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Adamstown Boulevard - Phase 1

Road Design Report

Adamstown Station & Boulevard Ltd

Spring 2022

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This document has 30 pages including the cover.

Document history

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
Rev 1.0	For External Review	PF	PF	PF	KB	06042022
Rev 1.0	For Planning	PF	PF	PF	NVB	25042022

Client signoff

Client	Adamstown Station & Boulevard Ltd
Project	Adamstown Boulevard - Phase 1
Job number	5150924
Client signature / date	

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1. Introduction and Background

This report details the design of the streets associated with Adamstown Boulevard Phase 1 development located in Adamstown Strategic Development Zone (SDZ).

This report deals with the following roads infrastructure elements associated with this development:

- Street Design Requirements;
- Pedestrian and Cyclist Facilities;
- Parking Provision facilities;
- Access Arrangement for Vehicles;
- Road Construction Details; and
- Traffic Signs & Road Markings.

The proposed design has been developed collaboratively with the wider Design Team as well as in close consultation with the Transport Department of South Dublin County Council. Relevant technical aspects of the street designs are incorporated on the street layout drawings and within this report.

1.1. Proposed Development Description

Phase 1 of the Adamstown Boulevard development seeks Permission for 257no. terraced and semi-detached housing units ranging from 2 to 3-storeys in height; open space is proposed including a Pocket Park, and also a Linear Park which stretches from Adamstown Way to Station Road; all associated ancillary site development and landscape works, including internal roads and services, ESB Sub-Stations, landscaping and boundary treatment works. Outline Permission is also being sought for 166no. apartment units in a block ranging from 6 to 9-storeys in height which will deliver a range of unit types. All on a site of c.9.76Ha (including lands for Outline Permission).

1.2. Principal Design Consideration

The design of the proposed development included within this planning application was prepared in the context of the following planning policy and design guidance documents:

- Adamstown Strategic Development Zone Planning Scheme 2014;
- South Dublin Development Plan 2016 – 2022;
- Adamstown Street Design Guide February 2010;
- Design Manual for Urban Roads and Streets (DMURS) 2013;
- Transport Infrastructure Ireland (TII)) Design Manual for Roads and Bridges (DMRB);
- National Cycle Manual (NCM) 2011;
- Traffic Signs Manual 2010; and
- Slow Zones Advice Note 2016.

2. Design Deliverables – Drawing Content

Table 2-1 below details the street design drawings submitted as part of this planning application. These drawings should be read in conjunction with all other architectural, landscape architectural and engineering drawings submitted as path of the planning application.

Drawings have a standardised title block for each series showing the drawings as presented below. Scales are shown within the title block and are in accordance with the Planning Guidelines.

Table 2-1 - Drawing Schedule

Drawing Number	Rev	Title of Drawing
5150924 / HTR / 10 / DR / 0000		Cover Sheet
5150924 / HTR / 10 / DR / 0001		Site Location Plan
5150924 / HTR / 10 / DR / 0100		Street Typology Key Plan
5150924 / HTR / 10 / DR / 0101		Street Typology Sheet 1 of 4
5150924 / HTR / 10 / DR / 0102		Street Typology Sheet 2 of 4
5150924 / HTR / 10 / DR / 0103		Street Typology Sheet 3 of 4
5150924 / HTR / 10 / DR / 0104		Street Typology Sheet 4 of 4
5150924 / HTR / 10 / DR / 0105		Road Layout key Plan
5150924 / HTR / 10 / DR / 0106		Road Layout Sheet 1 of 4
5150924 / HTR / 10 / DR / 0107		Road Layout Sheet 2 of 4
5150924 / HTR / 10 / DR / 0108		Road Layout Sheet 3 of 4
5150924 / HTR / 10 / DR / 0109		Road Layout Sheet 4 of 4
5150924 / HTR / 10 / DR / 0110		Junction Layout key Plan
5150924 / HTR / 10 / DR / 0111		Junction Layout Sheet 1 of 4
5150924 / HTR / 10 / DR / 0112		Junction Layout Sheet 2 of 4
5150924 / HTR / 10 / DR / 0113		Junction Layout Sheet 3 of 4
5150924 / HTR / 10 / DR / 0114		Junction Layout Sheet 4 of 4
5150924 / HTR / 10 / DR / 0115		Junction Visibility key Plan
5150924 / HTR / 10 / DR / 0116		Junction Visibility Sheet 1 of 4
5150924 / HTR / 10 / DR / 0117		Junction Visibility Sheet 2 of 4
5150924 / HTR / 10 / DR / 0118		Junction Visibility Sheet 3 of 4
5150924 / HTR / 10 / DR / 0119		Junction Visibility Sheet 4 of 4
5150924 / HTR / 10 / DR / 0120		Cross Section Location key Plan
5150924 / HTR / 10 / DR / 0121		Typical Cross Sections Sheet 1 of 4
5150924 / HTR / 10 / DR / 0122		Typical Cross Sections Sheet 2 of 4
5150924 / HTR / 10 / DR / 0123		Typical Cross Sections Sheet 3 of 4
5150924 / HTR / 10 / DR / 0124		Typical Cross Sections Sheet 4 of 4
5150924 / HTR / 10 / DR / 0125		Vehicle Tracking – Fire Engine Sheet 1 of 2
5150924 / HTR / 10 / DR / 0126		Vehicle Tracking – Fire Engine Sheet 2 of 2
5150924 / HTR / 10 / DR / 0127		Vehicle Tracking – refuse Vehicle Sheet 1 of 2
5150924 / HTR / 10 / DR / 0128		Vehicle Tracking – Refuse Vehicle Sheet 2 of 2
5150924 / HTR / 10 / DR / 0129		Vehicle Tracking – Bus

3. Street Design Requirements

3.1. Street Design Development

The development of the street design is based on the details as outlined in the street layout drawings, taking cognisance of the development layout, the protection and retention (where possible) of existing trees, impact on adjacent developments, connectivity into adjacent development lands and in line with the requirements of the documents set out in Section 1.2 **Error! Reference source not found.**of this document. The street layout design has been generated in coordination with the architect, landscape architect and other engineers in terms of building lines, proposed landscape features etc.

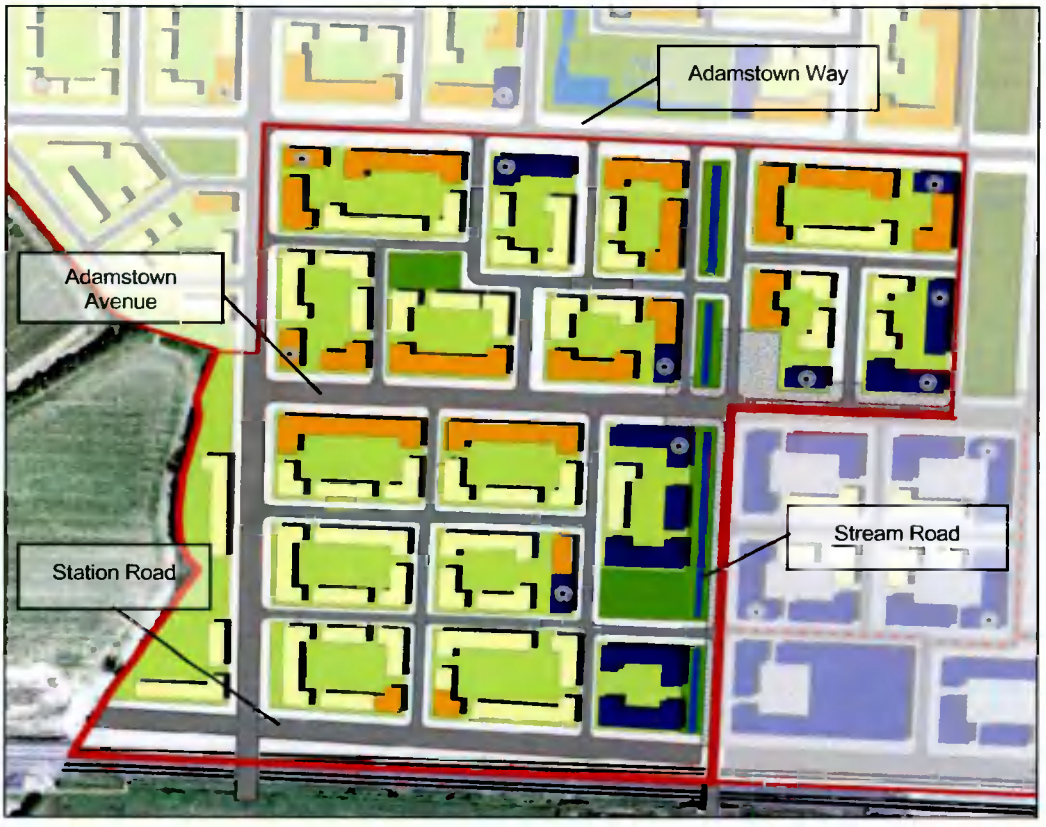
The street layout has been development with reference to the following design principals:

- Connectivity;
- Permeability;
- Legibility;
- Safety; and
- Accessibility.

