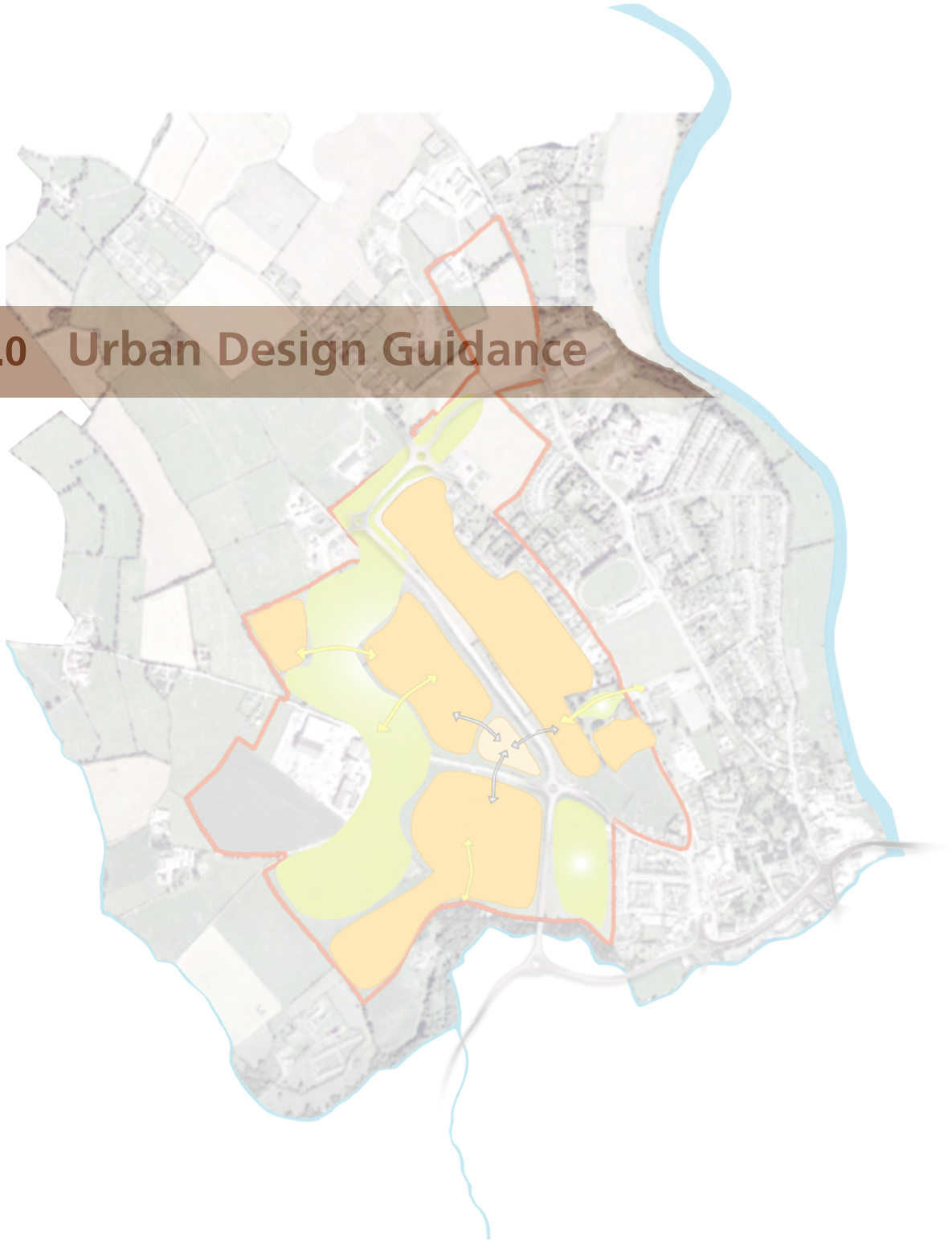
5.0 Urban Design Guidance



5.0 Design Guide

5.1 The Need for Good Urban Design

The aim of urban design guidelines is to promote environmentally sustainable development and to encourage the design of future urban areas that interact positively with the various elements of their local environment. The Kilkenny County and Borough Councils' have developed a strong vision for the Loughmacask LAP area that, with the aid of the right design tools, will see the area grow positively into the future.

These design guidelines have been developed to facilitate a forum for discussion between the Councils' and future developers on how best to achieve the vision promoted by the Loughmacask LAP. Based around principles of best practice, the design guidelines are specific to the unique characteristics of the Loughmacask area, particularly its strong relationship with Kilkenny City, heritage values, and distinct landscape features. Through the use of these design guidelines, it is hoped that opportunities will be created for creative design that responds to qualities of a given site, while ensuring that sustainable development is fostered through best practice design approaches to future development.

The design guide builds on the Councils' vision for Loughmacask and the policies and objectives of this Local Area Plan. As a guidance document, the design guidelines will also assist in the planning process by providing landowners and developers with additional guidance developed specifically for the Loughmacask plan area.

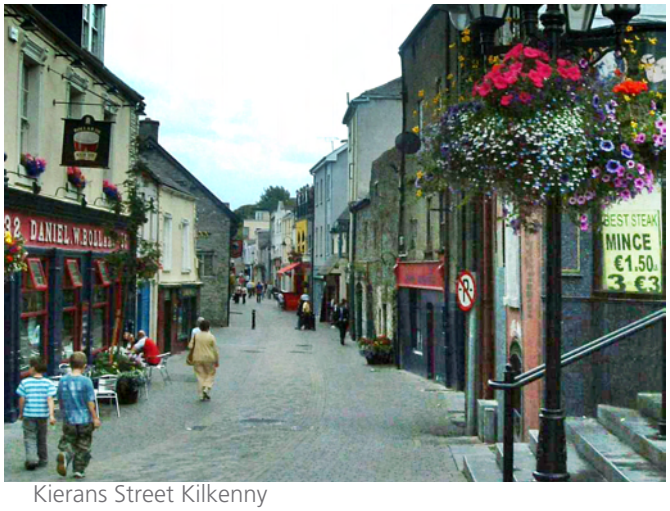
The design of each future phase of development should contribute to the making of a great place for people to live and visit. Each future development must be carefully considered and should be measured against its adherence in relation to the vision, policies and guidance of the Local Area Plan.

The design guide is set under a series of themes:

- Urban Arrangement
- Apartment and Housing Design
- Architectural Design Statement
- Sustainable Building Design and Technology
- Parks and Greenlinks
- Getting Around
- Sustainable Urban Drainage (SUDS)
- Dark Skies

The themes above consist of guidance of varying specificity, from accepted best design practice applicable throughout the Loughmacask area, to area specific guidance or a description of a core proposal, such as a the Loughmacask Park and Village Centre.

As a tool for planning and design it is recommended that users read the design guide in full to avoid oversight of important guidance, related to their projects.



Kierans Street Kilkenny


Kilkenny Castle and the Nore River - Kilkenny


Kilkenny panorama

5.1.1 A good mix of uses and densities

Achieving the appropriate level of density is important in order to generate a compact footprint that brings different land uses together in close proximity. This in turn allows for a more pedestrian friendly and accessible built urban area. Ideally all the central services, amenities and facilities that are communally used will be within five to ten minutes walking distance of where people live.

