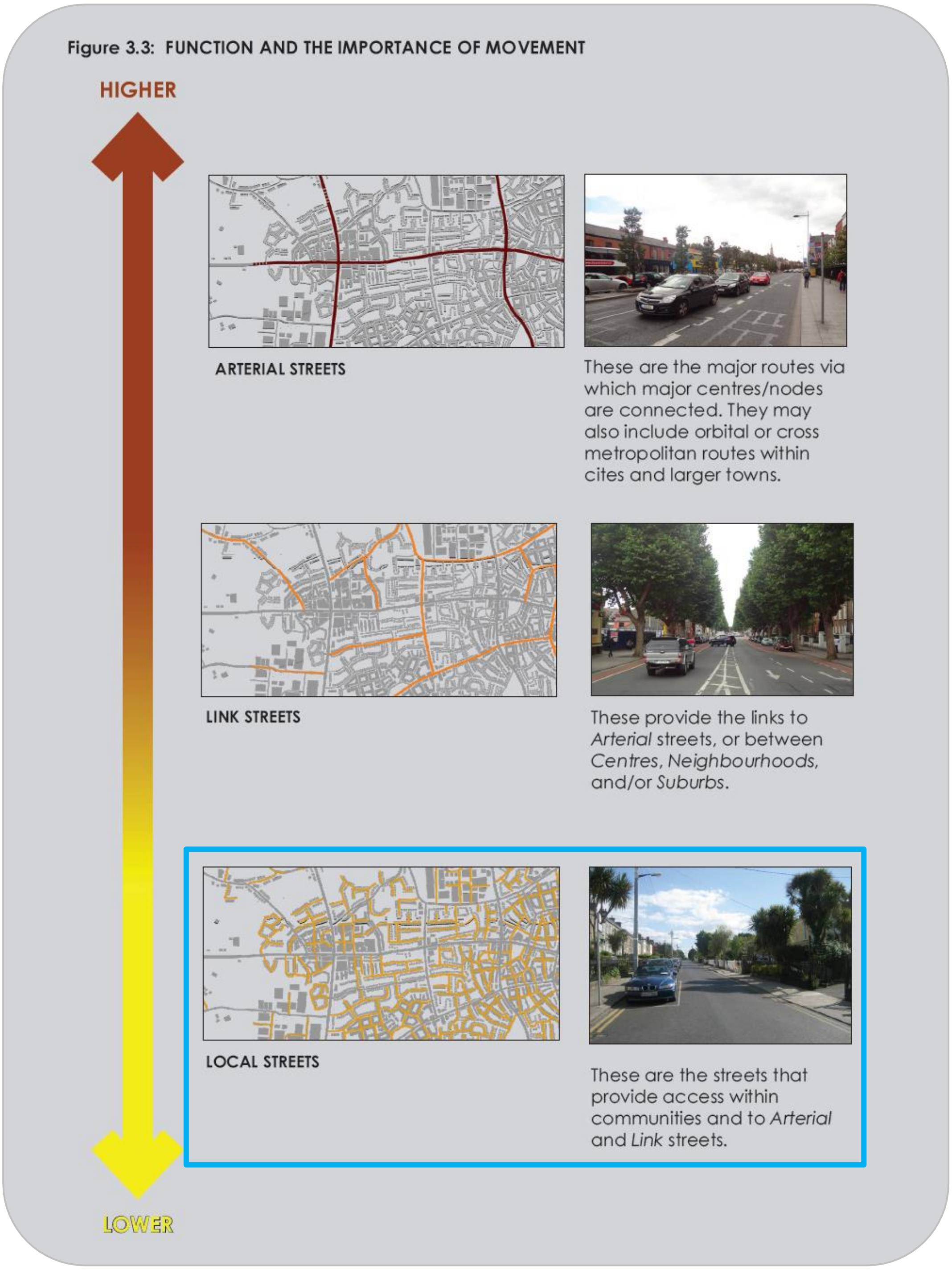

Figure 3 – DMURS Street Classification
(*source: Design Manual for Urban Roads and Streets*)

The internal road layout of the proposed development comprises a network of local streets, connecting to a link street that traverses the development site along an east-west axis, as well as to a link street that runs through the adjacent permitted development (ref. 10/174 – currently under construction) This link street within the adjacent development in turn connects to the access junction on the N2 Drogheda Road, to the west, which constitutes the vehicular access to both developments from the public road network.

Figure 4 – Road hierarchy
(background *map data & imagery: OSM Contributors, Microsoft*)

Table 3.1 of DMURS (reproduced in Figure 5 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 5 – DMURS terminology compared to other key publications
(*source: Design Manual for Urban Roads and Streets*)

3.2 Road Design Speeds

PEDESTRIAN PRIORITY — VEHICLE PRIORITY

FUNCTION					
ARTERIAL	30-40 KM/H	40-50 KM/H	40-50 KM/H	50-60 KM/H	60-80 KM/H
LINK	30 KM/H	30-50 KM/H	30-50 KM/H	50-60 KM/H	60-80 KM/H
LOCAL	10-30 KM/H	10-30 KM/H	10-30 KM/H	30-50 KM/H	60 KM/H
	CENTRE	N'HOOD	SUBURBAN	BUSINESS/ INDUSTRIAL	RURAL FRINGE

CONTEXT

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

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

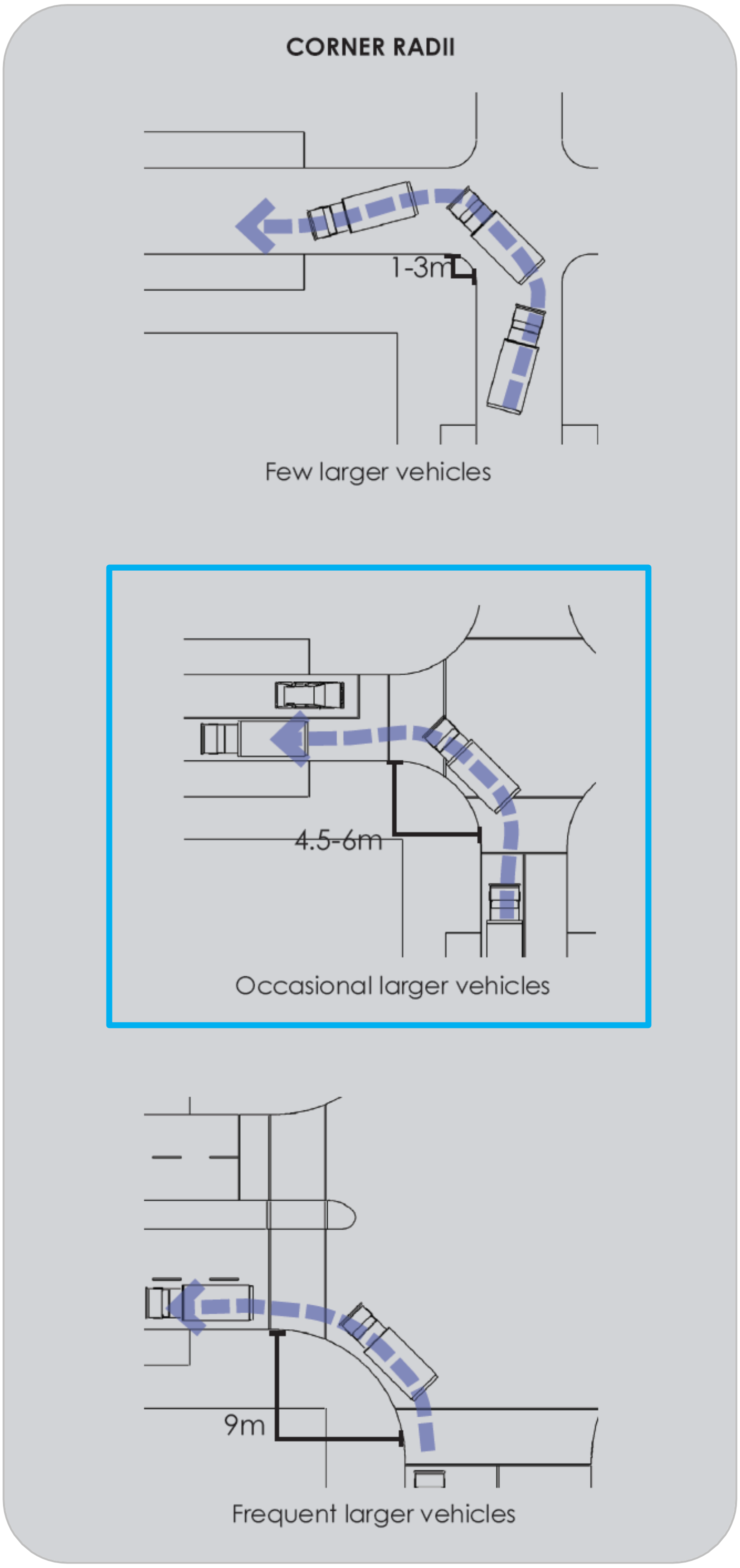

Figure 5 – Design Speed Selection Matrix
(*source: Design Manual for Urban Roads and Streets*)

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In accordance with DMURS, kerb radii at internal junctions have generally been restricted to a maximum of 6m. 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.

3.3 Road Cross-Section

All internal roads have a carriageway width of 5.5m (with the exception of Bridgegate Avenue, which has a carriageway width of 6m), comprising one traffic lane in either direction, and generally shall be flanked to either side by a 2m wide pedestrian footpath.

The typical local street cross section within the development is shown below in Figure 6.

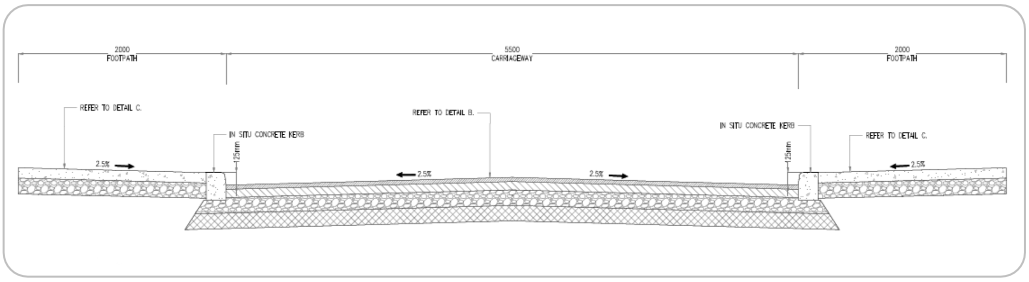

Figure 6 – Typical local street cross section

Some sections of road include a 5.6m wide perpendicular parking bay to one side of the street, while others include both a 5.6m wide perpendicular parking bay and a 2.4m wide parallel parking bay. These sections of road will still incorporate a 2m wide footpath, at least on one side, in order to facilitate pedestrian permeability. Refer to CS Consulting drawing ARDEE-CSC-00-XX-DR-C-1011 (Road Cross Sections) for further details.