The provision of connections for the entire Adamstown Boulevard Development Tile onto the adjacent road network, Adamstown Avenue, Station Road & Adamstown Park, is a key requirement in the generation of the development layout. These connections are detailed in the following sections of this report.

The proposed street layout is based on the Adamstown Boulevard Tile Indicative Layout diagram detailed in Adamstown SDZ Section 3 Development and Amenities as shown in Figure 3-1.

Figure 3-1 - Adamstown Boulevard Tile Indicative Layout



3.2. Compliance with DMURS

The street layout is designed with specific reference to DMURS design guidance, incorporating appropriate cross reference to the National Cycle Manual (NCM) and Adamstown Street Design Guide.

The proposal has been developed to take account of the following elements DMURS as shown in Table 3-1.

Table 3-1 - DMURS Compliance Criteria

	DMURS Reference
Street networks	Chapter 3
Integrated Street Networks	Section 3.1
Movement and Place	Section 3.2
Permeability	Section 3.3
Street Design	Chapter 4
Movement, Place and Speed	Section 4.1
Streetscape	Section 4.2
Pedestrian and Cyclists Environment	Section 4.3
Carriageway Conditions	Section 4.4

3.3. Street Networks

The development integrates with the existing physical and social infrastructure in Adamstown SDZ to provide a cohesive and interconnected network of high quality streets as recommend in DMURS section 3.1 Integrated Street Networks.

DMURS section 3.2 Movement and Place recommends that a street hierarchy is used to understand the correct approach to take in relation to movement and place function.

The street layout for the Adamstown Boulevard Tile development consists of a 3No. street typologies consistent with DMURS and the Adamstown Street design guide as outlined below and detailed in Figure 3-2. They are:

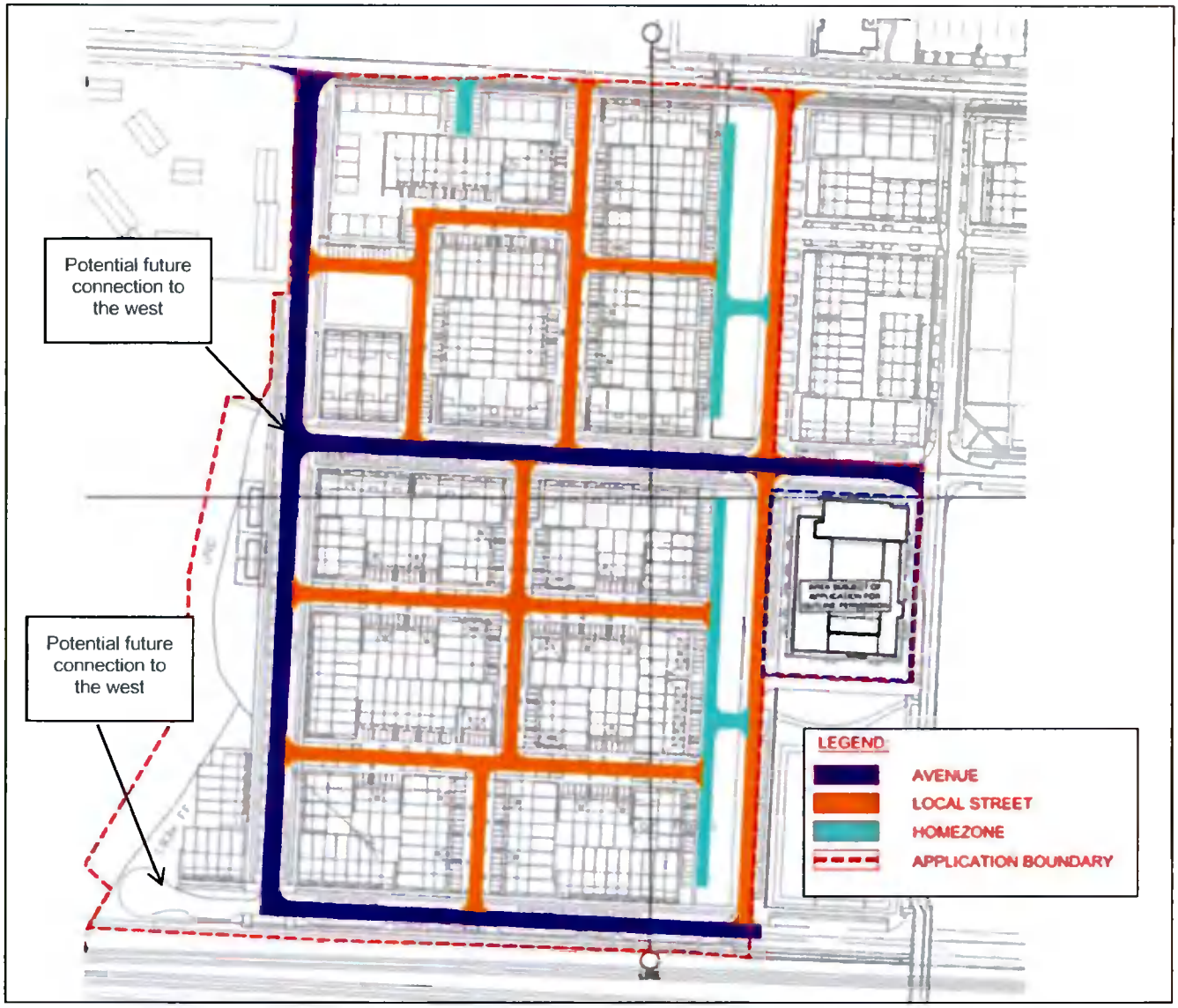
- Homezone
- Back Street (local Street)
- Avenue (link Street)

Full details in relation to street typologies are shown on Atkins drawings 5150924/HTR/10/DR/0100 to 5150924/HTR/10/DR/0104.

As shown in Figure 3-2 there is a coherent network of local streets and homezones that feed into the higher capacity road network, the Avenues. The proposed layout is highly permeable with a number of east west and north south junctions spread across the layout that provides opportunities to disperse traffic and provide ease of access and egress for future users.

As noted in Figure 3-2 the layout makes provision for potential future multi-modal connections to the west if at some time those lands are zoned for future development.

Figure 3-2 - Adamstown Boulevard Phase1 Street Typology and Layout



The design criteria for the street typologies are detailed below in Table 3-1.