A compact urban footprint is also economically advantageous, as higher densities generate population catchments to support more services and community facilities and also generate the conditions for animated lively streets and open spaces.

It is important that future development be designed with a focus on 'integrated mixed-use components' as opposed to 'single use developments', such that social integration, via mixed tenure, housing types, community and commercial services within a compact area, is achieved.

The County and Borough Councils' seek to create an area of diversity, achieved in part through a blend of different uses and residential development within a range of densities and typologies.

- Sustainable urban densities that facilitate the creation of an amenable mixed use neighbourhood where precedence is given to pedestrian access and movement.
- The provision of public spaces, amenities, community facilities and commercial services within a five to ten minute walking distance of where people live.
- Mixed-use neighbourhoods that comprises a mix of housing types, sizes and tenures, facilities, services and amenities.
- A diverse range of services within close proximity in order to facilitate economic viability and social integration.

Accordingly, design of buildings and the surrounding site shall be undertaken to implement a locational approach to residential density such that:

- In principle higher residential density developments are located within close proximity (five minute walking distance) of the village centre and important transport routes which have the potential to accommodate public transport services (such as the proposed Inner Relief Road).
- Lower density residential development in general is located in peripheral areas, such as the north east perimeter of the LAP area, and in areas where by virtue of environmental and landscape character attributes, lower density development is preferable.

The recommended locational approach to density for Loughmacask is described in figure 9.

Within lower density areas, dwellings will predominantly consist of house units, while in higher density areas there will be a larger proportion of townhouse, duplex and apartment units.

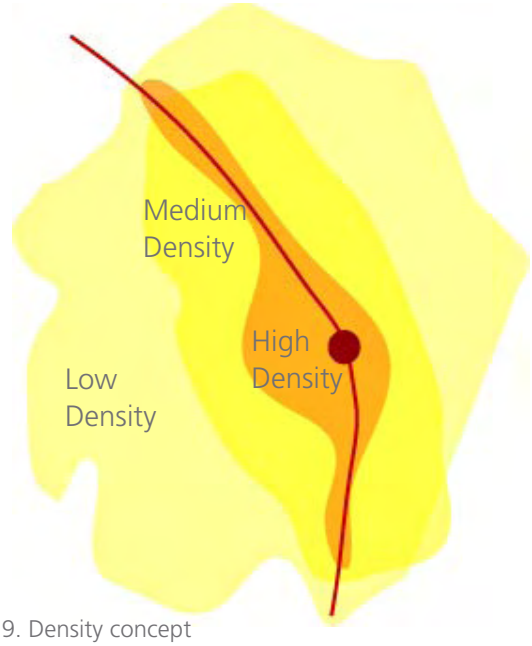


Fig. 9. Density concept

Public open space with seating

Pedestrianised retail area

5.1.2 A Permeable Urban Grain

A core urban design principle underlying the vision for Loughmacask is that of a permeable urban grain. A permeable urban grain describes urban areas where the buildings and private spaces are arranged in modest sized blocks of development (typically 70-120metres in the longest dimension), therefore creating a frequent and extensive network of routes (See Fig. 10).

The network will provide:

- A choice of routes on foot through the area.
- Avoids overly long routes for pedestrians.
- Seeks to inter-connect as many places as possible.

Each future development must be carefully considered in relation to the overall Local Area Plan and should contribute to opening up of predominantly pedestrian/ cycle routes for people to get around the area.

In order to support this principle the following should generally apply to the design of developments:

- Development arranged along a network of long cul de sac or dead end routes will be discouraged.
- Overly large development blocks of buildings and private space will be avoided.

The arrangement, scale and form of public open space should be amongst the central considerations in the layout and design of urban areas. Personal security must be taken into consideration by way of orientating public space (roads, foot paths and open space) in relation to the surrounding built environment, while also allowing for a high degree of permeability for pedestrian, cyclists and vehicle traffic.

The public open spaces (streets, parks and squares) within an urban area form a key part of the movement network and are a means of permeating the urban area with many routes.

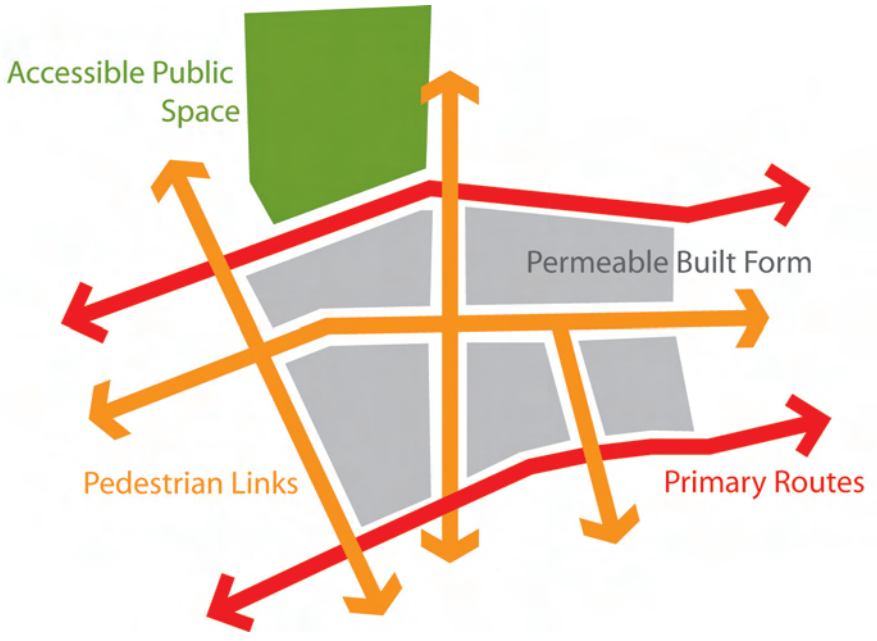


Fig. 10. Permeability

5.1.3 Responding to the topography

Topography

The Loughmacask LAP area has a varied topography, characterised by a landscape of hillocks, hollows and wetlands, with up to a 16m difference in heights between the highest and lowest points (See Fig. 11). The valley running towards the Bregagh Valley and the area around Loughmacask are the lowest areas. They are connected by a series of hollows running between them. The highest points are at the southern and northern ends of the site offering views of the area.

In addition to retaining the natural form and character of the site, designing with the slope helps prevent the loss of soil and mature vegetation. It also prevents the possibility of undermining adjacent structures, land and trees. Accordingly, the Councils' seek that the following guidelines be considered:

- Wherever possible, buildings, footpaths, streets, sewers and other watercourses should be aligned to follow slope contours. This allows building profiles to grow out of the ground, minimises cut and fill and enables natural gravity-flow drainage to be utilised.

- On sloping sites, building design should be undertaken to minimise earthworks. The Councils' seek that developers design to fit the slope.

Vegetation and Stone Walls

The landscape of the LAP area is defined by a number of significant hedgerows, stonewalls, and stands of mature trees (See Fig. 12). Each is significant in terms of the ecological and aesthetic value it brings with it and, accordingly, their retention has the potential to add positively to the future character of the Loughmacask area.

