



## DBFL Consulting Engineers

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# TECHNICAL NOTE 180002/001

**Subject:** DMURS Design Statement

**Produced by:** ED

**Project:** Lands at Clonminch, Tullamore

**Checked by:** BK

**Job No:** 180002

**Date:** 07/09/2021

## 1.0 INTRODUCTION

- 1.1.1 It is DBFL's opinion that the proposed residential scheme is consistent with both the principles and guidance outlined within the *Design Manual for Urban Roads and Streets*, DMURS (2019). The scheme proposals are the outcome of an integrated design approach that seeks to implement a sustainable community connected by well-designed streets which deliver safe, convenient and attractive networks in addition to promoting a real and viable alternative to car-based journeys.
- 1.1.2 Section 2.0 of this Technical Note outlines the specific design features that have been incorporated within the proposed residential scheme with the objective of delivering a design that is compliant with DMURS.

## 2.0 DESIGN ATTRIBUTES

### 2.1 Strategy Development

- 2.1.1 The development strategy maximises connectivity between key local destinations and constructed development through the provision of a high degree of permeability and legibility for all network users particularly for sustainable forms of travel. Accordingly, the proposed residential scheme delivers greater mode and route choices along direct, attractive and safe linkages to a range of amenities and local service destinations.

2.1.2 The proposed residential scheme incorporates a hierarchy of streets as noted below:

- An existing **Arterial** link is located to the west of the proposed scheme (R443, Clonminch Road) which links Tullamore Town Centre to the N52 National Road at Clonminch Roundabout.
- A proposed **Link** street traverses the scheme, facilitating access to the **Arterial** links noted above by way of a new signalised junction on the Clonminch Road.
- The proposed **Link** street noted above is identified as an objective in the Tullamore Town and Environs Development Plan. This objective proposes a road link between Clonminch Road and Chancery Lane. A new rail overbridge also forms part of this objective. The proposed development intends to deliver approx. 550m of this road link in the form of a DMURS style “Link Street”, typically consisting of a 6.5m carriageway , 2m cycleway and a 2m footway.
- In contrast, the internal road network has been designed to deliver a network of **Local** streets that provide access within / across the proposed new residential community and facilitate access to the proposed **Link** street noted above.
- The movement function of each of internal **Local** streets has sought to respect the different levels of motorised traffic. In parallel the adopted design philosophy has sought to consider the context / place status of each residential **Local** street in terms of level of connectivity provided, quality of the proposed design, level of pedestrian activity and vulnerable users requirements whilst identifying appropriate ‘transition’ solutions between different street types

2.1.3 The layout offers a well-connected / traffic calmed ‘by design’ street network.

## 2.2 Linkages and Permeability

2.2.1 The street layout was derived from several factors which include, the Tullamore Town and Environs Development Plan, the nodal masterplan prepared by the applicant for the Eastern Node of the Southern Environs of Tullamore, the existing road network, existing adjacent developments, boundary conditions and topography.



- 2.2.2 As part of the design and development of the street network, cycle and pedestrian linkages were prioritised around the development to link existing and future developments.
- 2.2.3 The proposed site layout facilitates potential permeability and linkage for pedestrians, cyclists and vehicles to existing residential development to the north-west of the site (Clonminch Wood) and lands which fall within the Eastern Node of the Southern Environs of Tullamore to the east and south of the site.
- 2.2.4 A cycle scheme is proposed between the site and Tullamore Town Centre. The proposed cycle scheme commences approximately 100m south of the proposed site access junction and continue along Clonminch Road to tie into the existing road carriageway at a location approximately 80m northwest of the Bachelor's Walk junction. Total length of cycle scheme from Clonminch to Town Centre is approx. 1,700m.
- 2.2.5 High levels of connectivity between **Local** streets and the **Link** streets are also delivered for motorised vehicles (primary access points off the Clonminch Road).

## 2.3 Design Parameters

- 2.3.1 The adopted design approach successfully achieves the appropriate balance between the functional requirements of different network users whilst enhancing the sense of place. The implementation of self-regulating streets actively manages movement by offering real modal and route choices in a low speed / high quality residential environment. Specific attributes of the schemes design which contribute to achieving this DMURS objective include;
- a) On-street activity is promoted internally along the residential streets through the adoption of 'own-door' dwellings.
  - b) The proposed design has sought to specify minimal signage and line markings along the internal **Local** streets with such treatments used sensitively throughout and predominately at key nodes and 'transition' areas with the adjoining **Link** street.