Table 3-2 - Design Criteria

Design Criteria	Homezone	Back Street (Local Street)	Avenue	
DMURS Recommended Design Speed	10-30km/h	10-30km/h	30*-50km/h	
Adopted Design Speed	30Km/h	30km/h	50km/h	
Maximum Gradient	5%	5%	5%	
Minimum Gradient	0.5%	0.5%	0.5%	
Carriageway Width	6m	5.5m	Varies (6m to 7m)	
Footpath	Shared provision - 1.5m pedestrian safety strip provided	2.0-3.6m	Varies	

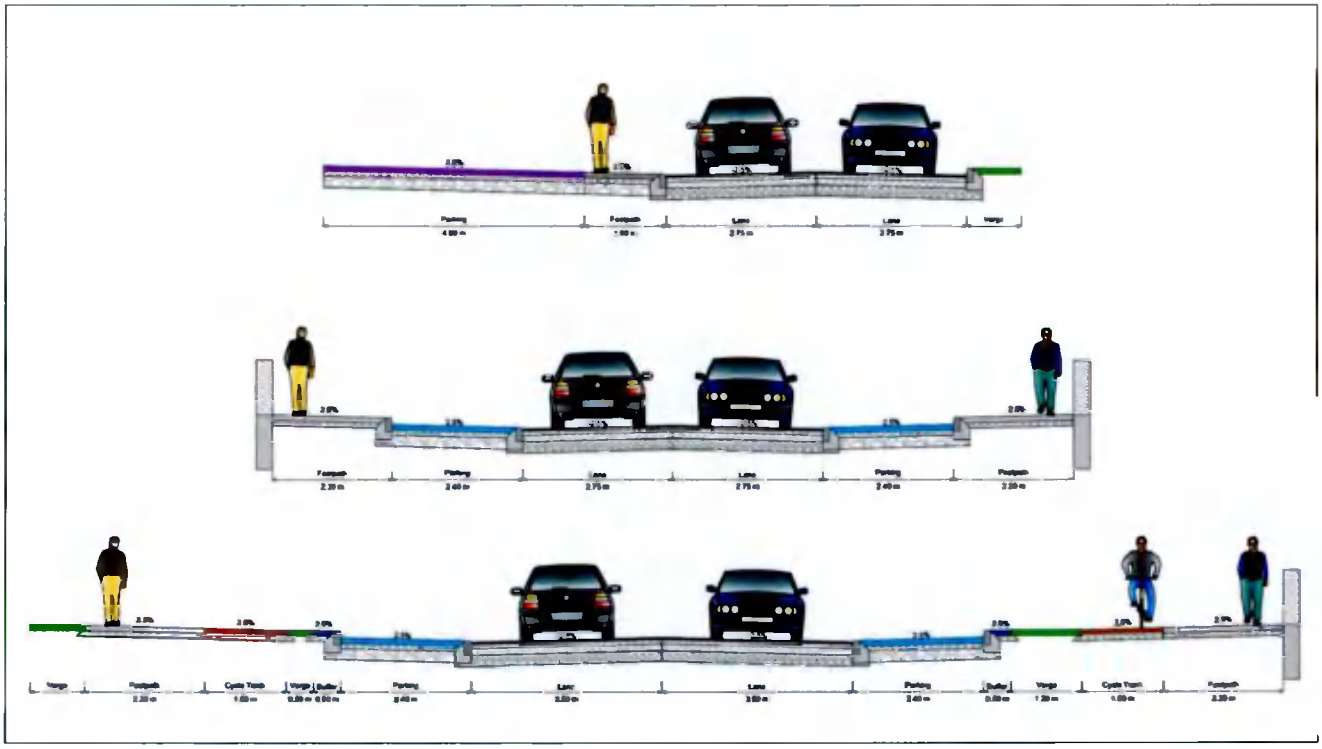
Further detail associated with the street typologies and the provision of cyclist and pedestrian facilities are as outlined in Table 3-3.

Table 3-3 - Street Typology characteristics

Typology	Description	Pedestrian Provision	Cyclist Provision
Homezone	A homezone street will provide intimate and safe local access streets prioritising pedestrians and cyclists.	Shared surface with flush pedestrian footway strip	Shared Street Provision, cyclist shares carriageway with vehicles in low traffic speed and low traffic volume environment
Back Street (Local Street)	A local street will provide connectivity more locally within the development and reinforce permeability.	Footpaths both sides	Shared Street Provision, cyclist shares carriageway with vehicles in low traffic speed and low traffic volume environment
Avenue Street	Adamstown Avenue	Footpaths both sides	A mix of offline cycle paths and shared street provision

Details in relation to typical cross sections for the street typology outlined above are detailed on drawing Atkins 5150924/HTR/10/DR/0120 to 5150924/HTR/10/DR/0124 submitted as part of this planning application. An extract showing typical cross sections for an Avenue, Local Street and Homezone is shown in Figure 3-3.

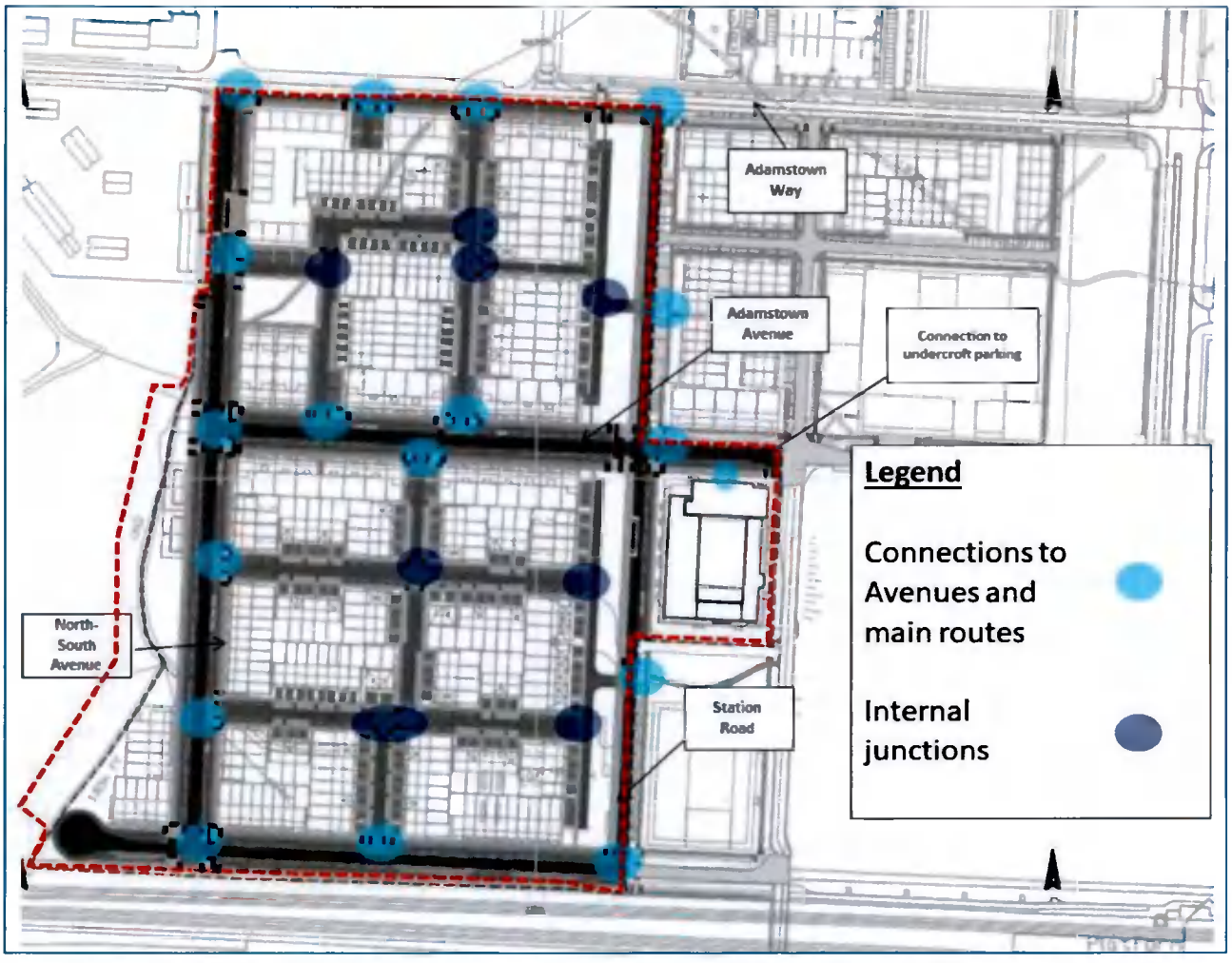
Figure 3-3 - Cross Sections – Avenue, Local Street & Homezone



3.4. Vehicle Permeability

Figure 3-4 details a number of proposed vehicle connections within the Adamstown Boulevard Phase 1 Development street layout to facilitate appropriate vehicular connections onto the existing and proposed street network. As shown in Figure 3-4 the proposed layout is highly permeable with multiple access points onto the avenues and the higher capacity road network.