Well developed Hawthorne hedgerows are prevalent in the vicinity of Lough Macask and adjoining lands. Through the future design of the Lough Mascask parkland area and adjoining low density housing, the Council encourages the retention and enhancement of these hedgerows, such that they add positively to the ecological and aesthetic value of the area. Such retention may be incorporated into boundary treatment or site features. Moderately developed hedgerows also exist within the vicinity of Lousybush Lane. For those reasons outlined above, the council would also encourage that, wherever viable, these hedgerows be retained and enhanced in conjunction with future development.

The heritage of Lousybush Lane is contained, at least in part, within its stone walls, which run along the western side. In addition to being a strong heritage feature of archaeological value, the stone walls have the potential to be incorporated into the design of the site as a meaningful aesthetic feature. The Council therefore encourages that the stone walls be retained and integrated with future development of the area. Use of the stone walls in their present or alternative forms is encouraged, so long as the approach is innovative, yet respectful to local values.

A large stand of mature trees exist on the lands around Ayresfield house. Like the hedgerows and stonewalls, these trees have the potential to add to the ecological and aesthetic value of the site. The trees are home to various birds and other fauna, and have the potential to provide for amenity routes between the LAP area and surrounding lands. Accordingly, the Council seeks that, where possible, mature trees be integrated into an overall landscape design for any future development, such that they are maintained and enhanced and, where necessary in the future, replaced with common species.