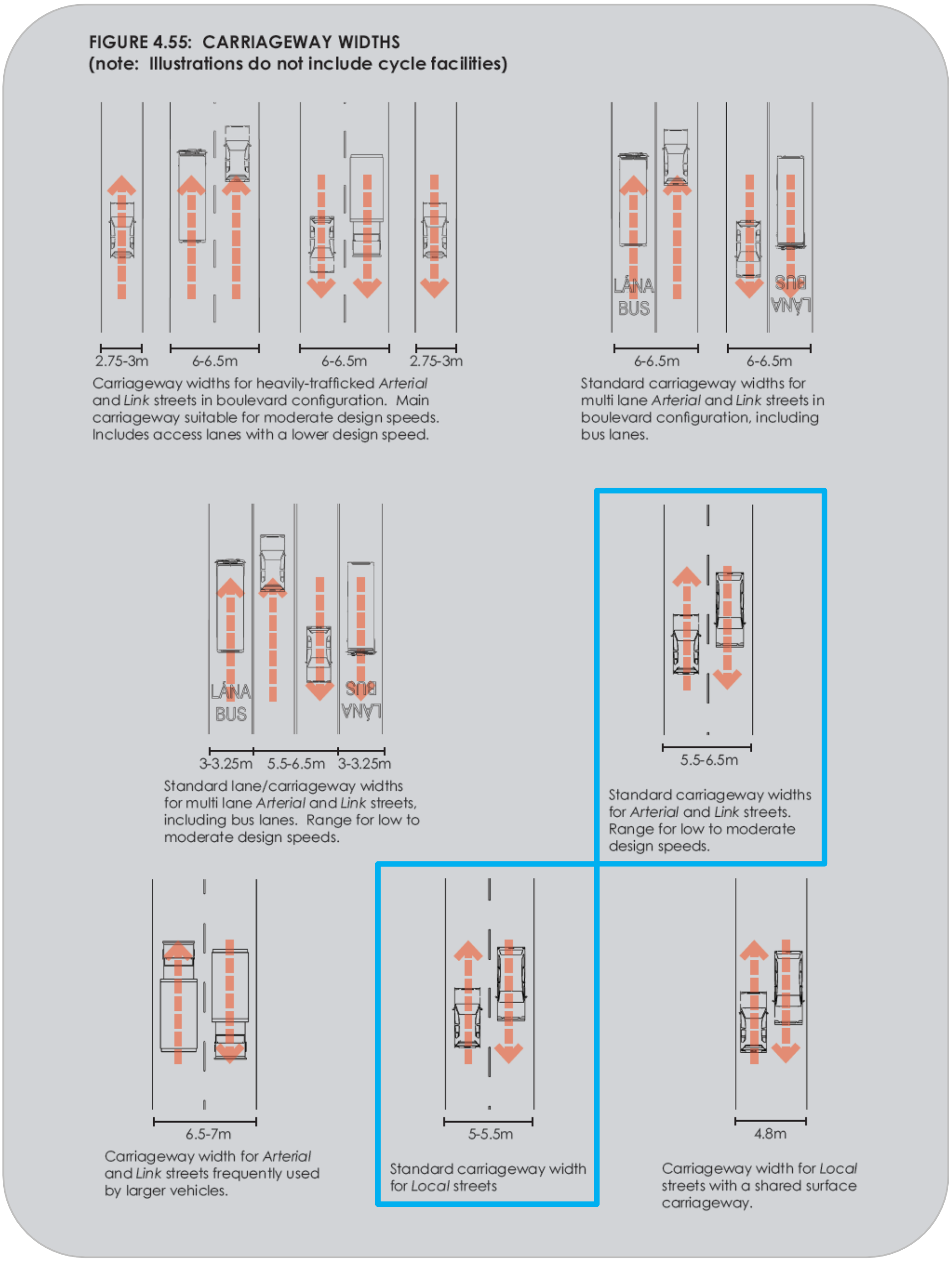

Figure 7 – Carriageway Widths
(*source: Design Manual for Urban Roads and Streets*)

3.4 Footpaths

Footpath widths within the proposed development have been designed in accordance with DMURS. It is proposed to provide a footpath width of 2.0m along internal roads, allowing space for two people to pass comfortably.

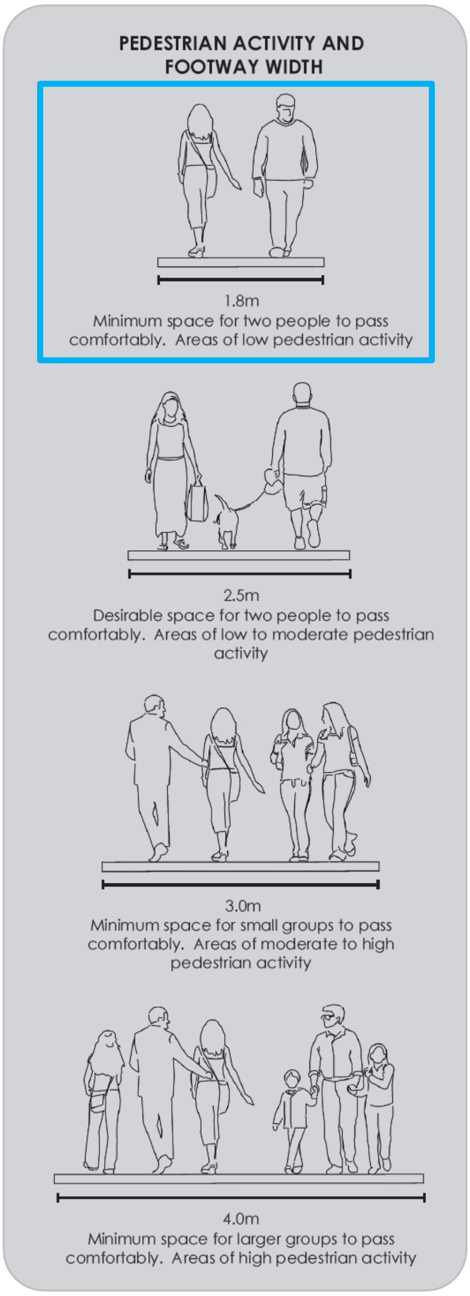

Figure 8 – Pedestrian activity and footpath width
(*source: Design Manual for Urban Roads and Streets*)

4.0 DEVELOPMENT LAYOUT, PEDESTRIANS AND CYCLISTS

4.1 Development Access

Figure 9 – Vehicular access points to subject development
(*map data & imagery: OSi, OSM Contributors, Microsoft*)

Vehicular and pedestrian access to the development shall be via the internal roads of the adjacent permitted development to the northwest (planning ref. 10/174), which is currently under construction. The adjacent development in turn has vehicular and pedestrian access onto the N2 (Drogheda Road) to the west via a recently constructed simple priority junction (shown in Figure 7).

A pedestrian/cyclist-only route is provided to the northern perimeter of the site at the public park, with an open boundary provided at this location.

The subject development's internal layout also makes provision for a potential future vehicular and pedestrian link via the neighbouring

Cherrybrook residential estate, to the west of the site. In addition to this, the internal road network of the subject development allows for potential future road connections to the lands to the east and to the south, if developed.

Figure 7 – New access junction on N2 (Drogheda Road)

For further detail of the development's proposed internal network and provisions for vehicular access to/from the surrounding road network, refer to CS Consulting drawing ARDEE-CSC-00-XX-DR-C-1004 (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). 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."

Dated design elements that reflect poor design standards (such as wide roads, long straights or sweeping curves, unnecessarily large junction corner radii, and large junction visibility splays) are omitted to the extent possible within the site layout, to reduce vehicle speeds within the development.

The objectives of the site layout design are:

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

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

- designated and marked pedestrian crossing points;
- smaller corner radii;
- the arrangement of on-street parking;
- horizontal alignment constraints to restrict vehicle speeds;
- vertical deflections (raised tables) at internal junctions; and
- implementation of raised local streets.

Refer to architect's drawings for full detail of site layout.

4.3 Road Alignments and Traffic Calming Measures

The development road has been designed for a vehicular traffic speed of 30km/h. Kerb radii at internal junctions have generally been restricted to a maximum of 6.0m, in order to discourage high vehicle speeds. Turning heads are provided at cul-de-sacs and traffic calming measures are incorporated into the design of the internal local streets, in the form of raised tables at junctions and horizontal deflections. On-street car parking for the residential units is arranged along the internal roads. It has been ensured that forward visibility splays of at least 24m are achieved at internal junctions, in compliance with DMURS requirements.

4.4 Provision for Potential Future Connector Road

The *Louth County Development Plan 2021–2027* includes as Strategic Settlement Strategy Policy Objective SS 42 the provision of "a new link road from Rathgory and Mulladrillen to Black Road". This east-west connector road, to the south of Ardee town centre, would link the N2 Drogheda Road and Jumping Church Road (Black Road), bypassing William Street and Hale Street. This roads objective appears also to be included among the 'Key Road and Bridge Projects' (Table 7.4) listed in the *Louth County Development Plan 2012–2027*, in which it is referred to as 'Link from N2 Rathgory to Clanmore'.

No preferred alignment for this road objective is given in the *Louth County Development Plan 2021–2027* or shown on its associated maps. However, the Objectives Map forming part of the *Ardee Local Area Plan 2010–2016* (now superseded by the *Louth County Development Plan 2021–2027*) shows an indicative alignment for this road that passes through both the subject development site and the adjacent residential development currently under construction (ref. 10/174), which bounds the subject site to the north-west. This is illustrated in Figure 8.

The internal road layouts of both the subject development and the adjacent development allow for the potential future provision of such a connector road via these development lands.