Figure 3-4 - Adamstown Boulevard Phase1 Vehicle Access Points



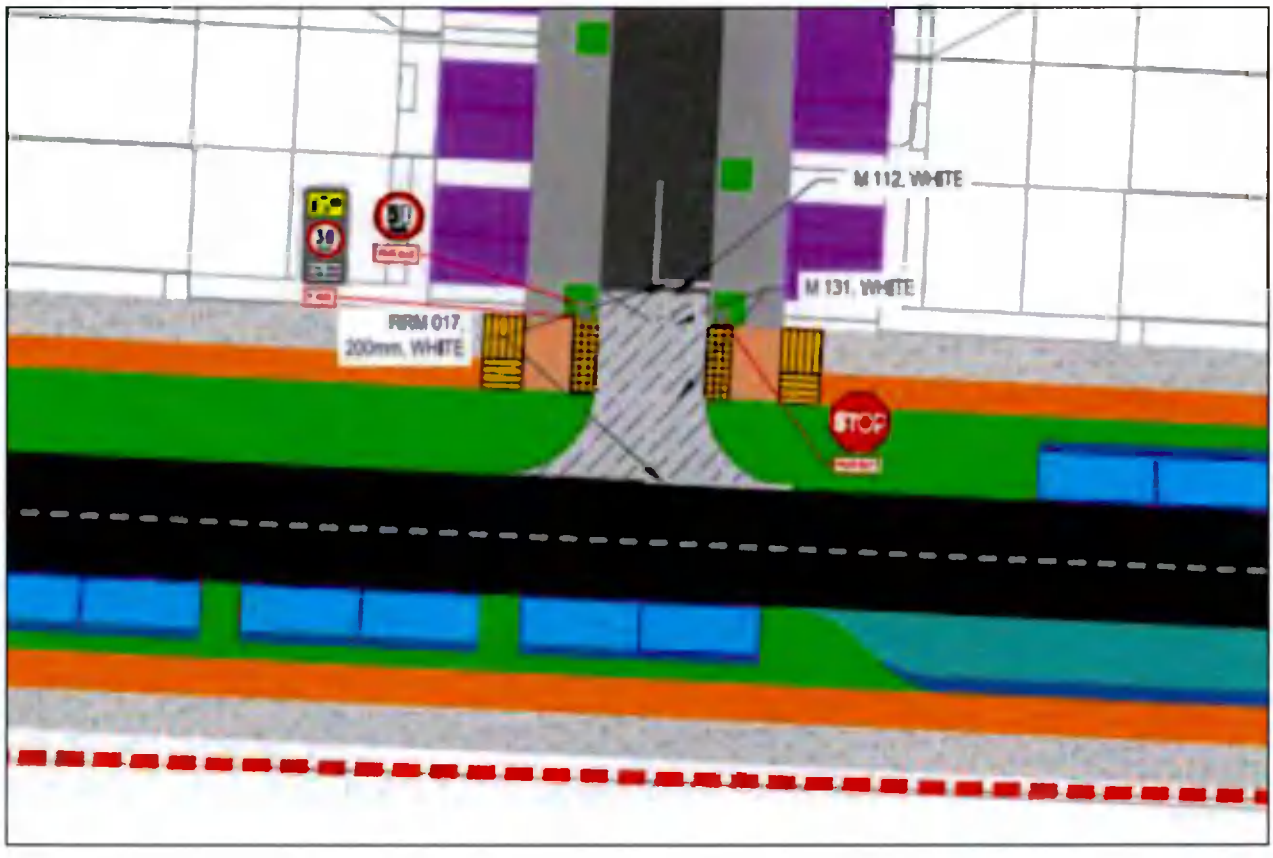
3.5. Junction Design

3.5.1. Access Junctions

The main accesses junctions into the Adamstown Boulevard Phase 1 Development are detailed on Figure 3-4. The detailed junction layouts are shown on Atkins drawings 5150924/HTR/10/DR/0110 to 5150924/HTR/10/DR/0114.

The junction radii have been selected based on the requirements of DMURS and the Adamstown Street Design Guide. For junctions onto avenues including, Adamstown Avenue, Adamstown Way, Station Road North-South Avenue, the junction radii are proposed to be 6m. This allows for larger vehicles (refuse & emergency vehicles) to access the development without crossing into the opposing lane. An example of such a junction is shown Figure 3-5.

Figure 3-5 - Adamstown Boulevard Phase 1 junction onto Station Road



For internal development junctions the junction radii are proposed to be 4.5m. This allows for occasional large vehicles (refuse & emergency vehicles) to access the development while encroaching into the opposing lane due to the low speeds and low traffic flows on these streets. An example of such a junction is shown in Figure 3-6.

Figure 3-6 - Adamstown Boulevard Phase 1 Development internal junction

3.5.2. Junction Visibility

The visibility requirements for the priority junctions have been selected based on the requirements of DMURS. For priority junctions onto Adamstown Avenue & Station Road a visibility splays of 2.4m x 49m (for 50kph design speed) have been provided with visibility splays of 2.0m x 23m (for 30kph design speed) provided at all other junctions, as agreed with South Dublin County Council Transport Department.

As noted in DMURS Section 4.4.5 *Visibility Splays*

In general, junction visibility splays should be kept clear of obstructions, however, objects that would not be large enough to wholly obscure a vehicle, pedestrian or cyclist may be acceptable providing their impact on the overall visibility envelope is not significant. Slim objects such as signs, public lighting columns and street trees may be provided.

DMURS goes onto state that:

Designers may have concerns about reducing visibility splays at junctions that carry higher volumes of traffic at more moderate speeds. This issue was addressed further in respect of research carried for the UK Manual for Streets 2 (2010). This included 'busy radial roads', many of which included bus routes within a variety of 20, 30 and 40 mph environments. The research concluded that there is no evidence that reduced SSDs are directly associated with increased collision risk, as shown on a variety of street types at a variety of speeds. The Manual for Streets 2 (2010) also refers to research where it was found that higher cycle collision rates occurred at T-Junctions with greater visibility. The research concluded that this was because drivers were less cautious where greater visibility was provided.

Designers must also take a holistic view of the application of reduced forward visibility splays. As illustrated in the Adamstown Street Design Guide (2010), there are other place making and traffic calming benefits that can be implemented by reducing forward visibility splays at junctions (see Figure 4.64).