- c) Footpaths (2.0m wide) are provided throughout the scheme and with connections / tie-in to existing external pedestrian networks.
- d) Appropriate clear unobstructed visibility splays, as per DMURS requirements; are provided / safeguarded at all internal nodes and at the site access junctions to the external road network.
- e) Well designed and frequently provided pedestrian crossing facilities are provided along key travel desire lines throughout the scheme in addition to those located at street nodes. All courtesy crossings are provided with either dropped kerbs or a raised flat top treatment thereby allowing pedestrians to informally assert a degree of priority.
- f) On the more heavily trafficked **Link** street (at the junction with R443 Clonminch Road), a new signal controlled junction is proposed. Shared cycle / pedestrian facilities are proposed on all approaches to this new junction thereby ensuring segregation between vehicles and pedestrians /cyclists. Toucan crossings are proposed as part of the signal controlled junction.
- g) All informal pedestrian crossing facilities are at least 2.0m wide, whilst all controlled pedestrian crossings are at least 4.0m wide and toucan crossings are minimum 4.0m wide.
- h) With the objective of encouraging low vehicle speeds and maximising pedestrian safety and convenience, corner radii at (i) **Link / Local** nodes has been specified as 6m, and (ii) **Local / Local** nodes has been specified as 3m as per DMURS guidance.
- i) Along lightly trafficked internal **Local** streets, cyclists will share the carriageway with other street users as per the NCM guidance for such situations. These **Local** streets connect to the proposed **Link** street which incorporates dedicated cycle infrastructure.
- j) The proposed residential developments internal hierarchy of **Local** streets incorporates 5m to 5.5m wide carriageways with 2m wide footpaths.
- k) The main access routes (e.g. leading to/from the proposed **Link** street) of internal street network will be formed using standard asphalt finishes, however, for 'Homezone' **Local** streets, a colour contrast is to be achieved by way of a textured / colour surface to reinforce the lower design speed in these areas.



- l) Where perpendicular car parking is proposed additional vehicle manoeuvring requirements are accommodated within the design of the parking bays and adjacent footpaths and not by increasing the width of the carriageway.
- m) On-street parking is proposed at limited locations along the periphery of the proposed residential scheme (on one side of internal *local* streets) and at selected locations along the proposed *Link* street. In accordance with DMURS the parallel bays are dimensioned 6.0m long by 2.4m wide.





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### 3.0 DMURS DESIGN ATTRIBUTES

Design Element	DMURS Guidance	Proposed Development Adopted Design Approach
Movement Function	DMURS encourages designers to consider the movement function of a street / street network and develop a street hierarchy reflective of the levels of connectivity required and volumes of traffic	The proposed development street hierarchy is composed largely of <b>Local Streets</b> , the main function of these being to provide access within/across the development. These <b>Local Streets</b> have been further sub-categorised into <b>Primary Local</b> , <b>Secondary Local</b> and <b>Shared / Homezone</b> in respect of the differing levels and mix of motorised/non-motorised traffic accommodated on each. This network of <b>Local Streets</b> connects to a <b>Link Street</b> providing the proposed residential development with connections to the R443.
Place Function	The ' <i>Place Function</i> ' essentially distinguishes a street from a road, achieved largely by creating a relationship between the street and the buildings and spaces that frame it, ultimately resulting in a richer and more fulfilling environment	The adopted design philosophy has sought to achieve a quality ' <i>sense of place</i> ' by incorporating several green open space areas to encourage social activity. Furthermore, the type of surface materials, landscaping and street furniture have been chosen with consideration of both their aesthetic qualities and context of the existing surrounding environment. The design has also sought to minimise the impact of highway features by avoiding excessive signing, road markings and street furniture.

Design Element	DMURS Guidance	Proposed Development Adopted Design Approach
Street Layout	DMURS looks to encourage street layouts where “ <i>all streets lead to other streets, limiting the number of cul-de-sacs that provide no through access</i> ” and maximise the number of walkable / cyclable routes between destinations	<p>The street layout was derived from several factors which include, the Tullamore Town and Environs Development Plan, the nodal masterplan prepared by the applicant for the Eastern Node of the Southern Environs of Tullamore, the existing road network, existing adjacent developments, boundary conditions and topography resulting in the creation of attractive curvilinear streetscapes.</p> <p>The use of cul-de-sacs has been limited with through access maintained for walking/cycling throughout, thereby maximising connections within the site and complying with DMURS principles.</p>
Block Sizes	DMURS states that block dimensions of 60-80m are optimal for pedestrian movement in Centres, whilst block dimensions of up to 100m enable reasonable levels of pedestrian permeability in Neighbourhoods / Suburbs. Block dimensions should not exceed 120m	<p>The blocks sizes within the proposed development are optimised in line with density and comply with the requirements of DMURS</p>
Wayfinding	DMURS states that in general “ <i>the more the orthogonal street layout the more legible it will be (as well as being the most connected)</i> ”	<p>The grid and curvilinear street pattern adopted for the proposed development is recognised by DMURS as being generally legible in terms of wayfinding.</p>