Building responding to topography

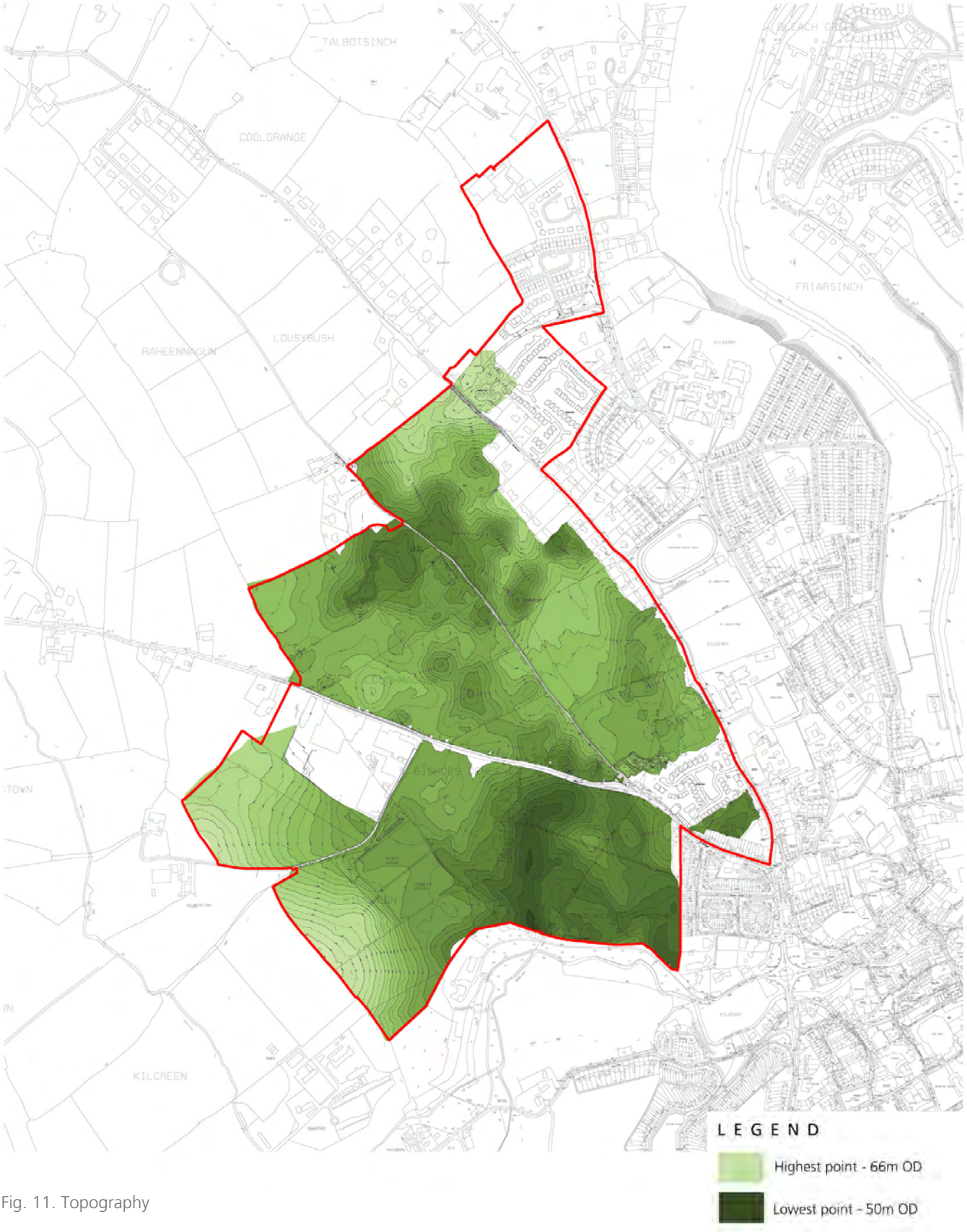


Fig. 11. Topography

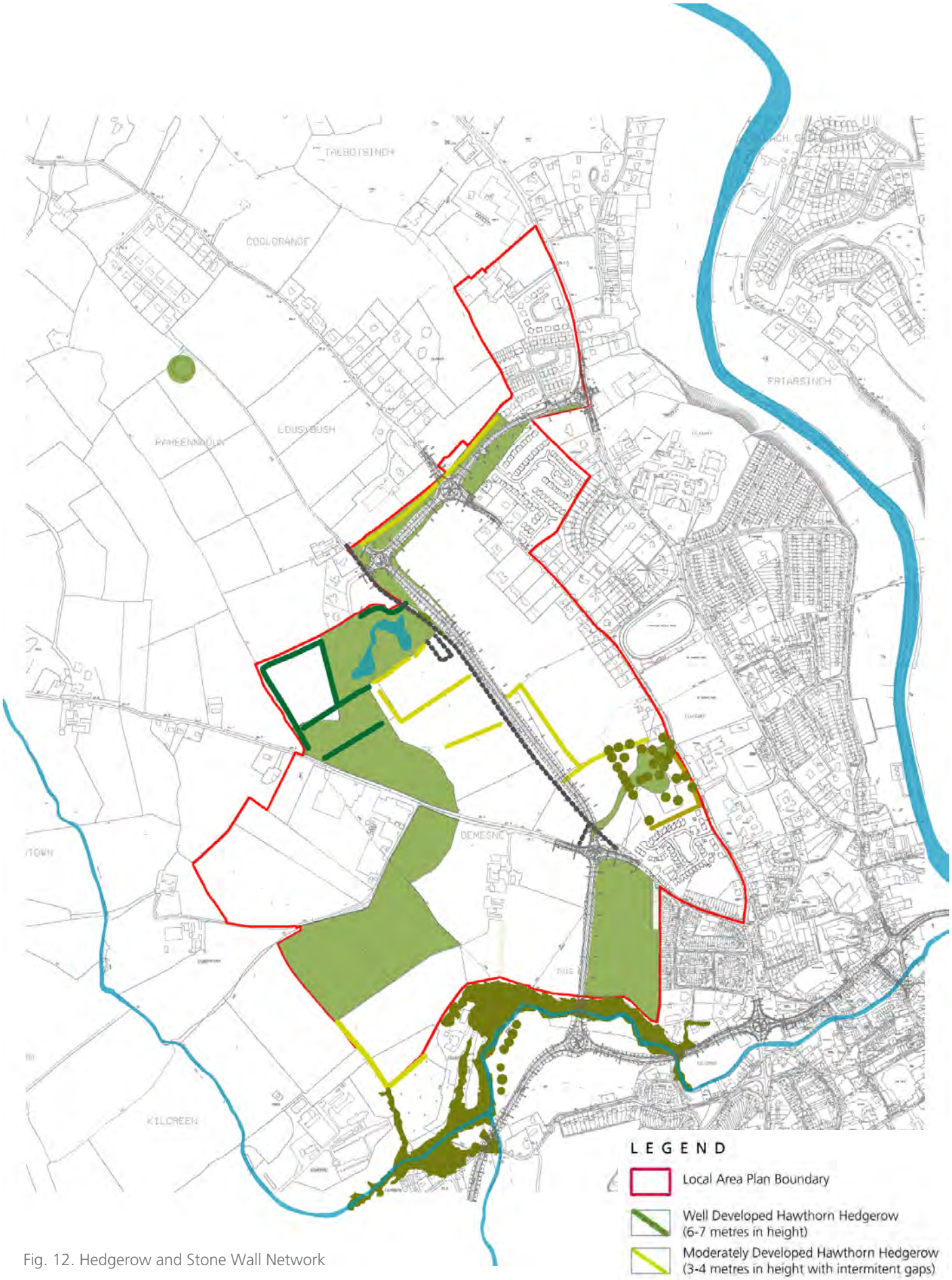


Fig. 12. Hedgerow and Stone Wall Network

5.0 URBAN DESIGN GUIDANCE

5.2 Urban arrangement

5.2.1 Overall Structure

The overall structure for the Loughmacask plan is characterised by the following elements:

- A green spine of open space connecting from the Freshford Road around the perimeter of the plan area and southward to the Breagagh River, incorporating the Lough Macask lake. The green spine is described in further detail in section 5.6 of the Design Guide.

- The primary element of transport infrastructure serving Loughmacask will be the proposed Inner Relief Road (IRR) which has been modified to provide access to the developable lands and to allow a number of safe pedestrian crossing points.

- The focal point for the built up areas will be the Loughmacask Village Centre. The Village centre is located such as to benefit from access from the Inner Relief Road and Bennettstown Road and to be accessible within short walking distance of all neighbourhoods.

- The housing areas are subdivided by the road network and greenspaces into three neighbourhoods, each neighbourhood demonstrates its own unique landscape and design attributes. For the purpose of description the three neighbourhoods are named as follows: Ayersfield, Lousybush, and Kilcreen.

- In addition a series of east/west greenlinks provide connectivity between neighbourhoods the village centre and the adjoining areas of the city. The green links are described in further detail in section 5.6 of the Design Guide.

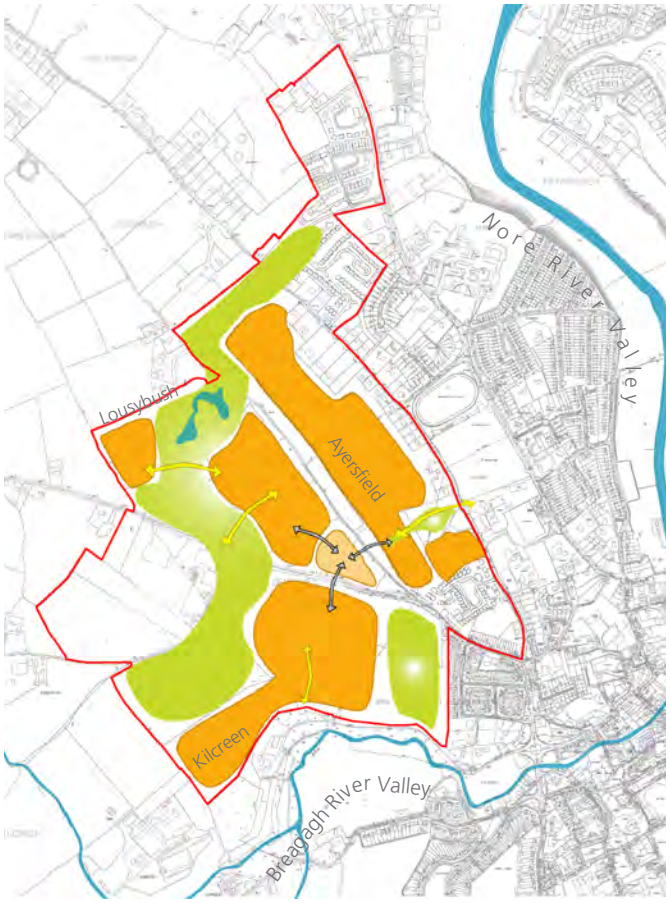


Fig. 13. Relationships between neighbourhoods

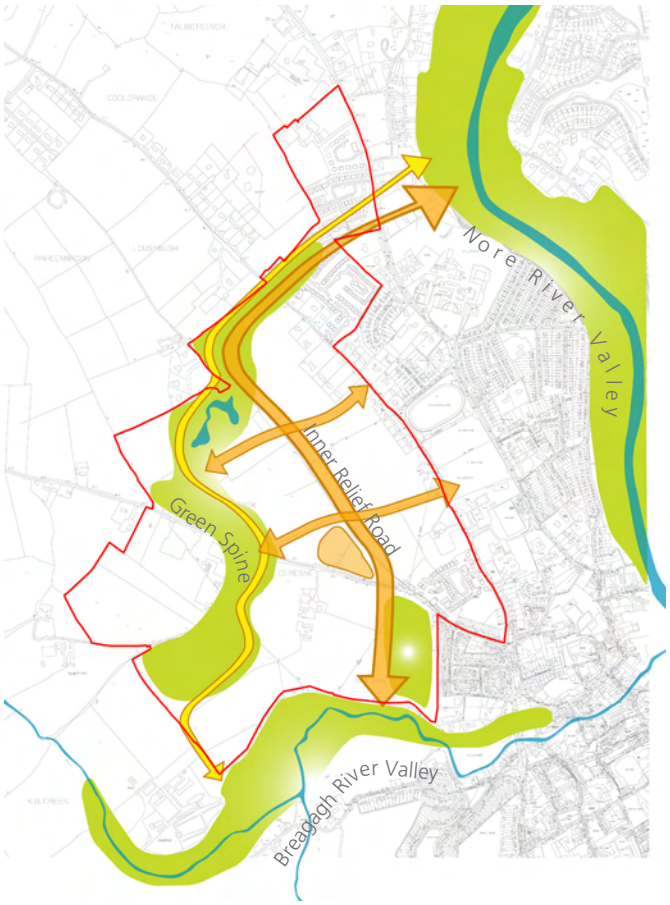


Fig. 14. Vehicular and pedestrian spines

5.2.2 Village Centre

Arrangement

The village centre is situated in the valley created by the low contours and is running from its highest points at the northern edges of the village towards the low points adjacent the IRR Roundabout (See Fig. 15). This creates possibilities for strong views and relationships between the highest and the lowest points.