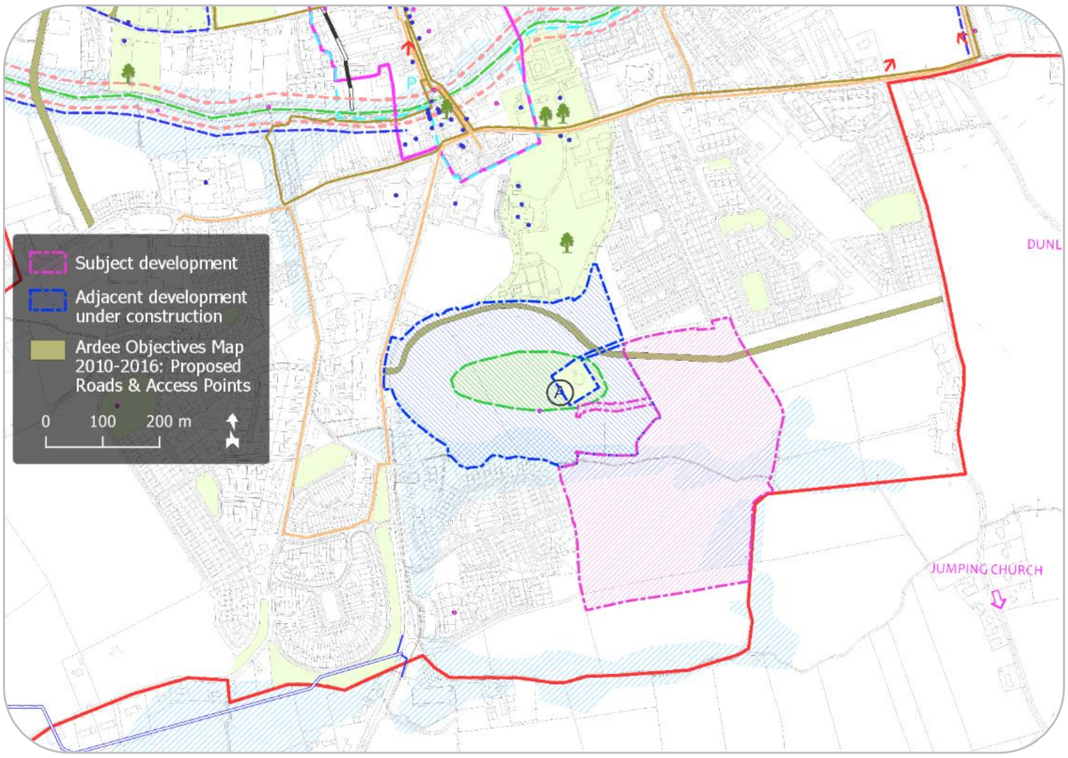

Figure 8 – Extract of Ardee LAP 2010–2016 Objectives Map
(*background imagery source: Louth County Council*)

Within the permitted and subject developments, two potential alignments have been identified for the future provision of this link:

- a southern route, incorporating the street named Bridgegate Avenue in both developments; and
- a northern route, incorporating the street named Bridgegate Drive in the permitted development and continuing through the northern section of the subject development site.

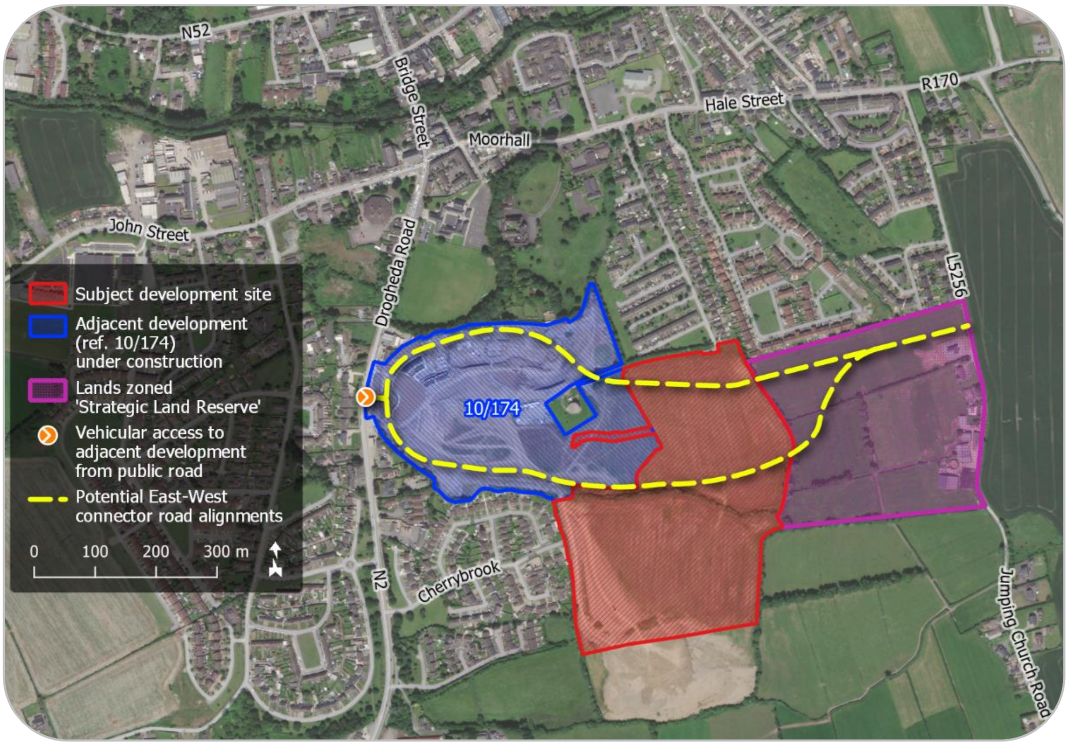

Figure 9 – Indicative alignment options for E-W connector road
(*map data & imagery: NTA, OSM Contributors, Microsoft*)

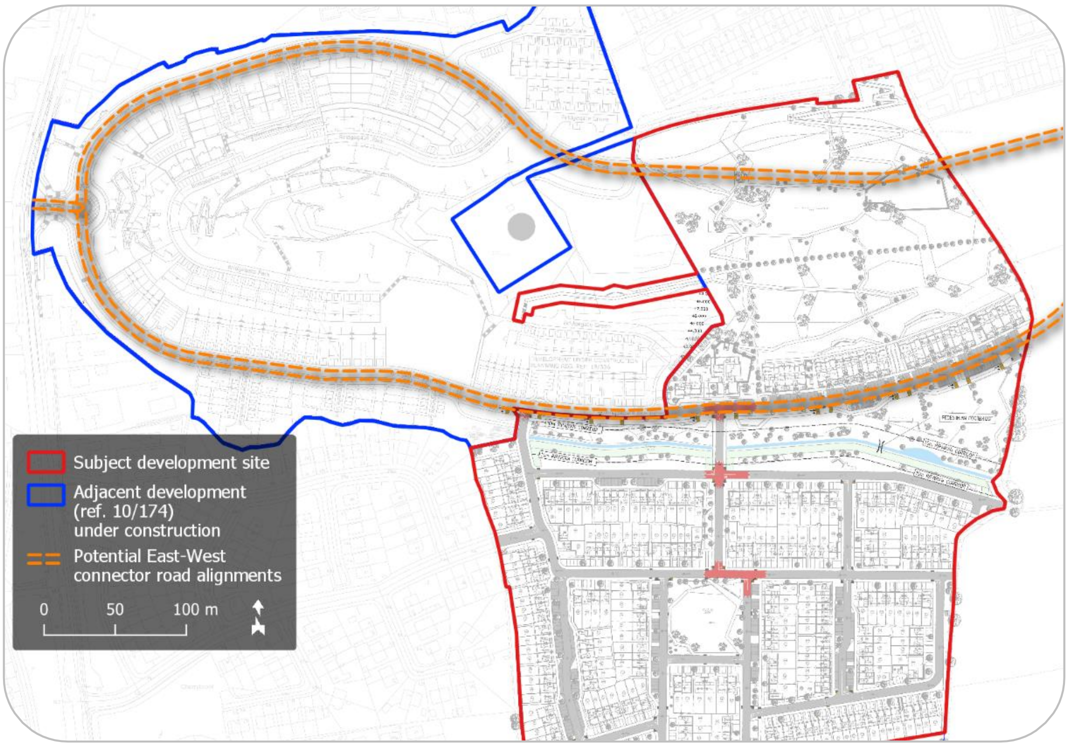

Figure 10 – Indicative alignment options for E-W connector road

In both developments, those streets with the potential to be incorporated into a future connector road have been designed to allow their use for this purpose. Within the subject development, Bridgegate Avenue is proposed to be continued up to the site's eastern boundary, while a road reservation corridor has been maintained through the northernmost section of the public park area to permit the future extension of Bridgegate Drive if required.

Lands to the east of the subject development site, which would be required for the full completion of this connector road under Objective SS 42 of the *Louth County Development Plan 2021–2027*, are in third-party ownership and are zoned 'Strategic Land Reserve'. The alignment options between the subject site and Jumping Church Road, illustrated in Figure 9 and Figure 10, are therefore indicative only and do not form part of this development proposal.

4.5 Pedestrians & Cyclists

Pedestrian and cyclist access to the proposed development shall initially be facilitated at 2no. locations:

- to/from the N2 Drogheda Road, via the access junction and internal road network of the adjacent permitted Bridgegate development to the north-west (currently under construction); and
- at the subject site's northern boundary at the public park.

Provision is also made for a potential future additional access to the development via the existing adjacent Cherrybrook estate, to the west.

Raised footpaths are provided along all internal roads of the development. Further footpaths provide pedestrian connectivity between internal roads, as well as to the development's public open spaces and to the public park located at the centre of the development.

Cycle tracks are provided along the full length of Bridgegate Avenue, in order to provide suitable facilities for cyclists in the event that this forms part of an east-west connector road in the future. Marked pedestrian crossings of the internal roads are provided at several locations, with raised junctions, raised streets, and horizontal deflections to calm vehicular traffic.

4.6 Independent Quality Audit

An independent Quality Audit of the proposed development layout and access arrangements has been conducted by PMCE Consulting Engineers on behalf of CS Consulting. This incorporates the following four components:

- access audit
- cycling audit
- walking audit
- road safety audit

The Quality Audit was completed in April 2021. Design changes have been made in response to the recommendations of the Quality Audit and the measures adopted have been accepted by the audit team. Refer to CS Consulting drawing ARDEE-CSC-00-XX-DR-C-1027 (Quality Audit) for details of these design changes.

The Quality Audit report document issued by PMCE, together with the audit response form, are provided as Appendix B to this report.

5.0 COMMENTS RECEIVED FROM PLANNING AUTHORITIES

Both An Bord Pleanála and Louth County Council have reviewed the planning documentation submitted in respect of the proposed development during the pre-application consultation phase of the SHD process. A tripartite pre-application consultation meeting has also been held with An Bord Pleanála and Louth County Council.

The relevant opinions of An Bord Pleanála that pertain to traffic and transport matters, as communicated to the applicant, are reproduced below; also examined in this section are the transport-related recommendations of Louth County Council, which were issued to An Bord Pleanála. In each case, we describe measures taken by the design team in response to these opinions and recommendations.

5.1 Opinion Issued by An Bord Pleanála

An Bord Pleanála has on the 11th of December 2020 issued an opinion enumerating the items of specific information that should be submitted with any application for permission. The following item among these is of relevance to this report:

2. *"A layout plan and report that address and provides a clear rationale for connectivity and permeability within and through the site."*

The ABP opinion also notes that the final SHD application should include:

> *"Further consideration / amendment of the location of the link road as required by Objective INF13, having regard to the development potential of lands to the east of the site, which are zoned as Strategic Reserve and to the zoning objective of the northern portion of the site which seeks to provide a '12 acre' area of open space."*

5.1.1 Response to ABP Opinion Items

Refer to the following CS Consulting drawings for details of vehicular, pedestrian, and cyclist connectivity and permeability within and through the site:

- ARDEE-CSC-00-XX-DR-C-1001 (Proposed Site Layout)
- ARDEE-CSC-00-XX-DR-C-1004 (Road Layout)
- ARDEE-CSC-00-XX-DR-C-1019 (Visibility Splays & Permeability)

Refer to sub-section 4.4 of this report for a description of the provisions made to accommodate a potential future link road satisfying Objective SS 42 of the *Louth County Development Plan 2021–2027* (corresponding to Infrastructure Objective INF 13 of the now-superseded *Ardee Local Area Plan 2010–2016*). As described therein, a road reservation corridor has been maintained through the northernmost section of the public park area, to permit the future extension of Bridgegate Drive if required as part of this link road.