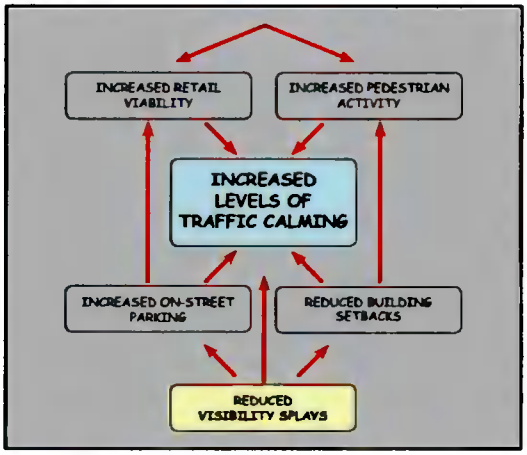
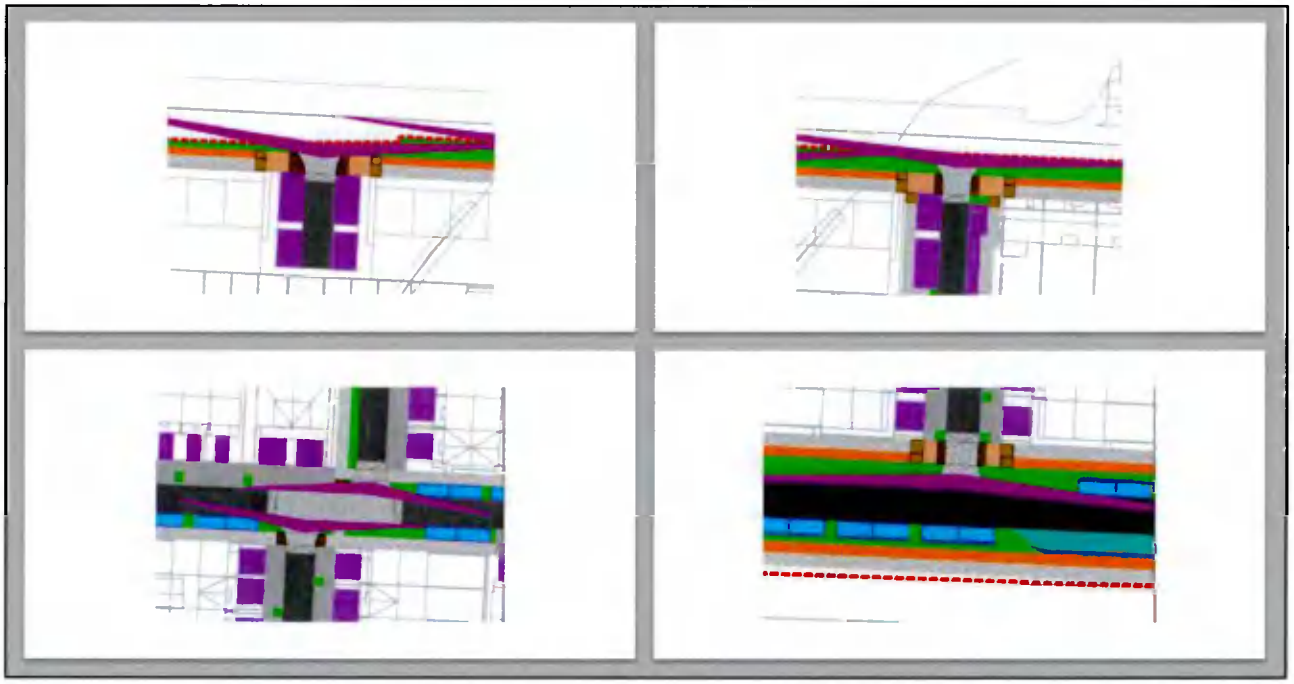


Figure 4.64: Flow diagram showing the inter-linked traffic calming and place making benefits of reduced visibility splays.

Details in relation to the junction visibility requirements as outlined above are detailed on drawings 5150924/HTR/10/DR/0115 to 5150924/HTR/10/DR/0119 submitted as part of this planning application. An extract is shown in Figure 3-7. While there are small areas where car parking is located within the visibility splays the overall approach to safety is consistent with DMURS and Adamstown Street Design Guide outlined above given the nature of the road, vehicle volumes and speeds and desire to create a traffic calmed environment.

Figure 3-7 - Visibility Splay - Extract



3.5.3. Safety and Speed

Within in the local street an homezone network a design speed of 30km/h has been set. This speed limit as required on residential streets is promoted via the combination of the design elements below:

- Horizontal and vertical alignment designed to 30km/h;
- Carriageway widths in line with DMURS requirement for street type;
- Constrained junction radii in line with DMURS requirement;
- Raised Crossing across External and Internal Road Junctions;
- Provision of Raised Tables at Internal Road Junctions;

A Stage 1 Road Safety Audit (Atkins Ref 5150924DG0087) was undertaken for the proposed scheme. Please refer to this document included as part of the planning application for details in relation to issues and comments

raised. The issues and comments raised within the Road Safety Audit report have been addressed via a designer's response. Modifications to the proposed roads design to accommodate recommendations will be incorporated as part of the detailed design process.

4. Pedestrian and Cyclist Facilities

4.1. Pedestrian and Cyclist Connections

The provision of high-quality pedestrian and cyclist facilities and permeability within the development is central to the design principles adopted in relation to the Adamstown Boulevard Phase 1 Development. The proposed network of pedestrian and cycle facilities is consistent with the approach taken on previous applications in the Adamstown SDZ Planning Scheme and tie into that granted network of facilities.

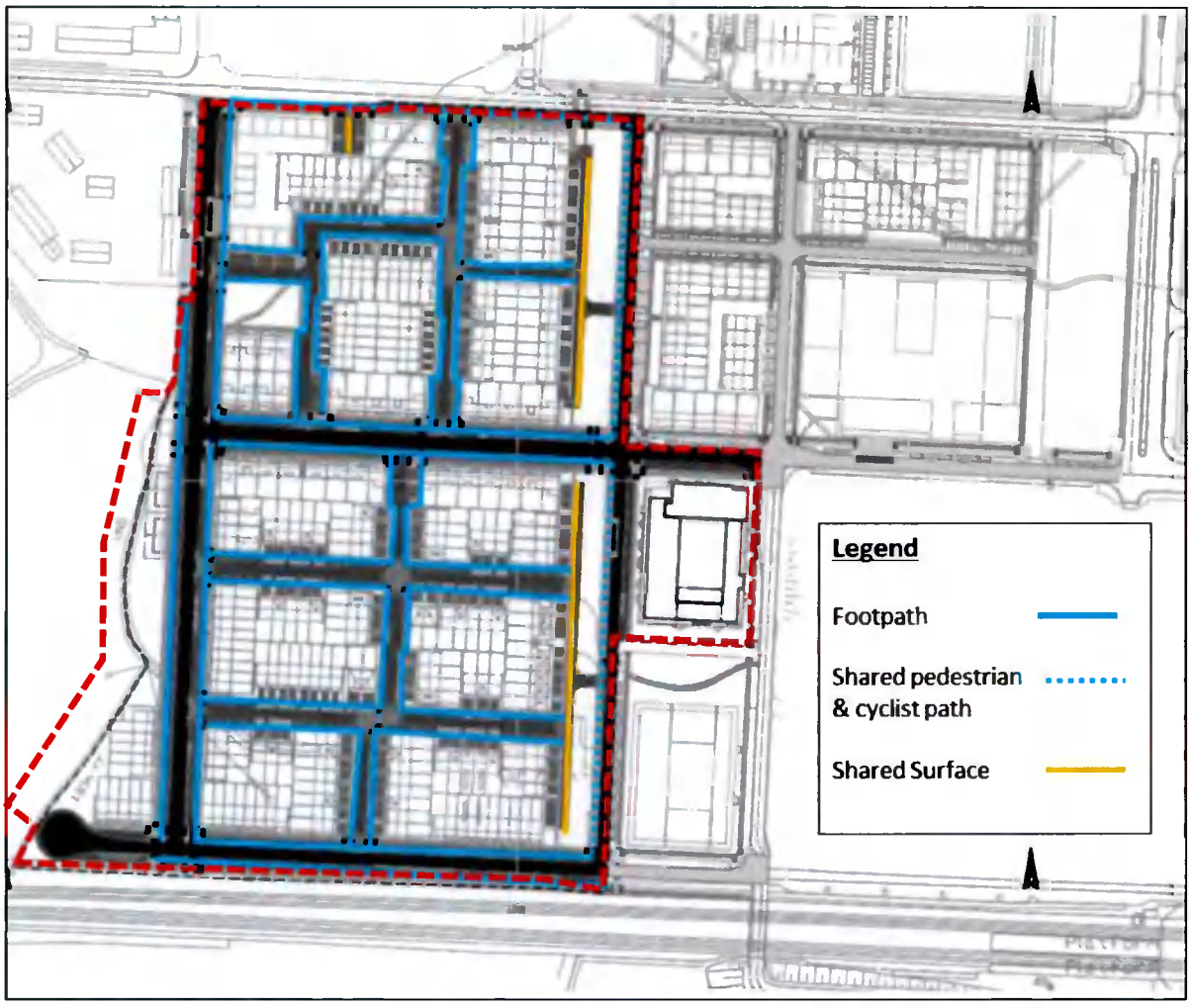
The cyclist facilities on the internal streets will be integrated shared street facilities in line with the principles set out in DMURS. The cyclist facilities on the external streets will be a mix of segregated cycle paths and cycle lanes as outlined in Table 4-1.