The village square will become the urban centre for the LAP Area. It will act as the core for both green links to and from the surrounding parks, amenity areas and infrastructural links.

Creating good pedestrian connections and visual links across the roads from residential areas will be essential to the vitality of the village centre.

Village Centre use at night

Fig. 15. Village Topography

Public Realm

The central square should be formed and enclosed by new buildings and create a space which defines the identity of the village. The village square will be a meeting point, a plaza for events and a space which makes the village centre an attractive urban commercial area (See Fig. 16).

The central square should be linked to the roundabout creating a visual connection between the roundabout and the square. As this space by the roundabout is also the lowest point in the village it may be used as an area for stormwater attenuation (SUDS).

The surfaces in the village centre are mainly pedestrian or shared, which means that where roads enter the village they become pedestrian friendly, easy to cross and paved in such a way that cars lower their speed. Pedestrian areas should allow spaces for seating and meeting, and street furniture, paving and planting should be chosen to create a people friendly environment.

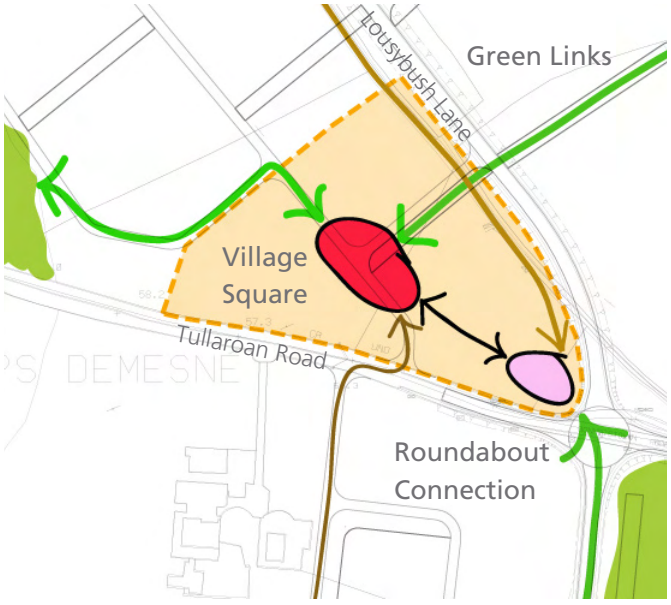


Fig. 16. Village Centre

Uses

The village centre offers both commercial, residential and community uses to support a lively and animated village centre daytime and evening, weekday and weekends.

Retail frontages should in order of priority be distributed as follows:

- Around the village square.
- Along the Access road running into the village.
- Along the pedestrian link towards the roundabout

The block of development beside the Roundabout on the IRR is suited to office uses. A mix of office and retail is proposed in the block facing Tullaroan Road.

Generally commercial uses will be located on the ground floor or street level with residential units overhead. It is also considered appropriate that residential units are at the edge of the parks and open spaces (See Fig. 18).

Restaurant open towards the public realm

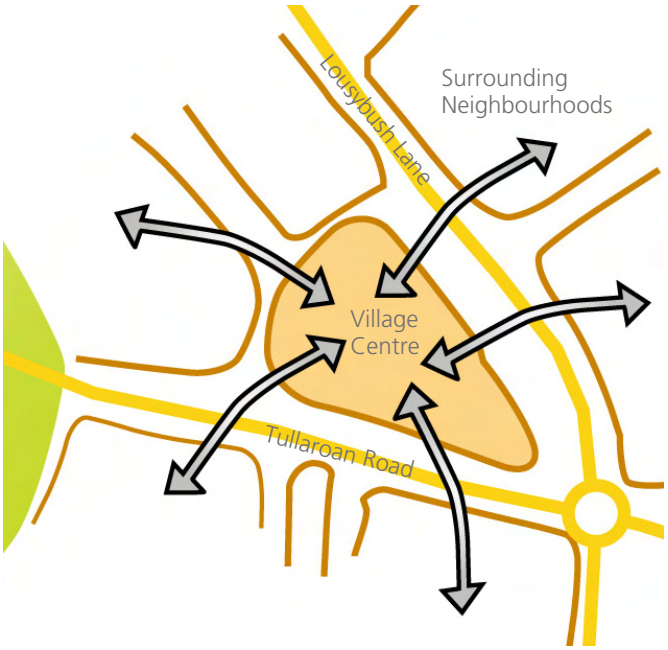
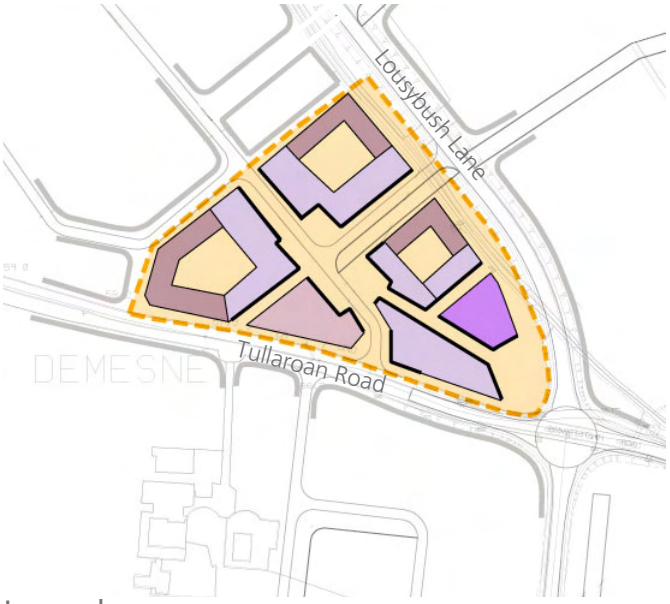


Fig. 17. Village Connections



Legend

- Retail
- Office / Residential
- Office
- Residential

Fig. 18. Primary Village Uses

Retail role

The retail role of the village centre is intended to serve local need and should not detract or draw from the Core Retail Area of Kilkenny city centre or other district and local centres on the outskirts of the city. Where possible, it is advised that the retail development component not be of a form or scale that would attract significant amounts of additional vehicular traffic into the Loughmacask area (See Fig. 19).

It is important that the retail floorspace provided is distributed amongst the typical shops and services required of a village centre and needed to provide for choice locally. It is acknowledged that a good convenient food supermarket is an essential ingredient in a thriving village centre, and one should be provided in the earliest phases of development. However, the village centre is not an appropriate location for a large city centre scale food supermarket anchor store. Therefore it is recommended that no single shop unit be larger than 3,000sqm in gross floor area (inclusive of storage and office space).