Design Element	DMURS Guidance	Proposed Development Adopted Design Approach
Permeability	<p>Permeability can be categorised into four types:</p> <ul style="list-style-type: none"> <li>• Dendritic Networks</li> <li>• Open Networks</li> <li>• 3 Way Off-Set Networks</li> <li>• Filtered Permeability</li> </ul>	<p>The development strategy primarily adopts an open network model with elements of a dendritic network, maximising connectivity between key local destinations through the provision of a high degree of permeability and legibility for all network users particularly for sustainable forms of travel.</p>
Approach to Speed	<p>DMURS states that designers should balance speed management, the values of place and reasonable expectations of appropriate speed according to Context and Function. Where vehicle movement priorities are low, such as on Local Streets, lower speeds limits should be applied (30km/h)</p>	<p>The proposed development has a design speed of 30kmh, with streets designed to ensure they are self-regulating through a combination of 'soft' (landscaping and active edges) and 'hard' measures (street geometry, raised tables and build outs).</p>
Street Trees, Planting & Street Furniture	<p>DMURS primarily considers street trees in terms of enclosure and suggests that for ratios of building height and street width within this development that supplementary street trees are desirable</p>	<p>A comprehensive landscape masterplan for the proposed development has been prepared by Parkhood Landscape Architects. The masterplan reinforces a sense of street enclosure through the addition of street trees with appropriate canopy spreads best suited to <b>Local Streets</b> and the <b>Link Street</b> for optimal compliance with DMURS.</p>
Active Street Edges	<p>Designers should aim for active street edges which provide passive surveillance and promote pedestrian activity</p>	<p>On-street activity is promoted within the internal layout on <b>Local Streets</b> through the adoption of 'own-door' dwellings and corner plots have been designed with dual aspect units.</p>





Design Element	DMURS Guidance	Proposed Development Adopted Design Approach
Signage & Line Marking	DMURS notes that designers should use discretion with regard to the self-regulating characteristics of streets and the impact of signs / line marking on the value of place	In recognition of the low speed nature and low movement function of <b>Local Streets</b> , the proposed design has sought to specify minimal signage and line markings along the internal local streets with such treatments used sensitively throughout.
Materials & Finishes	DMURS states that designers should use <i>'contrasting materials and textures to inform pedestrians of changes to the function of space (i.e. to demarcate verges, footway, strips, cycle paths and driveways) and in particular to guide the visually impaired</i>	The range of proposed materials is in line with the requirements of DMURS with <b>Local Streets</b> (e.g. leading to/from the site access nodes with the <b>Link Street</b> ) will be formed using standard macadam / asphalt finishes. At each of the at-grade flat top pedestrian crossing / traffic calming table treatments, different surface material treatments are proposed to alert and subsequently influence driver behaviour and vehicle speeds. <b>Homezone</b> will be distinguished through the application of different coloured surfacing.
Footways	DMURS notes that well designed footpaths are free of obstacles and wide enough to allow pedestrians to pass each other in comfort.	Clear, unobstructed footpaths of no less than 2.0m wide are provided throughout the scheme, with connections and tie-ins to existing external pedestrian networks thereby complying with DMURS requirements.
Pedestrian Crossings	DMURS considers crossings to be <i>"one of the most important aspects of street design as it is at this location that most interactions between pedestrians, cyclists and motor vehicles occur"</i> .	Well designed pedestrian crossing facilities are provided at frequent intervals along key travel desire lines throughout the scheme in addition to those located at street nodes. All courtesy crossings are provided with either dropped kerbs or a raised flat top treatment thereby allowing pedestrians to informally assert a degree of priority. All informal pedestrian crossing facilities are at least 2.0m wide, whilst all controlled



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		pedestrian crossings are at least 2.4m wide and all toucan crossings are at least 4.0m wide.
Corner Radii	Reducing corner radii improves pedestrian and cyclist safety at junctions by lowering vehicle speeds and increasing inter-visibility between users	<p>With the objective of encouraging low vehicle speeds and maximising pedestrian safety and convenience, corner radii have been provided as per DMURS guidance, at:</p> <ul style="list-style-type: none"> <li>• <b>Link / Local</b> nodes has been specified as 6.0m where required as informed by swept path analysis, and</li> <li>• <b>Local / Local</b> nodes has been specified as 3.0m</li> </ul>
Pedestrian & Shared Surfaces	In the context of the proposed development, DMURS recognises the use of shared surfaces as being highly desirable where <i>“movement priorities are low and there is a high place value in promoting more liveable streets (i.e. homezones) such as on local streets within neighbourhood”</i>	A number of homezones are proposed within the development and have been designed to incorporate features that ensure drivers recognise that they must share the space with non motorised users. This has been achieved by applying differing materials and finishes within Homezone areas.
Cycling Facilities	DMURS references the National Cycle Manual (NCM) in terms of the provision of appropriate cycling facilities.	Segregated pedestrian and cycle facilities are provided along the <b>Link Street</b> . Along the remaining lightly trafficked internal <b>Local Streets</b> , cyclists will share the carriageway with other street users as per the NCM guidance for such situations.