5.2 Recommendations of Louth County Council

Louth County Council on the 23rd of October 2020 issued an opinion, informed by the internal report of its Infrastructure Section, requesting that further clarification or consideration be given to a number of transportation and roads infrastructure aspects of the subject development. These are addressed below.

5.2.1 LCC Point 3 – access from N2

"The development strategy for the site in so far as it relates to layout potential linkages for vehicular, pedestrian and cycle movements to the east, south and west of this development. As proposed there is only one access available to the development from the Drogheda Road (N2) through the newly developed entrance to the first phase of the Bridgegate development. The applicant should demonstrate

that the connections indicated will be delivered in a timely manner contiguous to the phased development of this site to provide for connectivity with the town and surrounding areas."

5.2.2 Response to LCC Point 3

As described in sub-sections 4.1 and 4.2 of this report, vehicular access to the development shall initially be solely to from the recently constructed Bridgegate access junction on the N2, via the internal roads of the adjacent permitted development to the northwest (planning ref. 10/174) that is currently under construction. Pedestrian and cyclist access shall also be accommodated via this route.

A secondary pedestrian/cyclist-only access to the development is also provided at the subject site's northern boundary, giving an alternative route to/from Ardee town centre. It is proposed that this access link be in place prior to occupation of any residential units within the subject development.

The subject development's internal layout does make provision for a potential future vehicular and pedestrian link via the neighbouring Cherrybrook residential estate, to the west of the site. The Cherrybrook estate is however not yet taken in charge by Louth County Council, and delivery of such a link in the short term is outside the control of the applicant.

In addition to this, the internal road network of the subject development allows for potential future road connections to the lands to the east and to the south, if developed.

5.2.3 LCC Point 4 – internal public transport infrastructure

"Demonstrate penetration of the development by public transport and provision for bus stop(s) in a location(s) where the majority of dwellings are at a maximum distance of 400 metres."

5.2.4 Response to LCC Point 4

As indicated on CS Consulting drawing ARDEE-CSC-00-XX-DR-C-1026, a new bus stop shall be constructed on Bridgegate Avenue at a location within 400m of all dwellings within the subject development. This will facilitate the potential future provision of a local bus service through the subject development. The development's internal road layout permits a bus of the type typically used by Local Link services to follow a looped route through the development, servicing this bus stop.

5.2.5 LCC Point 6(a) – consultation with TII

"Consult Transport Infrastructure Ireland as development traffic will access on National Primary Road, N2 and Til are a stakeholder in assessing planning applications that access and/or are developed along national roads."

5.2.6 Response to LCC Point 6(a)

CS Consulting contacted Transport Infrastructure Ireland (TII) by email on the 17th of May 2021, inviting comment on the proposed development. TII responded with a request that all prescribed details relating to the SHD be provided as part of the statutory consultation process (i.e. once the SHD application has been lodged). CS Consulting replied to clarify that the application has not yet been submitted and to request the opportunity to consult with TII prior to lodgement. No subsequent response was received from TII.

Please refer to Appendix C for a record of email correspondence between CS Consulting and TII Land Use Planning.

5.2.7 LCC Point 6(b) – trip generation calculations

"Clarify anomaly in Section 4.0 [of the submitted Traffic Impact Assessment] – Traffic Generation & Trip Distribution where Predicted

Subject Development Residential Trips have been incorrectly factored up from Cherrybrook Estate figures and correct inaccuracies in Section 4.1.2 in respect of factoring up of Non Residential Trip Generation from Table 4 to Table 5."

5.2.8 Response to LCC Point 6(b)

The subject development trip generation calculations presented in the Traffic and Transport Assessment submitted under separate cover within this planning application have been revised and corrected.

5.2.9 LCC Point 6(c) – development impact on N2/R170 junction

"Address the conflict between the assertion in Section 5.3 of the TIA where it is stated that the addition of vehicular traffic generated by the proposed development will result in only minor increases in vehicle queues and delays to the N2/Bridge StreetWilliam Street/John Street junction and with the assessment results presented in Table 16 of the TIA, whereby the Degree of Saturation, Mean Maximum Queue (PCU) and Mean Delay per PCU (secs) increase considerably for each of the assessment years when comparing Without Subject Development against With Subject Development."

5.2.10 Response to LCC Point 6(c)

As outlined in the Traffic and Transport Assessment submitted under separate cover within this planning application, it is acknowledged that vehicular traffic generated by the subject development shall result in an adverse impact upon the operation of the existing N2/R170 junction. It is however submitted that these effects are disproportionate to the actual trip generation of the subject development, and arise largely due to the junction's existing operational condition, the influence of background traffic growth, and the addition of traffic generated by other nearby committed developments.

5.2.11 LCC Point 6(d) – external infrastructure objectives

"Note that an assumption on the delivery of the proposed by pass to the south east of Ardee linking the N2 to the south of Ardee with the R170 and N52 to the east and how its delivery would significantly reduce traffic loading at the N2/Bridge Street/William Street/John Street junction in future years, referenced in Section 5.3, cannot form part of the TIA as no commitment for implementation of this major capital project has been given at this time."

5.2.12 Response to LCC Point 6(d)

The proposed bypass to the south-east of Ardee has been described as an infrastructure development objective in this report purely for the purpose of providing context to the subject development. No assumptions have been made regarding funding or delivery of this objective, and it has not been factored in to the trip distribution or junction modelling conducted as part of this assessment. Additional clarification to this effect has been provided in the Traffic and Transport Assessment submitted under separate cover within this planning application

5.2.13 LCC Point 6(e) – access junction modelling

"Demonstrate how the results presented in Table 18 for instance, the Mean Maximum Queue (PCU) for the Development Access Arm in the AM Peak is 1 at the junction of the N2 with the newly constructed access permitted under ref 10/174, have been arrived at. This appears very low when compared to other residential developments of similar size and scale."

5.2.14 <u>Response to LCC Point 6(e)</u>

The subject development trip generation calculations presented in the Traffic and Transport Assessment submitted under separate cover within this planning application have been revised and corrected, and junction modelling conducted anew with the resulting traffic flows. The updated modelling results for the Bridgegate access junction on the N2 do show higher mean maximum queue and mean vehicle delay values than those previously presented; this junction is however shown to operate within effective capacity on all approaches past the design year 2039.

5.2.15 <u>LCC Point 6(f) – car and cycle parking at public park</u>

"Consider provision for car parking and cycle parking at the Public Park & Landscape Amenity Space."

5.2.16 <u>Response to LCC Point 6(f)</u>

Increased quanta of car and bicycle parking have been provided to serve users of the development's public open space, as described in the Traffic and Transport Assessment submitted under separate cover within this planning application

5.2.17 <u>LCC Point 6(g) – connector road alignment</u>

"Address the anomaly where the indicative alignment of the proposed connector road in Figure 10 of the TIA shows Bridgegate Drive as forming part of the connector road and Section 7.3 make reference to future east-west connector road and how Bridgegate Avenue will receive cycle facilities in the event that it will form part of the connector road."

5.2.18 Response to LCC Point 6(g)

Two indicative potential alignments have been identified for the provision of a future East-West connector road through the subject development site and the adjacent permitted development, one of which incorporates Bridgegate Avenue and the other Bridgegate Drive. Within the subject development, Bridgegate Avenue is continued up to the site's eastern boundary, while a road reservation corridor has been maintained through the northernmost section of the public park area to permit the future extension of Bridgegate Drive if required. This has now been clarified in sub-sections 4.3 and 4.4 of this report.

5.2.19 LCC Point 6(h) – connector road alignment

"Clearly identify the route of the connector route to Jumping Church Road (Black Road) and develop in a masterplan approach this link which will involve engagement with third parties. The junction assessments within the applicant's TIA documents clearly the adverse affect the additional traffic generated by the development will have on the surrounding road network, particularly the N2/Bridge Street/William Street/John Street junction. Louth County Council considers that the construction of the east-west connector road to be essential for the proper planning and sustainable development of these residential zoned lands and a prerequisite in the consideration of this planning application. The projected line of the connector road is shown as traversing the Public Park & Landscape Amenity Space, albeit the developer does not have control over a portion of land located between the subject site and the Jumping Church Road."

5.2.20 Response to LCC Point 6(h)

As noted in sub-section 4.4, the lands separating the subject development site from Jumping Church Road (Black Road) lie outside the control of the applicant and are zoned 'Strategic Land Reserve' under the *Louth County Development Plan 2021–2027*. It is therefore not possible to deliver the entirety of this connector road objective as part of the subject development, or to commit to a precise alignment for the connector road beyond the applicant's lands.

A reservation corridor for such a route has however been maintained through the northern part of the subject development, and the development's internal road network design also allows for the extension of Bridgegate Avenue, located to the south of Mulladrillen Hill, if required to form part of such a connector route. This approach is informed by the topography of the subject site and adjacent lands, and provides flexibility for the future completion of the connector road.

5.2.21 LCC Point 8(a) – internal crossroads

"Introduce staggered junctions in the layout where crossroads junctions are proposed to avoid driver indecisiveness and confusion regarding right of way."

5.2.22 Response to LCC Point 8(a)

The internal road network of the subject development has undergone independent review as part of a Quality Audit, as described in sub-section 4.6 of this report, and design changes have been made in response. The Quality Audit did not however recommend the replacement of crossroads by staggered junctions.

5.2.23 LCC Point 8(b) – perpendicular parking

"Avoid perpendicular parking along opposite sides of the carriageways within the development and along straight sections of carriageway."

5.2.24 Response to LCC Point 8(b)

The internal road network of the subject development has undergone independent review as part of a Quality Audit, as described in sub-section 4.6 of this report, and design changes have been made in response. The Quality Audit did not however recommend the omission of any perpendicular parking spaces.

5.2.25 LCC Point 8(c) – car and refuse vehicle movements

"Provide an Autotrack analysis of a scenario, whereby simultaneous traffic movements involving a car and refuse vehicle are negotiating at all internal junctions. The kerb radiuses within the development appear tight."

5.2.26 Response to LCC Point 8(c)

CS Consulting drawing ARDEE-CSC-00-XX-DR-C-1015, showing the Autotrack swept path analysis of refuse vehicle movements within the development, has been amended to illustrate the ability of a car and a refuse vehicle to negotiate internal junctions simultaneously.