As an outline it is recommended that a total retail floorspace of up to 10,000 sqm gross floor area (inclusive of storage and ancillary office space) be provided for in the village centre, and that this floor area is distributed amongst 12-20 individual units with independent frontages and access from the public realm (street / square). Own door office units such as estate agencies can be provided additional to the 10,000sqm. In addition leisure uses such as a fitness centre / gym and community facilities (such as crèche) can be provided as additional commercial uses.

A typical range of shops and services which should be provided for in the village centre are as follows:

- Local food supermarket
- Butchers / Fish Mongers
- Greengrocers
- Delicatessan
- Pharmacy
- Café-bar
- Restaurant
- Medical Centre
- Take Away
- Restaurant
- Bank
- Post office
- Credit Union
- Newsagent
- Dry Cleaners
- Video Library
- Bakery
- Florist
- Wine shop / off licence
- Travel agency
- Print shop / business centre
- Internet cafe

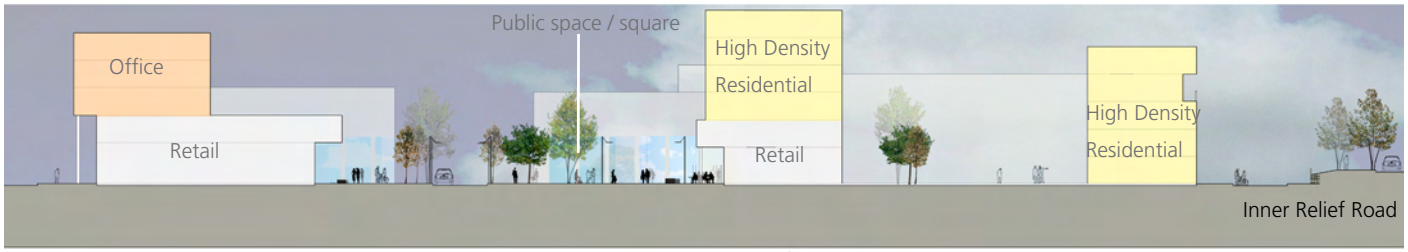


Fig. 19. Section A through Village Centre

The village centre is an appropriate location for some comparison retail floorscape, provided the cumulative comparison shopping provided or any single unit is not of a scale or form that would detract from the Core Retail Area of Kilkenny or attract significant levels of additional traffic into the area. As a guide comparison retail floor space should account for no more than 40% of the total retail floorspace provided in the village centre. Examples of such comparison retail units could be as follows:

- Bookshop
- Clothing boutique
- Jewellers
- Art gallery
- Music store

Village Centre

Village Centre Parking

With regard to parking within commercial and mixed use areas, the Councils' aim is to obtain a balance between the provision of cycle and car parking near all popular destinations, and the need to have commercial off-street car parking. A minimum level of paid on-street car parking can be maintained to allow quick access to services while simultaneously providing multi-use communal off-street car parking (underground where viable and appropriate) that can serve different needs at different times.

Because of the sloping topography of the site underground parking can be easily accommodated along the northern edge of the village centre without requiring deep excavations. The design of off-street car parks should be considered as spaces in their own right and visually integrated into the urban landscape.

Parking close to the town centre

Density

The area has been divided into 3 different densities: High, medium and low. High density is proposed along the Inner Relief Road creating a strong urban edge with an appropriate scale and openings along this main spine. Medium/Low Density is proposed along edges of the areas facing either existing residential developments or green areas. Low densities are proposed towards the edge zones where woodland housing and residential areas linked directly or situated in parkland will be able to adapt to the surrounding landscape (See Fig. 20).