Table 4-1 - Street Typology characteristics

Typology	Pedestrian Provision	Cyclist Provision
Homezone	Shared surface with flush pedestrian footway strip	Shared Street Provision, cyclist shares carriageway with vehicles in low traffic speed and low traffic volume environment
Back Street (Local Street)	Footpaths both sides	Shared Street Provision, cyclist shares carriageway with vehicles in low traffic speed and low traffic volume environment
Avenue Street	Footpaths both sides	A mix of offline cycle paths and shared street provision
Stream Road – Linear parkland	Pedestrian facilities within and adjacent the linear parkland	Shared pedestrian & cyclist facilities adjacent the linear park

Figure 4-1 and Figure 4-2 shows the proposed pedestrian and cyclist facilities respectively. The location and range of pedestrian and cyclist infrastructure aligns with facilities required under Section 11 Adamstown Station Access and Movement strategy of the SDZ.

Figure 4-1 - Adamstown Boulevard Phase1 Development Pedestrian facilities



Note: indicative red line boundary only

Figure 4-2 - Adamstown Boulevard Phase1 Development Cyclist facilities

Note: indicative red line boundary only

4.2. Pedestrian & Cyclist Crossing Facilities

A wider range of crossing facilities are provided within the Phase1 development including

- Signal controlled crossing;
- Uncontrolled informal crossing;
- Raised entry treatments (all junctions); and
- Raised tables.

Some of key crossing types and locations are shown in Figure 4-3. Full details are shown on Atkins drawings 5150924/HTR/10/DR/0105 TO 5150924/HTR/10/DR/0109.

Figure 4-3 - Crossing type and location

As part of the Adamstown Boulevard Phase 1 Development raised crossings are proposed at all junctions in order to provide pedestrians and cyclists with priority at these locations as recommended by DMURS. Examples of this are shown in Figure 3-5 and Figure 3-6 above.

In addition to this raised tables . raised crossing are provided at a number of internal junctions. The use of raised pedestrian table crossing points will have the benefit of providing both a convenient crossing point and traffic calming effect. The raised table pedestrian crossing design is based on the recommendations in DMURS and the Traffic Management Guidelines with a height of 75mm. An example of this is shown in Figure 4-4.

Figure 4-4 - Raised Table Treatment at internal junction

5. Public Transport Infrastructure

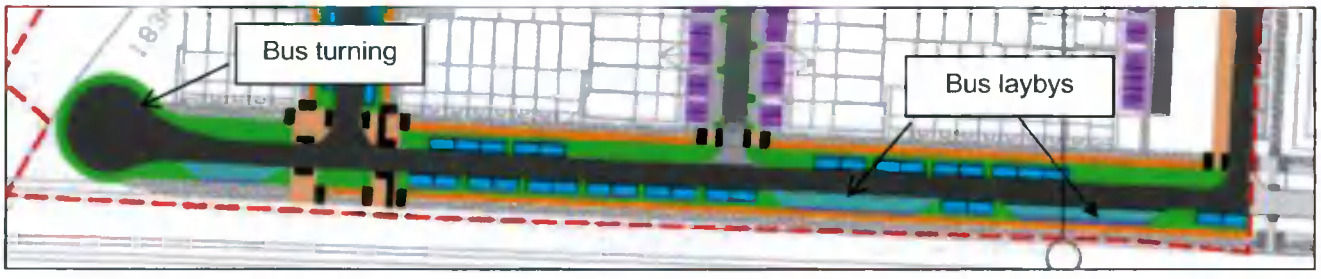
Currently a temporary Park and Ride and bus turning facility is located on the Boulevard Tile. The existing facilities are shown on Figure 5-1.

The relocation of the bus turning facility and removal of the Park & Ride facility were discussed with SDCC and the NTA during formal pre-application discussion on the Boulevard Tile. During formal pre-applications meetings with SDCC and the NTA.

Figure 5-1 - Existing Temporary Bus Turning Facility & Park & Ride

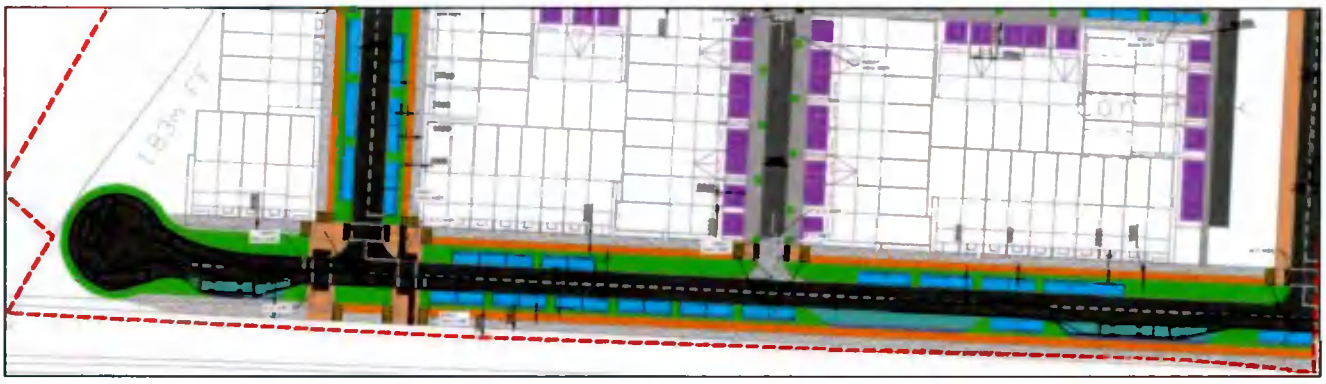
A bus turning facility of a similar size and scale is incorporated into Masterplanning of the Boulevard Tile and is located in the southwestern corner of the site at the end of Station Road. In addition to the bus turning facility a number of bus laybys are also proposed on the southern side of Station Road that can accommodate up to 5No. buses at any one time. These facilities are shown in Figure 5-2.

Figure 5-2 - Proposed Bus Turning and Bus layby Facilities



The design of the bus turning facility and bus laybys has been informed by vehicle tracking exercise to ensure that they can accommodate the requisite bus movements. Details showing the vehicle tracking is shown on Atkins Drawings 5150924/HTR/10/DR/0105 and 5150924/HTR/10/DR/0107 . The proposed facility will provide turning for the Adamstown bus services including those envisioned as part of BusConnects. Atkins drawings 5150924/HTR/10/DR/0129 shows bus tracking movements using the layby and turning facility, an extract is shown on Figure 5-3.