5.2.27 LCC Point 8(d) – link to existing Cherrybrook development

"Submitted drawings illustrates Road 3 having a direct link with an existing road within the adjacent Cherrywood development and the overland flood Route map shows flood paths traversing the site boundary. Please note that the roads pertaining to Cherrywood are within the ownership of a private entity and as such consent is required in this regard."

5.2.28 Response to LCC Point 8(d)

It is not intended to provide a direct link from the outset between the subject development and the existing Cherrybrook estate to the west. It is acknowledged that the Cherrybrook estate has not yet been taken in charge by Louth County Council. The subject development's internal road network and pedestrian/cyclist infrastructure shall however extend up to the site's western boundary with Cherrybrook, so as to facilitate a potential vehicular and/or pedestrian link between the two developments, should this become possible in the future.

Appendix A

DMURS Statement

CS CONSULTING

GROUP

Strategic Housing Unit

An Bord Pleanála

64 Marlborough St

Rotunda

Dublin 1

Sent By: Email

Job Ref: R086

A-NB

Date: 2-Nov-21

RE: **Residential Development, Mulladrillen, Rathgory, Ardee, Co. Louth**

DMURS Statement of Consistency to An Bord Pleanála

Cronin & Sutton Consulting Engineers (CS Consulting) have been commissioned by The Ardee Partnership to prepare a DMURS Statement of Consistency for a proposed 272-unit residential development at Bridgegate, Mulladrillen and Rathgory, Drogheda Road, Ardee, Co. Louth.

Traffic & Transportation

The proposed scheme is designed in compliance with the following:

- Design Manual for Urban Roads and Streets (2019)
- Louth County Development Plan 2021–2027
- National Cycle Manual (2011)
- Greater Dublin Area Cycle Network Plan

Development Access

Vehicular and pedestrian access to the development shall be via the internal roads of the adjacent permitted development to the northwest (planning ref. 10/174), which is currently under construction. The adjacent development in turn has vehicular and pedestrian access onto the N2 (Drogheda Road) to the west via a recently constructed simple priority junction.

A pedestrian/cyclist-only route is provided to the northern perimeter of the site at the public park, with an open boundary provided at this location.

The subject development's internal layout also makes provision for a potential future vehicular and pedestrian link via the neighbouring Cherrybrook residential estate, to the west of the site. In addition to this, the internal road network of the subject development allows for potential future road connections to the lands to the east and to the south, if developed.

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."*

The internal road layout of the proposed development comprises a network of local streets, connecting to a link street that traverses the development site along an east-west axis, as well as to a link street that runs through the adjacent permitted development (ref. 10/174 – currently under construction). This link street within the adjacent development in turn connects to the access junction on the N2 Drogheda Road, to the west, which constitutes the vehicular access to both developments from the public road network.

All internal roads have a carriageway width of 5.5m (with the exception of Bridgegate Avenue, which has a carriageway width of 6m), comprising one traffic lane in either direction, and generally shall be flanked to either side by a 2m wide pedestrian footpath. In accordance with DMURS, kerb radii at internal junctions have generally been restricted to a maximum of 6m. 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. Turning heads are provided at cul-de-sacs.

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. Cyclist and pedestrian access to the development is provided both from the west (via the adjacent Bridgegate development) and at the subject site's northern boundary at the public park. Provision has also been made for a potential future pedestrian link via the neighbouring Cherrybrook residential estate to the west of the site.

Dated design elements that reflect poor design standards (such as wide roads, long straights or sweeping curves, unnecessarily large junction corner radii, and large junction visibility splays) are omitted to the extent possible within the site layout, to reduce vehicle speeds within the development.

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 short walking routes to shops, public transport, etc.;
- to create a safe, secure, and pleasant environment for people, particularly vulnerable road users (VRUs) such as children.

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

- designated and marked pedestrian crossing points;
- smaller corner radii;
- the arrangement of on-street parking;
- horizontal alignment constraints to restrict vehicle speeds;
- vertical deflections (raised tables) at internal junctions;
- implementation of raised local streets;

All road widths, corner radii, pedestrian and cyclist facilities, kerbs, boundary treatments, and landscaping have been designed in accordance with the *Design Manual for Urban Roads and Streets* (DMURS).

Niall Barrett
Director
Chartered Civil & Traffic Engineer
B.Eng (Hons), CEng, M.I.E.I, Cert Health & Safety, Cert RSA
for Cronin & Sutton Consulting

Appendix B

Independent Quality Audit

CS CONSULTING

GROUP

Cronin & Sutton Consulting

Proposed Residential Development, Ardee, Co. Louth

Quality Audit

P·M·C·E

July 2021

Cronin & Sutton Consulting

Proposed Residential Development, Ardee, Co. Louth

Quality Audit

Document Ref:	P21-042-UQA-GEN-RP-001

Rev	Prepared By	Reviewed By	Approved By	Issue Date	Reason for Revision
3.0	AP	TAG	TAG	20th July 2021	Revised Final
2.0	AP	TAG	TAG	4th May 2021	Final
1.0	AP	TAG	TAG	12th April 2021	Draft Report

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1 Introduction

1.1 General

This report was prepared in response to a request from Mr Niall Barrett of Cronin & Sutton Consulting to provide a Quality Audit of a new residential development in Ardee, Co. Louth. The Quality Audit shall consider the following elements:

- Road Safety Audit
- Access Audit
- Walking Audit
- Non-Motorised User Audit
- Cycle Audit

The Quality Audit followed a site visit on the 30th March 2021. At the time of the site visit the weather conditions were dry and the road surface was dry. Traffic volumes during the site visit were considered to be moderate, pedestrian and cyclist volumes were considered to be low and traffic speeds were considered to be generally within the posted speed limit.

This report contains three primary sections, with each section focussing on different implications to the users of the scheme. The Road Safety Audit identifies safety implications of the scheme, whilst the Accessibility & Walking Audit focusses more on accessibility implications for vehicles and pedestrians associated with the development. Finally, the Non-Motorised User and Cycle Audit predominantly focusses on cycle use, as pedestrians have been discussed as part of the accessibility and walking audit, and there are currently no requirements for equestrians as part of this development.

2 Background

The proposed development is to be located on a greenfield site in Ardee, Co. Louth, and will be accessed via an earlier development phase (currently under construction) that includes an access road extending west to form a T-Junction with the N2 national road network. The development can also be accessed via Moorehall Close, which is an existing residential development located to the west of the proposed development, which also links to the N2 national road network (see Figure **2.1**).

The development will consist of 226 residential units (all with on-curtilage parking), a Creche building and associated parking, public open spaces (located centrally within the residential development, and to the north of the development), a 10m riparian corridor, internal streets, footways, pedestrian crossing points, and traffic calming.

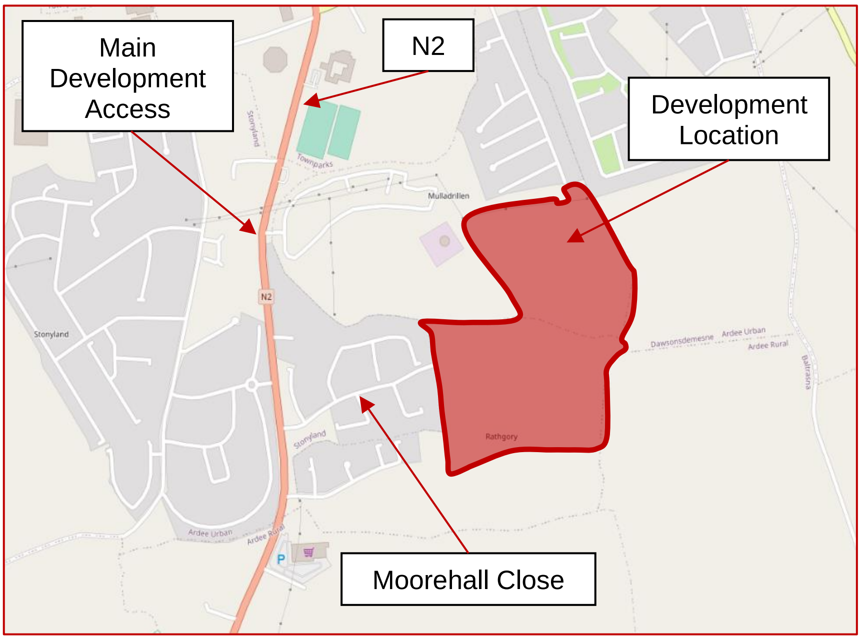


Figure 2.1: Site Location Plan

3 Road Safety Audit

3.1 Introduction

This Road Safety Audit has been carried out in accordance with the requirements of GE-STY-01024 (previously NRA HD19/15) dated December 2017, contained on the Transport Infrastructure Ireland (TII) Publication's website.

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

Mr. Aly Gleeson
(MBA, MEng, BSc, RSACert, CEng, FIEI)
Road Safety Audit Team Leader

Mr. Antonios Papadakis
(MSc, MIEI)
Road Safety Audit Team Member

The Road Safety Audit took place during April 2021 and comprised an examination of the documents provided by the designers (see section 3.7). A site visit was undertaken on the 30th March 2021. Traffic volumes were considered low to moderate, and speeds were considered low, as were pedestrian and cycle numbers.

Where problems are relevant to specific locations these are shown on drawing extracts within the main body of the report. Where problems are general to the proposals sample drawing extracts are within the main body of the report were considered necessary. Road Safety problem locations are also shown in Appendix A.

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.

3.2 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 3.4: -

- Vehicle swept paths
- Drainage
- Public Lighting
- Visibility splays
- Collision data

3.3 Collision History

The Road Safety Authority website (www.rsa.ie) was consulted to identify historical collisions in the vicinity of the proposed scheme. The website includes summary information on recorded collision occurrence for the period 2005 to 2016 (see Figure 3-1).

One Minor Injury collision was recorded on the N2 to the west of the proposed scheme in the vicinity of the main development access in 2010 involving a car, resulting in one Minor Injury, and which occurred on a Sunday between the hours of 10:00 and 16:00.

The collision record does not indicate a collision cluster or pattern near the proposed Works.