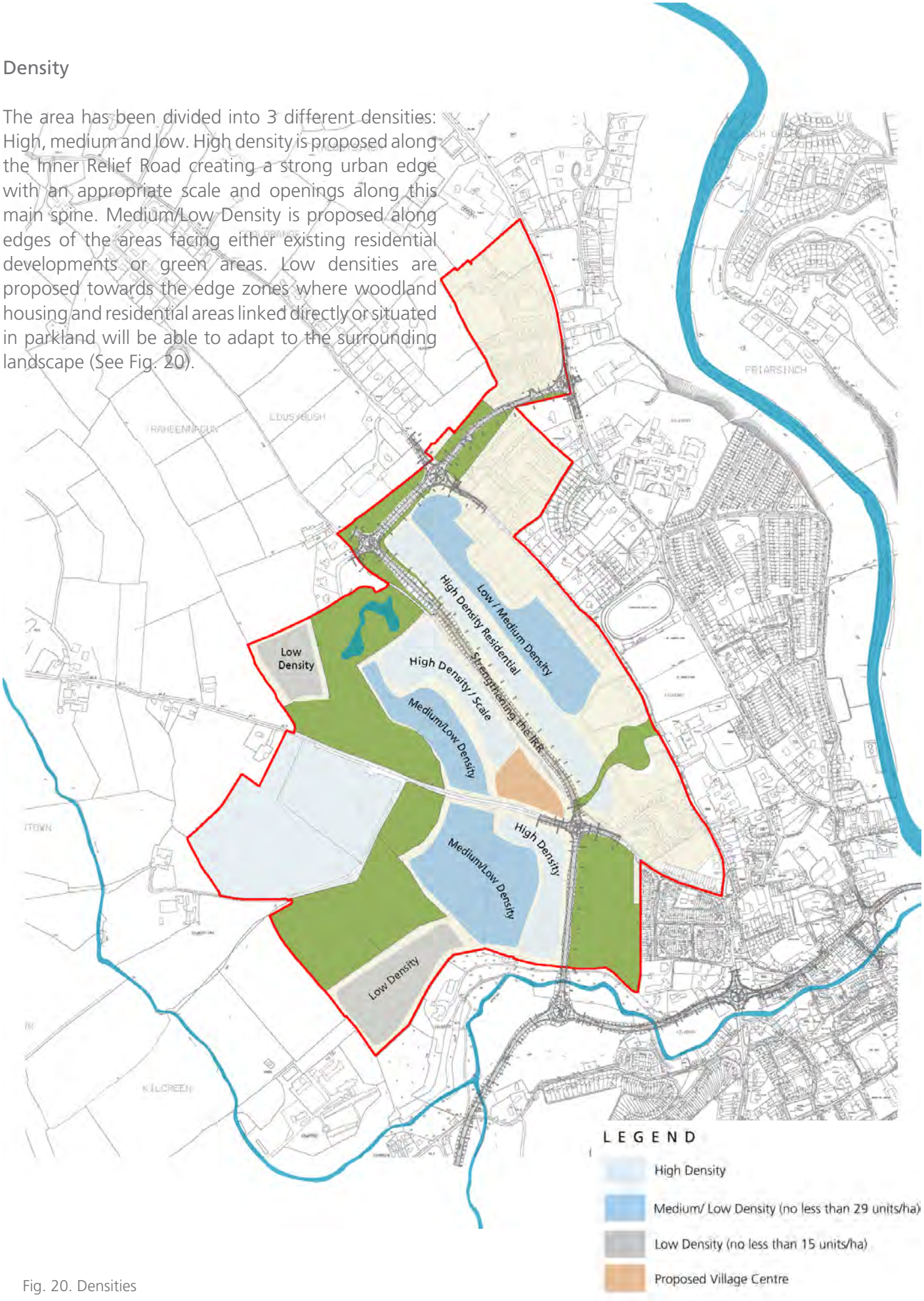


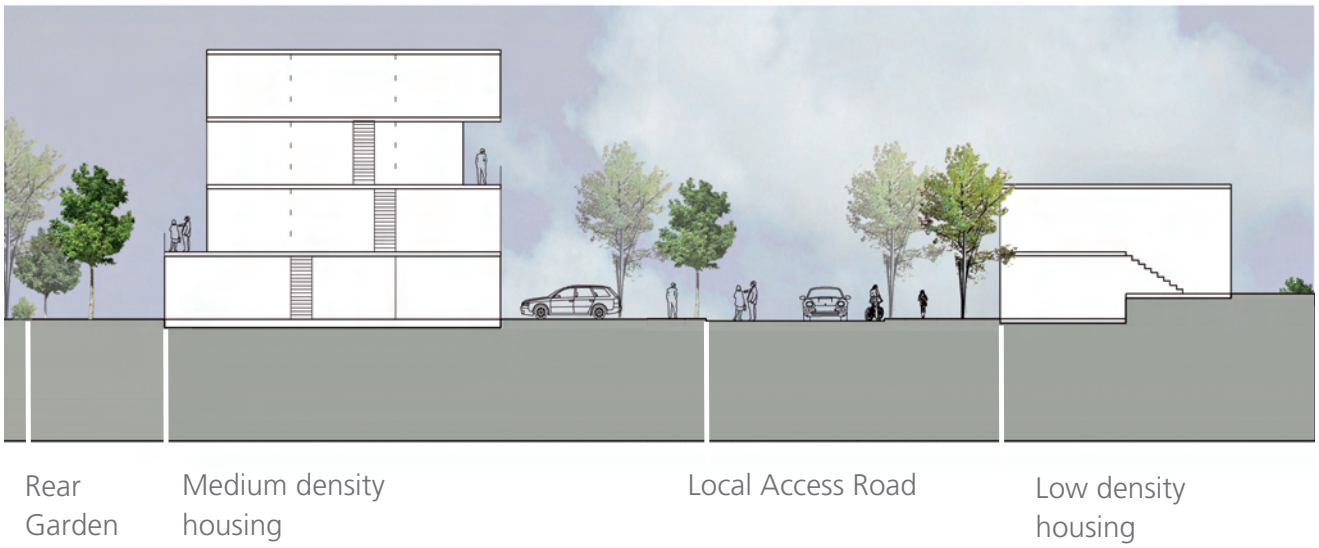
Fig. 20. Densities

Mix of uses incorporated into building

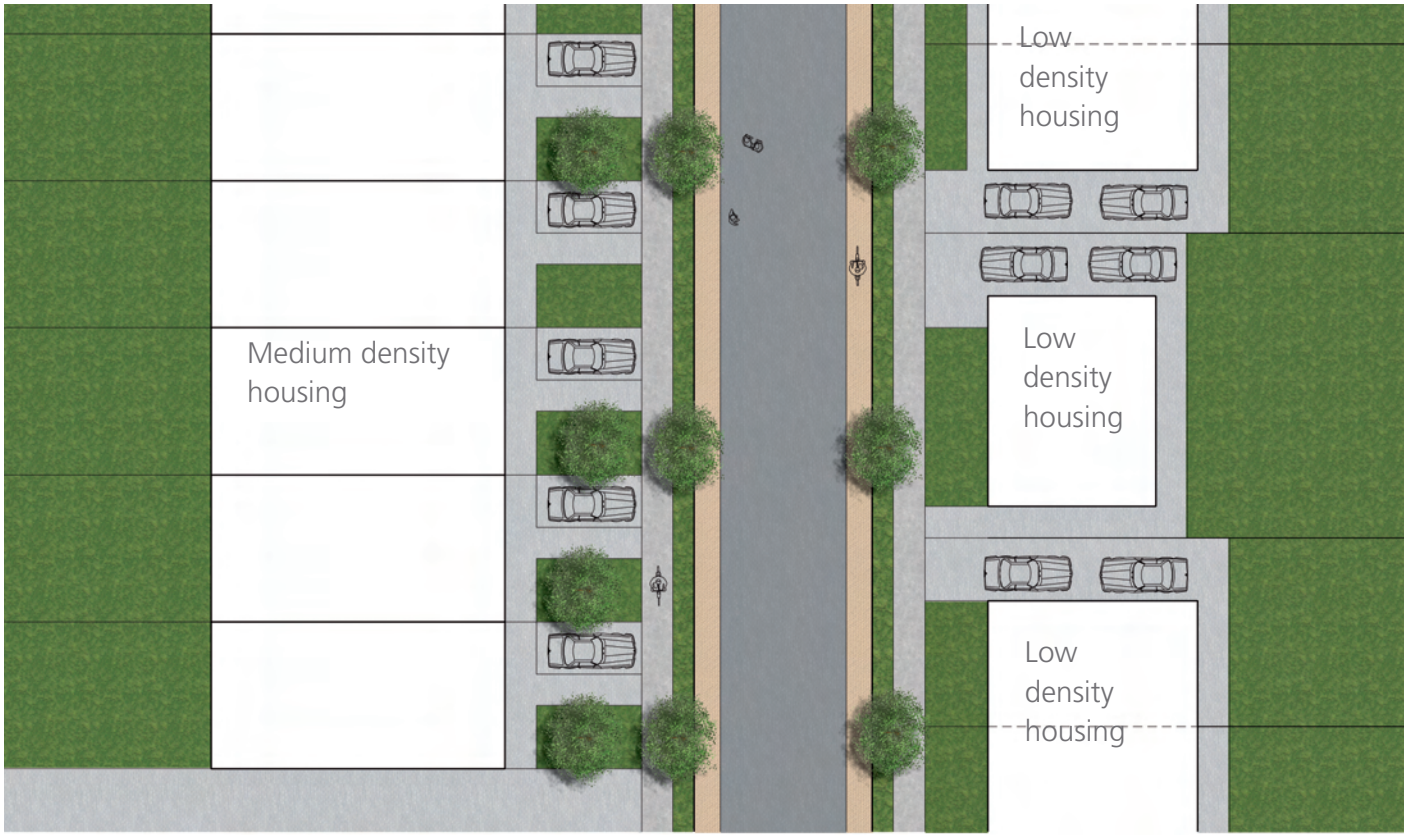
Local neighbourhood

Fig. 21. Mixed Tenure Residential Development

Fig. 22



Section B - Local Access Road, showing medium and low density Housing

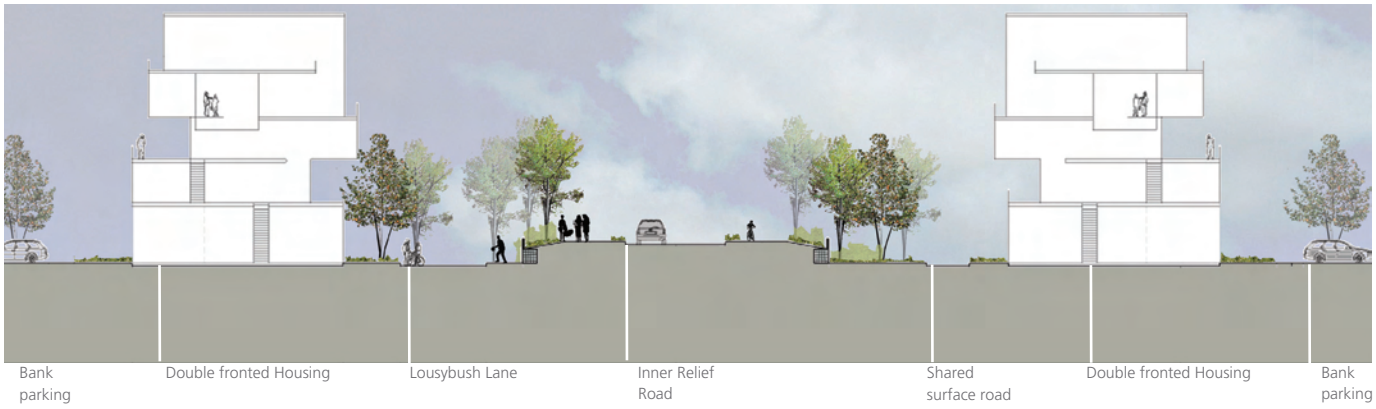


Plan B - Local Access Road, showing medium and low density Housing

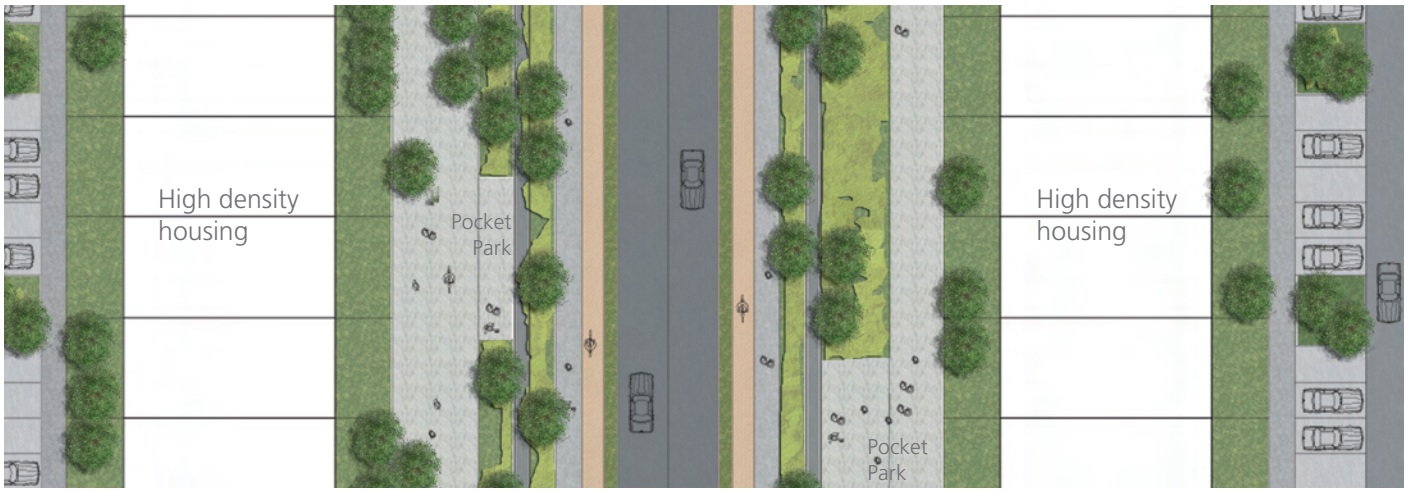
5.0 URBAN DESIGN GUIDANCE

Section Key
Location of Sections A - H

Fig. 23



Section C - Inner Relief Road, showing high density housing



Plan C - Inner Relief Road, showing high density housing

5.2.3 Neighbourhoods

All of the neighbourhoods will have strong connection and orientation towards amenity spaces (See Fig. 13).

Ayersfield

This neighbourhood is closely linked with the community around the Dunningstown and Freshford Roads and the green and pedestrian links from the village centre towards the schools and Kilkenny City Centre. A number of green links will run through the neighbourhood from east to west to provide good connections for residents to the village centres and the park areas.

The Ayersfield neighbourhood is linked to the IRR by high density housing running along it. Openings are created by green links through the LAP area connecting with existing adjacent communities and the distributor roads.

The should change to medium and low when approaching the existing residential areas to scale new buildings to work with existing ones. Buildings proposed in this area should follow and work with the contours and views from this area to create a distinct neighbourhood.

Lousybush

An access road runs along the centre of the neighbourhood in the valley created by the low contours 'floating' between the Breagagh valley and Loughmacask Lake and thus connecting the village centre to the lake. The access road will have the character of a street, fronted with housing and private gardens on both sides. The Lousybush neighbourhood will be criss-crossed by a number of pedestrian,cycle greenlinks which are important in providing interconnections between all of the neighbourhoods.