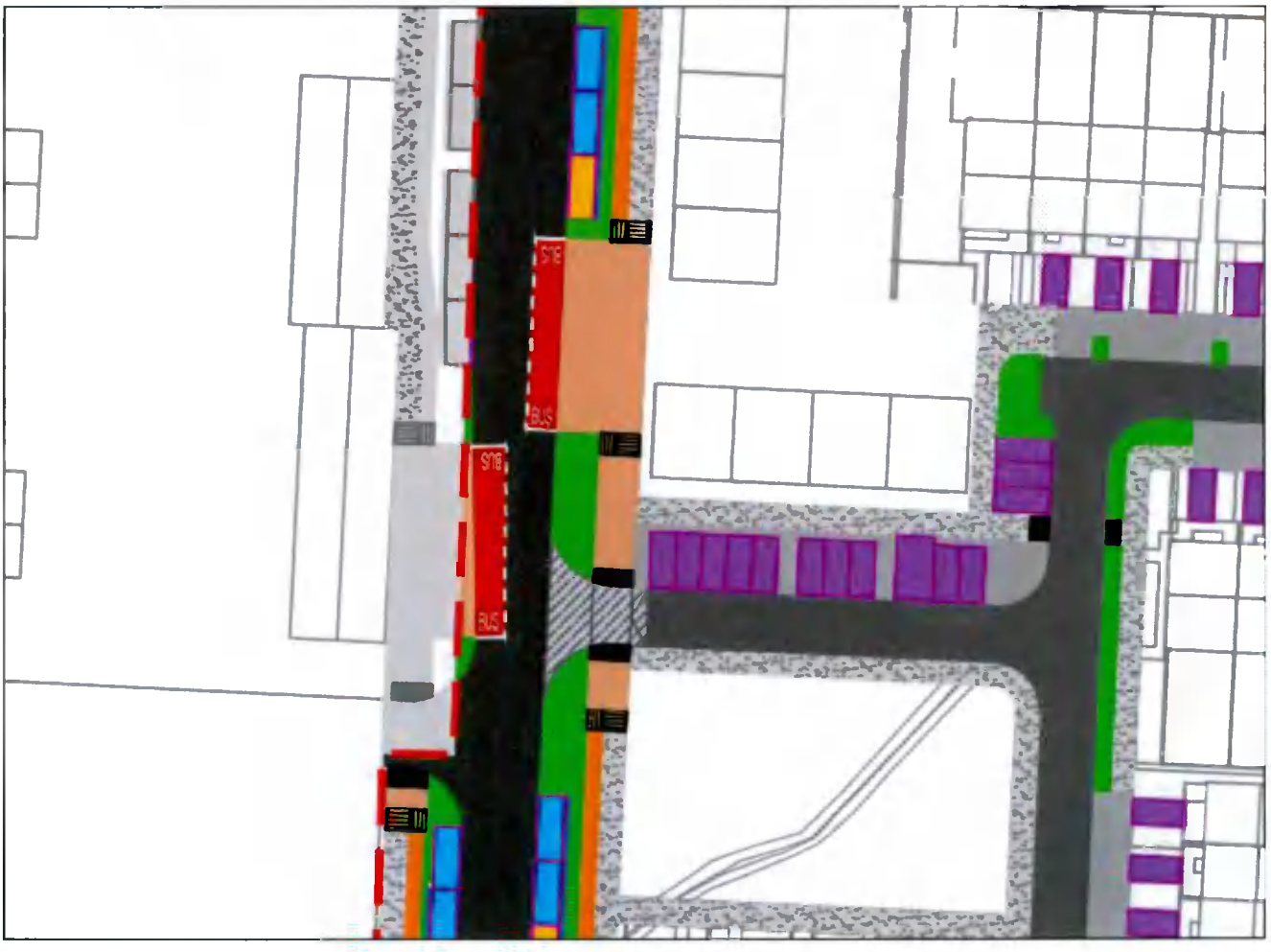
Figure 5-3 - Bus Tracking using layby and turning facility



As noted earlier the design and location of these facilities has been discussed and provisionally agreed with SDCC and the NTA.

In addition to the bus turning and layby facilities the phase 1 development provides bus stops to facilitate future bus service movements through the development that will allow future residents and users to easily access bus services. Figure 5-4 shows an example of two bus stops on North-South Avenue.

Figure 5-4 - Bus Stops on North-South Avenue



6. Parking

The section below deals with the design of the car parking spaces within the proposed development. For further details in relation to parking numbers and justification for the provision of the quantum proposed please refer to Atkins Transport Statement (5150924DG0085) submitted in support of this planning application.

6.1. Car Parking Design

The section below deals with the design of the car parking spaces within the proposed development.

As noted in DMURS 4.4.9 *On-Street Parking and Loading* the location, design and quantum of car parking has an important role in street design and the promotion of sustainable transport. Well designed car parking can enhance a street, act as a traffic calming measure and provide passive surveillance.

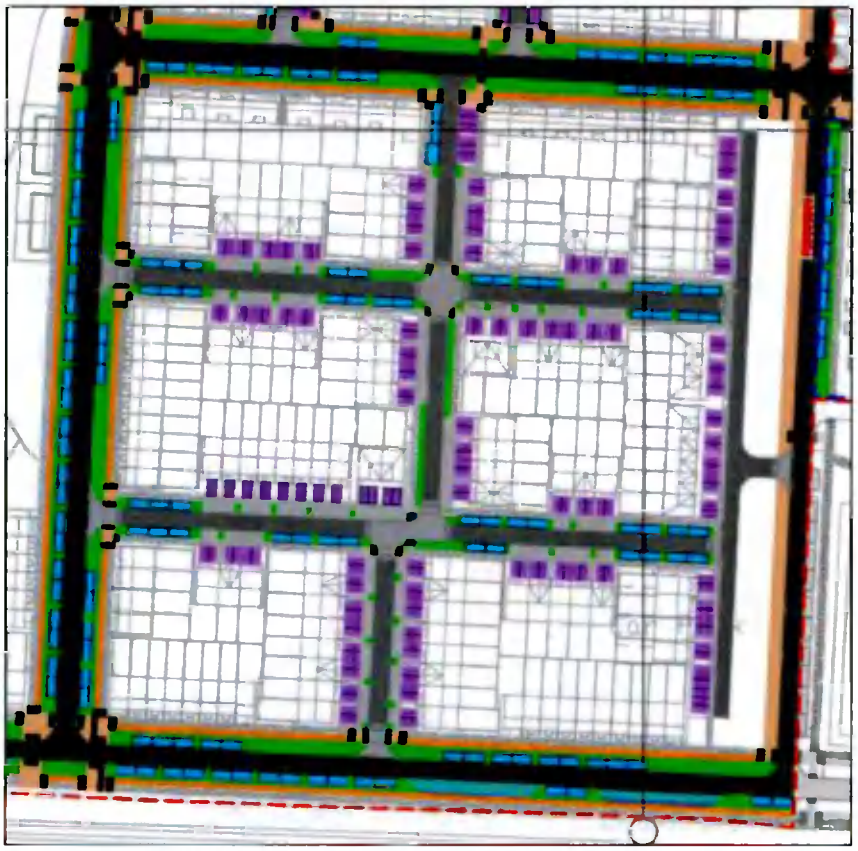
The development is providing the following car parking for the

- 433no. car parking spaces for the 257 dwelling units of which 47no. are visitor spaces. Of which 206no. are on curtilage.
- 55no. car parking spaces for the 166 apartment units of which 5 are visitor. Of which 46no. are on curtilage.

The overall percentage of on-curtilage parking is 52%. This is in accordance with Section 2.4.22 of the SDZ that states that no more than 60% of residential car parking spaces shall be provided as private in-curtilage parking spaces in any development area.

The Phase 1 car parking allocation is shown in Atkins Drawing 5150924/HTR/10/DR/0105 to 5150924/HTR/10/DR/0109 , an extract is shown in Figure 6-1.

Figure 6-1 – Boulevard Phase 1 Car Parking Allocation – extract



In relation to car parking dimensions DMURS recommends that:

- Standard width of a car parking spaces should be 2.4m;
- Standard length of a car parking spaces should be 4.8m; and
- Parallel car parking should be 6m long.

Where disabled bays are provided the dimensions are 3.6m x 6m

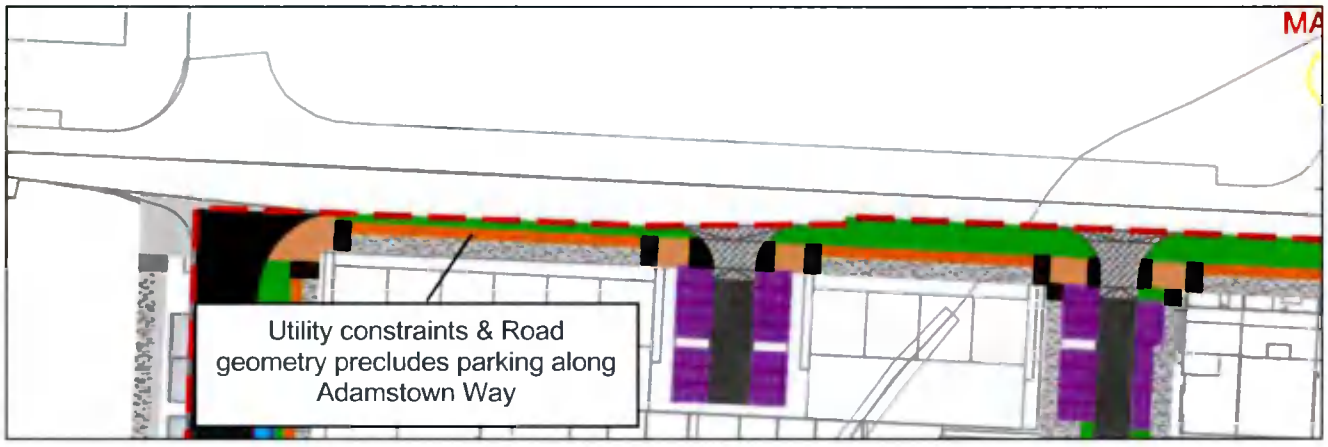
Perpendicular spaces generally require a minimum carriageway width of 6m, which is generally too wide for Local streets (5.5M). To accommodate these additional spaces as recommended by DMURS the additional spaces is provided within the car parking spaces (5.3m). Figure 6-2 shows dimension on a typical local street.