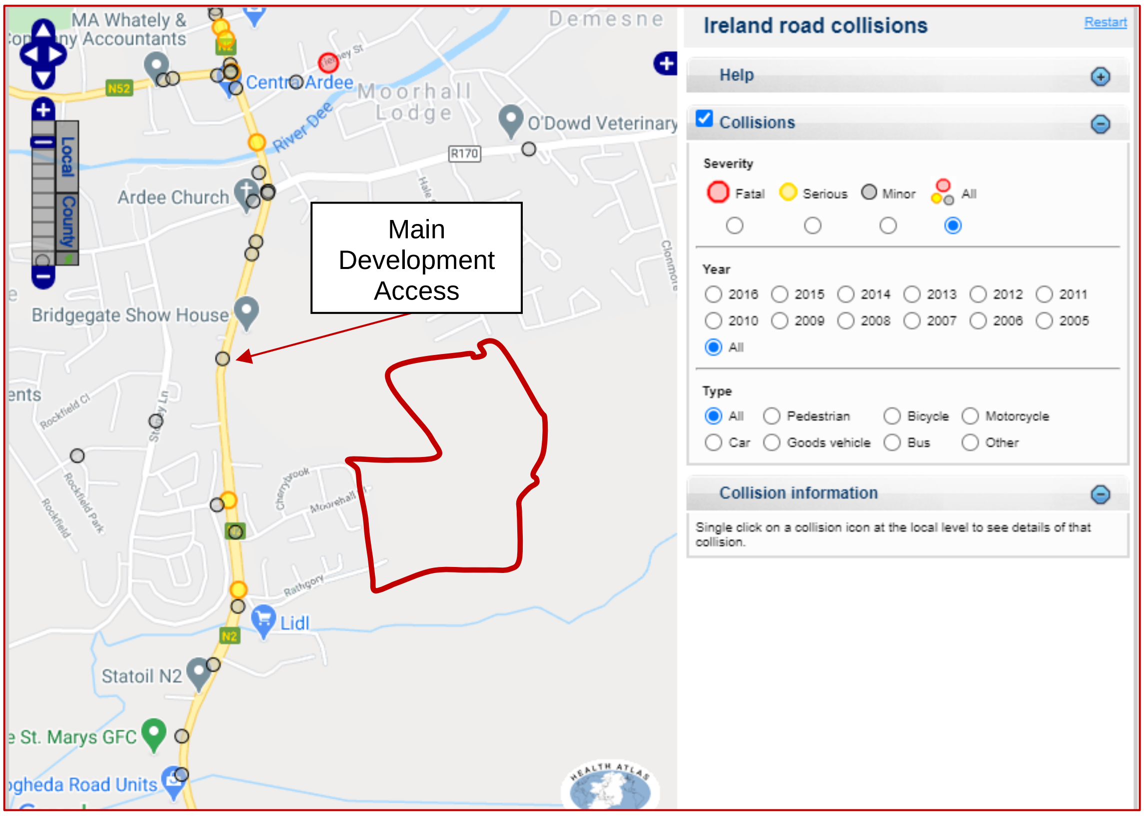


Figure 3-1: Historical Collisions in the Vicinity of the Proposed Development (Source www.RSA.ie)

3.4 Road Safety Audit

3.4.1 Problem

Drawing: *General Problem*

Summary: *No information regarding dropped kerbs indicated at pedestrian crossings. A failure to provide dropped kerbs may lead to pedestrian slips, trips and falls.*

Information regarding dropped kerbs has not been provided throughout the scheme. A failure to provide dropped kerbs along pedestrian desire lines could result in pedestrians, particularly mobility impaired pedestrians, being unable to safely and independently travel through the development, leading to slips, trips and falls.

Recommendation

Dropped kerbs should be provided at pedestrian crossing points, including tactile paving, ensuring the upstand is no greater than 6mm.

3.4.2 Problem

Drawing: *General Problem*

Summary: *Lighting provision has not been indicated within the development. The absence of lighting within the development may increase the risk of dark spots within the development, and possible collisions between vehicles and VRU's.*

Information regarding the public lighting provision within the proposed development has not been provided to the Audit Team. It is therefore unclear if the development will be sufficiently lit. A failure to sufficiently light the development may lead to an increased risk of collisions between vehicles and Vulnerable Road Users (VRU's).

Recommendation

Ensure sufficient lighting is provided within the proposed development.

3.4.3 Problem

Drawing: *ARDEE-CSC-00-XX-DR-C-1004*

Summary: *The vertical and horizontal alignment may lead to excessive speeds and possible overshoot collisions at junctions.*

The combination of straight and relatively steep alignments within the development may encourage high vehicle speeds and possible overshoot collisions at junctions.

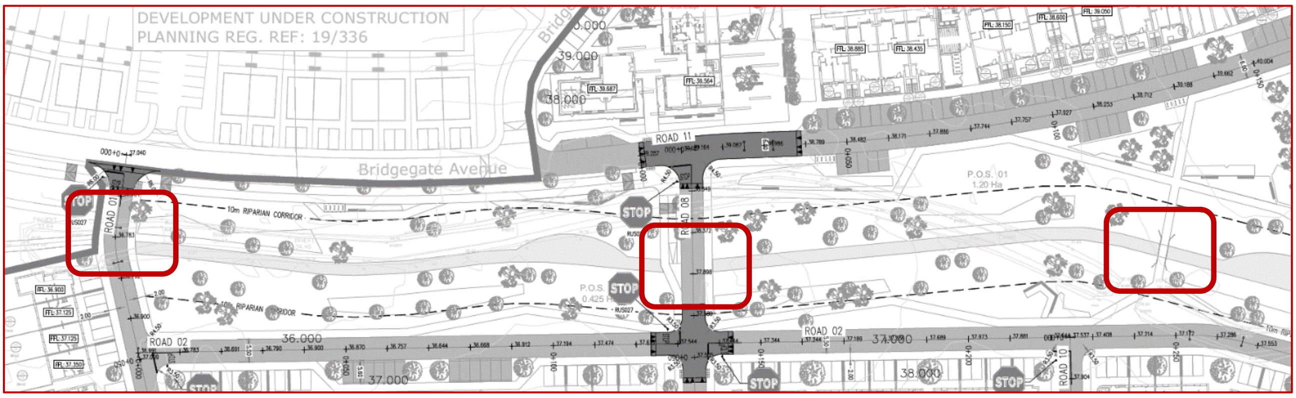
Recommendation

Traffic calming measures should be provided to passively control vehicle speeds at key junctions within the development.

3.4.4 Problem

Drawing: *ARDEE-CSC-00-XX-DR-C-1004*

Summary: *Edge protection has not been indicated at the three stream crossings. The absence of edge protection may increase the risk of road users falling from height, leading to personal injury.*



The development crosses the riparian corridor at three locations (vehicle crossings on Road 1 and Road 8, and a pedestrian crossing opposite Road 10). At this early stage in the design process, edge protection has not been indicated at these locations. Insufficient edge protection at height hazards could increase the risk of road users falling from height, leading to personal injury, and possibly drowning when near a watercourse.

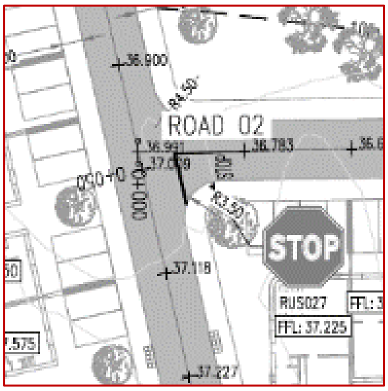
Recommendation

Provide edge protection at locations where heigh hazards exist.

3.4.5 Problem

Drawing: *ARDEE-CSC-00-XX-DR-C-1004*

Summary: *Proposed trees may reduce or block visibility at junctions and pedestrian crossings within the development, leading to side-on or vehicle/pedestrian collisions.*



It is unclear if trees within the verges throughout the scheme will reduce or obstruct visibility for drivers exiting junctions and driveways. Should the location of trees reduce or block visibility, there is a risk of drivers exiting side roads and driveways when it is unsafe to do so ahead of oncoming vehicles, leading to side-on collisions. Additionally, the location of trees may block visibility to pedestrians attempting to cross which may result in a vehicle/pedestrian collisions.

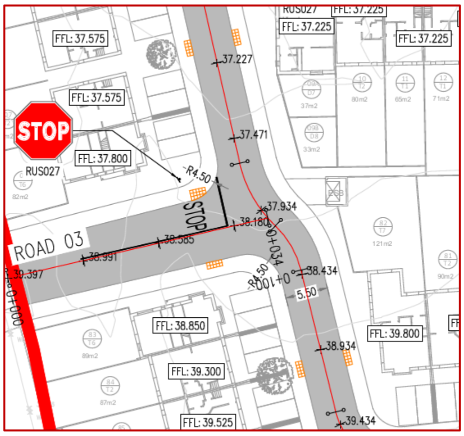
Recommendation

Ensure sufficient visibility is available at all junctions, driveways, and pedestrian crossings within the proposed development.

3.4.6 Problem

Drawing: *ARDEE-CSC-00-XX-DR-C-1004*

Summary: *Abrupt changes in alignment at the junction of Roads 01 & 03 may lead to vehicles entering the opposing lane, and possible head-on collisions.*



A short reverse curve has been indicated at the junction of Road 01 & 03. Drivers traveling in a north/south direction may be unaware of the alignment, and fail to adjust their speed accordingly, leading to poor lane discipline and possible head-on collisions. This problem may be exacerbated by the vertical alignment, which is relatively steep in this location.

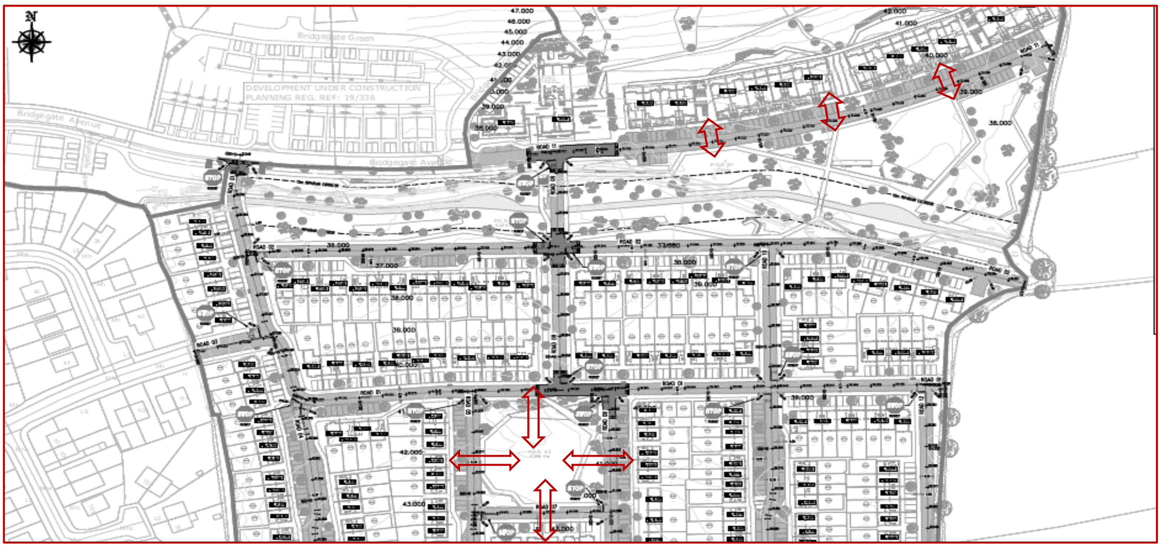
Recommendation

The reverse curve should be removed from the horizontal alignment.