Design Element	DMURS Guidance	Proposed Development Adopted Design Approach
		<p>A cycle scheme is proposed between the site and Tullamore Town Centre. The proposed cycle scheme commences approximately 100m south of the proposed site access junction and continue along Clonminch Road to tie into the existing road carriageway at a location approximately 80m northwest of the Bachelor’s Walk junction.</p>
<p><b>Carriageway Width</b></p>	<p>DMURS states that Links Streets should lie in the range of 2.75m to 3.5m, while on Local Streets carriageway widths should be between 5.0m-5.5m and on local streets where a shared surface is provided should not exceed 4.8m</p>	<p>The proposed residential developments internal street network are compliant with DMURS, incorporating:</p> <ul style="list-style-type: none"> <li>• <b>Local Streets:</b> 5.5m wide carriageways;</li> <li>• <b>Link Street:</b> 6.5m wide.</li> </ul>
<p><b>Carriageway Surfaces</b></p>	<p>Where low design speeds are desirable (i.e. 30km/h) DMURS states that changes in colour and/or texture of the carriageway should be used periodically such as at crossings or where shared carriageways are proposed (i.e. 10-20km/h) applied to the full length of the street</p>	<p>Homezone streets will be differentiated through the application of differing coloured surfacing on the carriageways.</p>
<p><b>Junction Design</b></p>	<p>DMURS notes that junction design is large determined by volumes of traffic and that designers should take a more balanced</p>	<p>A signalised junction is proposed at the intersection of the proposed <b>Link</b> street and Clonminch Road. All other junctions within the proposed development will be priority controlled which is consistent with the proposed traffic flows and complies with the</p>



Design Element	DMURS Guidance	Proposed Development Adopted Design Approach
	<p>approach to junction design catering for all users</p>	<p>requirement of DMURS for junctions between <i>Local Streets</i> and between <i>Local / Link Streets</i>.</p>
<p><b>Forward Visibility &amp; Visibility Splays</b></p>	<p>DMURS provides SSD Standards in relation to forward visibility requirements at junctions to ensure drivers have sufficient reaction time</p>	<p>Appropriate clear unobstructed visibility splays on both the horizontal and vertical planes, as per DMURS requirements; are provided / safeguarded at all internal nodes and at the site access junctions to the external road network.</p>
<p><b>Horizontal &amp; Vertical Deflections</b></p>	<p>DMURS highlights that traffic calming features should be provided on longer straights where there is more than 70m between junctions</p>	<p>Vertical deflections in the form of raised tables have been strategically placed across the internal <i>Local Street</i> network to promote lower design speeds and enable pedestrians to cross the street at-grade. Raised tables / platforms have been located at <i>Local / Link</i> nodes. The maximum height of these raised flat top treatments is designed to be 75mm with a minimum flat top width of 2.0m. Buildouts and speed reduction bends have also been incorporated into the <i>Local Streets</i> as traffic calming features making the local streets self-regulating.</p>
<p><b>On-Street Parking</b></p>	<p>Well designed on-street parking can help calm traffic, although a balance needs to be struck as an over provision will conflict with sustainability objectives and be visually dominant.</p>	<p>On-street parking is proposed at limited locations along the periphery of the proposed residential scheme (on one side of internal <i>local</i> streets) and at selected locations along the proposed <i>Link</i> street. The potential dominance of both on and off street car park areas for the apartments are actively managed through the provision of landscaped buffers and street trees.</p>



Design Element	DMURS Guidance	Proposed Development Adopted Design Approach
Multi-disciplinary Design Team	DMURS advocates multi-disciplinary input into the development of a scheme to ensure a holistic design approach is implemented	In accordance with design philosophy of DMURS, the proposed development has been prepared by a multi-disciplinary design team including Van Dijk Architects (architects), DBFL Consulting Engineers (civil engineers & transport planning) and Parkhood (landscape architects).
Road Safety Audit (RSA)	RSAs are required to identify potential hazards and how they could affect road users. They should be undertaken in full cognisance of the principles, approaches and standards contained within DMURS	RSAs will be considered for all stages of the development to ensure adequate and appropriate measures are included guaranteeing satisfactory standards of personal and traffic safety