Figure 6-2 - Car Parking Dimensions

6.1.1. Pocket Car Parking off Adamstown Way

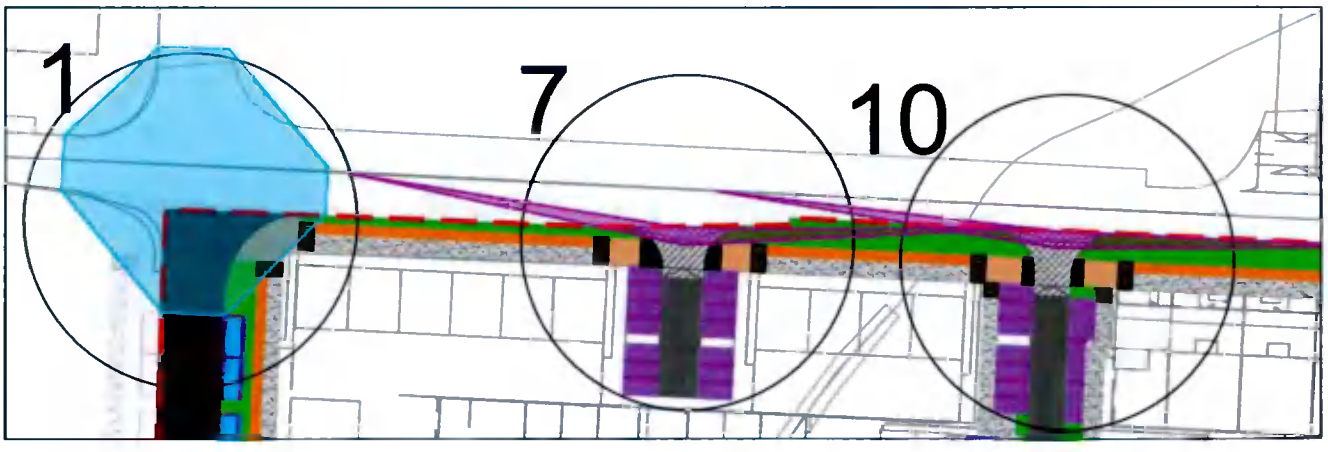
A pocket car parking facility accommodating 14no. car parking spaces has been provided off Adamstown Way as shown in Figure 6-5. The main reasons for the provision of a pocket park off Adamstown Way is the high number of utility constraints along this section the road which together with the flared nature of Adamstown Way to accommodate the junction with Celbridge Link Road means that accommodating on street parallel parking along the avenue to the front of the development is not feasible.

Figure 6-3 - Pocket Car Park & Constraints



The pocket will work as a simple priority junction onto Adamstown Way similar to any number of other priority access points previously granted for Aderrig Phase 1 and Aderrig Phase 2 for example. Given the nature of residential car parking the number of car movements to and from this location is not anticipated to be low. A simple TRICS exercise would indicate that daily movements would be circa 50 two way movement . As indicated in Atkins drawings 5150924/HTR/10/DR/0115 and 5150924/HTR/10/DR/0117 visibility from the junction onto Adamstown Way complies with the minimum dimensions recommend by DMURS of 2.4m x 49m for 50kph design speed as shown in Figure 6-4.

Figure 6-4 - Visibility Splay from Pocket Car Park



The car parking spaces are standard 4.8m depth with a 6metre drop back provided to allow vehicles to safely manoeuvre in and out of the space.

Figure 6-5 - Pocket Car Park Layout

6.1.2. Undercroft & MSCP Car parking

The design of Phase 1 Apartment Block undercroft car parking area is in accordance with Institute of Structural Engineers *Design Recommendations for Multi Storey and Underground Car Park Fourth Edition' (2011)*. The design and layout of the car parks accords with the key critical design criteria including:

- Aisle capacities including widths and bin width – 6m;
- Design speeds – (5-10km/ph);
- Ramps gradients- (max gradient 1:12);
- Head height clearances (2.6m);
- Entry control systems (entry fob);
- Car parking space geometry and orientation (min 2.4, x 4.8M);

Entry to the Block A car parking area will be controlled by a barrier and fob entry system. The residential spaces will be allocated and clearly demarcated as resident only parking

6.2. Cycle Parking

All dwellings have capacity to provide cycle parking within the curtilage of each dwelling. As recommend in DMURS and NCM a range of public / visitor cycle parking is located in the public realm, including locations at

amenity areas such as the pocket park and Linear Park to encourage and promote cycling. For further details refer to Architect and Landscape Architects drawings.

7. Access Arrangement for Large Vehicles

The site layout has been designed taking cognisance of the access requirements for refuse vehicles and emergency services within the site.

Swept path analysis has been undertaken to show that occasional larger vehicles can manoeuvre safety through the street network. Drawings 5150924/HTR10/DR/0125 to 5150924/HTR10/DR/0127 details the refuse vehicle and emergency service vehicle tracking manoeuvres within the development. An extract is shown in Figure 7-1

Figure 7-1 - Refuse Vehicle Tracking

8. Road Construction Details

The minimum road construction details are detailed below.

Local Street

- 40mm surface course - PSMA 10 65 / 105 Des In Accordance with Cl942 TII SRW
- 60mm binder course - AC20 Dense Bin 40 / 60 Des To IS EN13108-1
- 80mm base course - AC32 Dense Base 40 / 60 des to IS EN1310-1
- 150mm sub-base course- Granular Material Type B to Clause 804
- Capping as Required

Parking

- 80mm paving - 208x173x80mm Concrete Block Paviors with 3 - 6mm joints
- 40mm laying course - Crushed Rock 3mm to dust in accordance with BS 7533-7
- 100mm base course - C25 / 30 Concrete to IS EN206-1
- 150mm sub-base course - Granular Material Type B to Clause 804
- Capping as Required

Footpath

- 40mm paving - 400x300x40mm Concrete Flags with 3 - 6mm joints
- 40mm laying course - Crushed Rock 3mm to dust in accordance with BS 7533-7
- 100mm base course - C25 / 30 Concrete to IS EN206-1
- 100mm sub-base course - Granular Material Type B to Clause 804

Cyclepath

- 25mm surface course - PSMA 10 65 / 105 Des In Accordance with Cl942 TII SRW
- 50mm binder course - AC20 Dense Bin 40 / 60 Des To IS EN13108-1
- 150mm sub-base course - Granular Material Type B to Clause 804

Buffer

- 100mm paving – In-situ Concrete C25 / C30 Concrete to IS EN206-1 (Exposed Aggregate Finish)
- 100mm sub-base course - Granular Material Type B to Clause 804
- Capping as Required

Raised Crossing / Raised Table

- 40mm surface course - PSMA 10 65 / 105 Des In Accordance with Cl942 TII SRW (Natural Red Aggregate on Bus Lane)
- 60mm binder course - AC20 Dense Bin 40 / 60 Des To IS EN13108-1
- 80mm base course - AC32 Dense Base 40 / 60 des to IS EN1310-1
- 150mm sub-base course- Granular Material Type B to Clause 804
- Capping as Required

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