3.4.7 Problem

Drawing: *ARDEE-CSC-00-XX-DR-C-1004*

Summary: *Failure to provide VRU facilities on all pedestrian desire lines may lead to slips, trips and falls.*



The development proposes uncontrolled pedestrian crossing points (i.e. tactile paving) in certain locations, but not all pedestrian desire lines have been accommodated within the development. No facilities have been provided between the central public open space and the surrounding residential development, or between the public open space north and south of Bridgegate Avenue, or at the visitor parking on Bridgegate Avenue. Failure to provide an appropriate facility for non-motorised users at these expected desire line could result in unsafe crossings of the carriageway, leading to slips, trips, and falls.

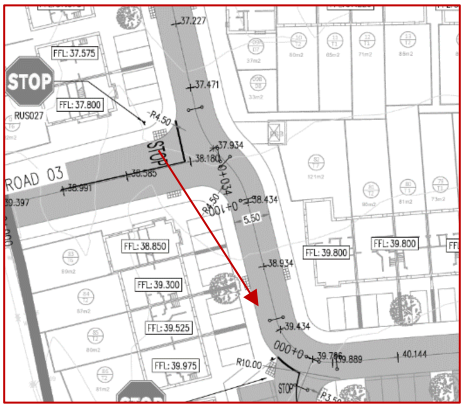
Recommendation

A thorough review of likely pedestrian desire lines should be undertaken, and tactile paving/dropped kerbs provided to facilitate safe VRU movement.

3.4.8 Problem

Drawing: *ARDEE-CSC-00-XX-DR-C-1004*

Summary: *Insufficient visibility at the junction between Roads 01 and 03 may lead to side-on collisions.*



It is unclear if sufficient visibility will be available for drivers exiting Road 03, as the alignment of the road leads to on-curtilage parking blocking visibility to the south. This may result in drivers entering Road 01 when it is unsafe to do so, leading to side-on collisions.

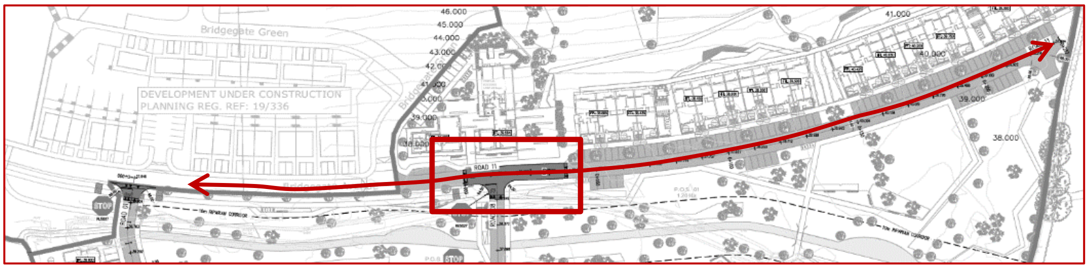
Recommendation

The reverse curve should be removed from the horizontal alignment, ensuring visibility out of Road 03 is sufficient. See Problem 3.4.6.

3.4.9 Problem

Drawing: *ARDEE-CSC-00-XX-DR-C-1004*

Summary: *The alignment of Bridgegate Avenue includes a subtle horizontal deflection that may lead to poor lane discipline and head-on collisions.*



The alignment of Bridgegate Avenue includes a subtle, and localised, horizontal deflection near its junction with Road 08, which may lead to inattentive drivers unintentionally crossing the centre line and striking oncoming vehicles.

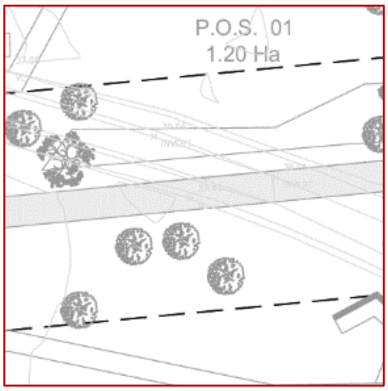
Recommendation

The localised deflection should be removed, ensuring a smooth horizontal alignment is provided on Bridgegate Avenue.

3.4.10 Problem

Drawing: *ARDEE-CSC-00-XX-DR-C-1004*

Summary: *Access to the stream within the riparian corridor may lead to pedestrians, particularly children, falling into the watercourse, leading to drowning.*



The depth of water within the riparian corridor is unclear, but its proximity to pedestrian routes may increase the risk of pedestrians, particularly children, from interacting with the watercourse. This may increase the risk of pedestrians falling into the watercourse and drowning.

Recommendation

Ensure buoyancy aids are provided along the length of the watercourse.

3.5 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.

The Road Safety Audit Team has not been involved in the design of this scheme.

ROAD SAFETY AUDIT TEAM LEADER

Aly Gleeson Signed: ______________________

Dated: 20th July 2021

ROAD SAFETY AUDIT TEAM MEMBER

Antonios Papadakis Signed: ______________________

Dated: 20th July 2021

3.6 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	☐	☑
2.	Departures from Standard	☐	☑
3.	Scheme Drawings	☑	☐
4.	Scheme Details such as signs schedules, traffic signal staging	☐	☑
5.	Collision data for existing roads affected by scheme	☐	☑
6.	Traffic surveys	☐	☑
7.	Previous Road Safety Audit Reports and Designer's Responses/Feedback Form	☐	☑
8.	Previous Exception Reports	☐	☑
9.	Start date for construction and expected opening date	☐	☑
10.	Any elements to be excluded from audit	☐	☑

Any other information? ☐ Yes ☑ No

(if 'Yes', describe below)

3.7 Documents Submitted to the Road Safety Audit Team

DOCUMENT/DRAWING TITLE	DOCUMENT/DRAWING NO.	REVISION
Road Layout	ARDEE-CSC-00-XX-DR-C-1004	-
Proposed Site Layout	ARDEE-CSC-00-XX-DR-C-1001	-

3.8 Road Safety Audit Feedback Form

Scheme: Proposed Residential Development, Ardee, Co. Louth

Route No.: N2

Audit Stage: Quality Audit **Date Audit Completed:** 20th July 2021

	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)**
3.4.1	Yes	Yes		
3.4.2	Yes	Yes		
3.4.3	Yes	Yes		
3.4.4	Yes	Yes		
3.4.5	Yes	Yes		
3.4.6	Yes	Yes		
3.4.7	Yes	Yes		
3.4.8	Yes	Yes		
3.4.9	Yes	Yes		
3.4.10	No	No	Water depth in stream will be approximately 220 mm under typical conditions (1 in 5 year rainfall event) and a maximum of 430 mm after a 1 in 100 year event.	Yes

Signed: ____________ Designer **Date** 19.07.2021

Signed: ____________ Audit Team Leader **Date** 20th July 2021

Signed: ____________ Employer **Date** 30 July 21

4 Accessibility & Walkability Audit

4.1 Introduction

The proposed development is to be located on a green field site, east of the N2 national road in Ardee, Co. Louth. The development will consist of 226 residential units (all with on-curtilage parking), a Creche building and associated parking, public open spaces (located centrally within the residential development, and to the north of the development), a 10m riparian corridor, internal streets, footways, pedestrian crossing points, and traffic calming.

The development shall include an internal network of footways and crossing points to support pedestrian movement to Ardee town center, which can be accessed by the N2 via the proposed access on Bridgegate Avenue and Moorehall Close, or by the large public open space to the north of the development toward Hale Street, which leads to the R170.

The N2 and the R170 include footways and public lighting within the vicinity of the development's accesses, which provides continuous infrastructure for residents of the new development wishing to access amenities within Ardee town.

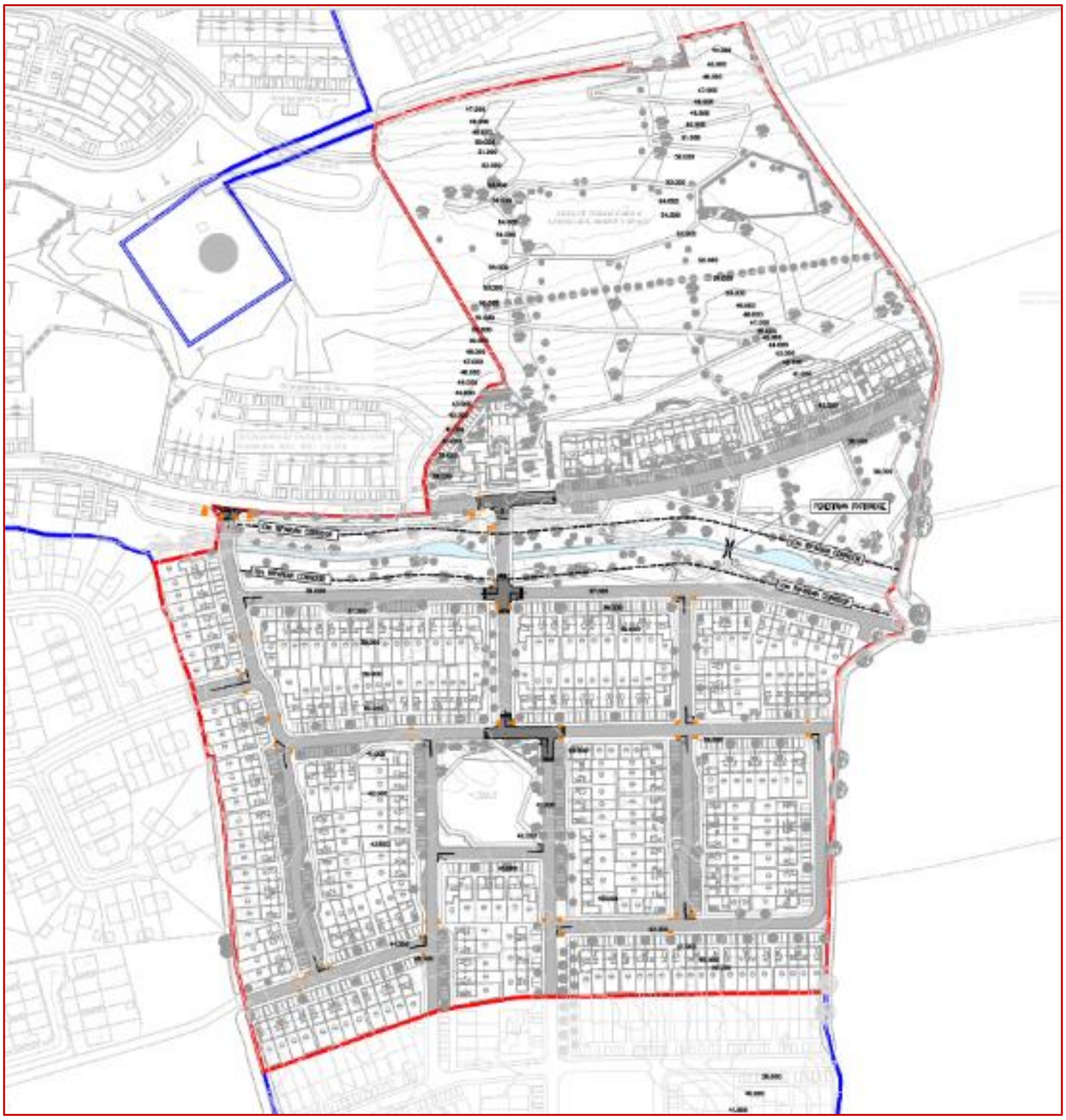


FIGURE 4.1: PLAN OF PROPOSED DEVELOPMENT

4.1.1 Access to local bus network

Bus stops are located on the N2 near the development's Moorehall Close access. These bus stops serve the Transport for Ireland Route 980 and Route 167 local bus services. Route 980 travels from Trinity College in Dublin City Centre to Carrickmacross and takes approximately 1hr and 29 minutes to reach Dublin from Ardee, and 22 minutes to reach Carrickmacross. Route 167 travels from Dundalk to Ardee and takes approximately 20min.

TABLE 4-1 BUS ROUTE NEAR DEVELOPMENT

Bus Stop (Name)	Bus Stop (Number)	Proximity to the development	Bus Route	Travelling between
Sliabh Breagh	109591	460m	980	Carrickmacross- Trinity College (Dublin)
Sliabh Breagh	109591	460m	167	Dundalk-Louth-Ardee

4.1.2 Local Amenities

Ardee town centre is located approximately 1km from the proposed development, and includes a number of amenities, as detailed in Table 4-2.

TABLE 4-2: LOCAL AMENITIES CLOSE TO THE PROPOSED DEVELOPMENT

Amenity	Distance (approx.)	Pedestrian Journey Time (approx.)	Direction from Development
Lidl Supermarket	450m	6min	Southwest
Ardee Church	763m	12min	Northwest
Pre-school toddler playgroup	250m	2min	West
Toddlers Hill Creche and Montessori	575m	9min	Northeast
Montessori National School of Ardee	695m	12min	Northwest
Square Utd AFC Boys School field	670m	11min	Northwest
Circle K Service Station	750m	9min	Northwest
St Brigid's Hospital	1.50km	27min	Northwest
Apache pizza Ardee	1.8km	23min	Northwest

Amenity	Distance (approx.)	Pedestrian Journey Time (approx.)	Direction from Development
Fast Food Takeaway	900m	14min	Northwest
Restaurants	850m	14min	Northwest
Hair Salon	750m	10min	Northwest
Ardee Community Development Company	2.2km	26min	Northeast

4.2 Building Accesses

No accessibility issues have been identified relating to Building Accesses.

4.3 Pedestrian Facilities

Issues relating to the Pedestrian Crossing Facilities within the proposed development have been discussed in Section 3.4.1 and 3.4.7.

4.3.1 Issue

Seating is not indicated within the Public Park and Landscape Amenity Space. Given the length of travel and the local topography, mobility impaired pedestrians may find it difficult to travel unassisted through the Public Park and Landscape Amenity Space.

Recommendation

Provide benching or seating within the Public Park and Landscape Amenity Space, located in manner that provides timely rest areas for pedestrians.

4.4 Target Groups

No accessibility issues have been identified relating to Target Groups.

4.5 Subways

No accessibility issues have been identified relating to Subways.

4.6 Junctions

Issues relating to the lighting within the proposed development have been discussed in Section 3.4.3, 3.4.5, 3.4.6, 3.4.8 and 3.4.9.

4.7 Signage

4.7.1 Issue

The number of routes within the Public Park and Landscape Amenity Space may lead to VRU confusion or disorientation, resulting in longer and more difficult journey times for pedestrians, particularly for mobility impaired pedestrians.

Recommendation

Ensure robust consideration is given to wayfinding signage within the development and the Public Park and Landscape Amenity Space.

4.8 Public Transport

No accessibility issues have been identified relating to Public Transport.

4.9 Lighting

Issues relating to the lighting within the proposed development have been discussed in Section 3.4.2.

4.10 Visibility

Issues relating to the visibility within the proposed development have been discussed in Section 3.4.5 and 3.4.8.

4.11 Waste Facilities within the Development

No accessibility issues have been identified relating to Waste facilities within the development.

4.12 Carriageway Markings for Pedestrians

No accessibility issues have been identified relating to carriageway markings for pedestrians.

4.13 Parking

No accessibility issues have been identified relating to Parking.

5 Non-motorised User and Cycle Audit

5.1 External Cycle Provision

No accessibility issues have been identified relating to External Cycle Provision.

5.2 Internal Cycle Provision

No accessibility issues have been identified relating to Internal Cycle Provision.

5.3 Quality Audit Action Plan

Issue	Situation	Action/Adjustment	Priority	Cost
4.3	No information regarding dropped kerbs indicated at pedestrian crossings. A failure to provide dropped kerbs may lead to pedestrian slips, trips and falls.	Dropped kerbs should be provided at pedestrian crossing points, including tactile paving, ensuring the upstand is no greater than 6mm.	1	A
4.3	Failure to provide VRU facilities on all pedestrian desire lines may lead to slips, trips and falls.	A thorough review of likely pedestrian desire lines should be undertaken, and tactile paving/dropped kerbs provided to facilitate safe VRU movement.	1	B
4.3.1	Seating is not indicated within the Public Park and Landscape Amenity Space. Given the length of travel and the local topography, mobility impaired pedestrians may find it difficult to travel unassisted through the Public Park and Landscape Amenity Space.	Provide benching or seating within the Public Park and Landscape Amenity Space, located in manner that provides timely rest areas for pedestrians.	2	C
4.6	The vertical and horizontal alignment may lead to excessive speeds and possible overshoot collisions at junctions.	Traffic calming measures should be provided to passively control vehicle speeds at key junctions within the development.	1	C
4.6	Proposed trees may reduce or block visibility at junctions and pedestrian crossings within the development, leading to side-on or vehicle/pedestrian collisions.	Ensure sufficient visibility is available at all junctions, driveways, and pedestrian crossings within the proposed development.	1	A
4.6	Abrupt changes in alignment at the junction of Roads 01 & 03 may lead to vehicles entering the opposing lane, and possible head-on collisions.	The reverse curve should be removed from the horizontal alignment.	1	A
4.6	Insufficient visibility at the junction between Road 01 and 03 may lead to side-on collisions.	The reverse curve should be removed from the horizontal alignment, ensuring visibility out of Road 03 is sufficient. See Problem 3.4.6.	1	A
4.6	The alignment of Bridgegate Avenue includes a subtle horizontal deflection that may lead to poor lane discipline and head-on collisions.	The localised deflection should be removed, ensuring a smooth horizontal alignment is provided on Bridgegate Avenue.	1	A

Issue	Situation	Action/Adjustment	Priority	Cost
4.7.1	The number of routes within the Public Park and Landscape Amenity Space may lead to VRU confusion or disorientation, resulting in longer and more difficult journey times for pedestrians, particularly for mobility impaired pedestrians.	Ensure robust consideration is given to wayfinding signage within the development and the Public Park and Landscape Amenity Space.	2	B
4.9	Lighting provision has not been indicated within the development. The absence of lighting within the development may increase the risk of dark spots within the development, and possible collisions between vehicles and VRU's.	Ensure sufficient lighting is provided within the proposed development.	1	C

Priority

1 – Immediate works required;
2 – Essential works required within 1 year;
3 - Desirable works required within 2 years;
4 – Long term works;
5 - Specific needs (e.g. pedestrian desire line not catered for)

Cost (Indicative cost only)

A – Up to €2,500
B – From €2,500 up to €10,000
C - Between €10,000 up to €20,000

6 Appendix A - Road Safety Audit Problem Locations

Appendix C

Correspondence with TII

CS CONSULTING

GROUP

Gordon Finn

From: Gordon Finn
Sent: Tuesday 25 May 2021 10:23
To: Landuse Planning
Cc: Owen Sullivan; Niall Barrett
Subject: RE: R086 Ardee SHD - access via N2

Dear Ms Dineen,

The planning application for a proposed 278-unit Strategic Housing Development at Bridgegate, Ardee, Co. Louth, has not been lodged for planning yet.

We have only by way of consultation with the Local Authority been advised to contact you before we lodge the planning application.

We understand full planning application details (including web portal address which includes application form and entire schedule of drawings/reports for the proposed SHD) will be issued to TII as part of the statutory consultation process following lodgement. However, we have been asked by Louth County Council to speak to you before we lodge the application.

Can we consult with you before we submit our application on the above mentioned scheme?

Kind Regards,

Gordon Finn

From: Landuse Planning <LandUsePlanning@tii.ie>
Sent: Tuesday 18 May 2021 08:41
To: Gordon Finn <gordon.finn@csconsulting.ie>
Cc: Owen Sullivan <owen.sullivan@csconsulting.ie>; Niall Barrett <niall.barrett@csconsulting.ie>
Subject: RE: R086 Ardee SHD - access via N2

Dear Mr. Finn,

TII is a statutory consultee and as such must be consulted as per prescribed process with respect to SHD applications.

Please be advised that the details you have furnished TII with are insufficient and do not meet prescribed requirements.

It is not clear if you have, at this juncture, lodged the SHD application.

Please furnish TII with the prescribed details, full planning application details including web portal address which includes application form and entire schedule of drawings/reports for the proposed SHD along with a cover letter requiring TII's observation as part of the statutory consultation process.

Kind regards,

Aisling Dineen.
Land Use Planner, TII.

From: Gordon Finn <gordon.finn@csconsulting.ie>
Sent: Monday 17 May 2021 11:00
To: Landuse Planning <LandUsePlanning@tii.ie>
Cc: Owen Sullivan <owen.sullivan@csconsulting.ie>; Niall Barrett <niall.barrett@csconsulting.ie>
Subject: R086 Ardee SHD - access via N2

CAUTION: This email originated from outside of TII. Do not click links or open attachments unless you recognise the sender and are sure that the content is safe.

Dear Sir/Madam,

We are civil engineering consultants for a proposed 278-unit Strategic Housing Development at Bridgegate, Ardee, Co. Louth, for which an application is shortly to be submitted to An Bord Pleanála. The subject development is to be accessed via the adjacent Bridgegate development (planning ref. 10/174), currently under construction, and its recently completed priority junction on the N2 Drogheda Road on the southern side of Ardee. A location map is attached for reference.
Our assessments indicate that the subject development shall result in a moderate impact on the operation of the existing Bridgegate access junction on the N2, and that this junction shall continue to operate within effective capacity past the year 2039.

In the course of the SHD application process, Louth County Council has requested that we consult TII in relation to the subject development's proposed vehicular access arrangements. While such consultation would in our experience typically be initiated via the Local Authority, Louth Co. Co. has advised us that this is not possible in this instance.
I am at your disposal to answer any queries you may have regarding these development proposals, and would welcome any comment that TII wishes to make in respect of these. Should TII have no particular observation to make on the subject development, a brief response to this effect would be most appreciated.

Sincerely,

Gordon Finn Roads & Traffic Engineer
BA, BAI (Hons), MAI (St), MIEI

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