Low density housing is proposed in the area situated west of the green Spine. This should be a woodland landscape connecting to the landscape in the woodland areas around Grasslands Fertilisers. The landscaping of streets, public and private spaces should be in keeping and blend in with the surrounding landscape creating green and open spaces with the buildings set within this.

Kilcreen

Relates both to the village centre and the Breagagh Valley connected to both by pedestrian/cycle green links.

Relates both to the village centre and the Breagagh Valley connected to both by pedestrian/cycle green links. It is situated over partly sloping ground, between the Green Spine, the Breagagh Valley and the designated community area adjacent to the Butts.

High density housing is, as in Lousybush and Ayersfield, proposed along the IRR, medium housing as the area moves towards the Green Spine and low density in the southern corner facing the Breagagh Valley. Kilcreen connects the village with the Breagagh Valley through the green swale running along the IRR.

5.3 Housing and Apartment Design

The following housing and apartment design standards seek to facilitate the development of high amenity sustainable neighbourhoods within the Loughmacask area and, therefore, where possible, should be incorporated into new developments at the time of design:

5.3.1 Choice

- To ensure there is provision of housing types for all aspects of the market, the Councils' will generally require the provision of several different dwelling types within any single development, consisting of a mix of dwelling sizes and styles.
- Apartment developments will contain a mix of apartment sizes, with a higher proportion of 2 and 3 bedroom apartments over 1 bedroom apartments.

5.3.2 The Dwelling

- All residential dwellings should be sited so as to receive adequate day-lighting within the dwelling and in the private open space of each dwelling.

- All dwellings shall have direct access to a private open space. In the case of apartments and duplex apartments, private open space shall be provided in the form of balconies, terraces or roof gardens. Each individual apartment / duplex unit should have a private open space sufficiently large to comfortably accommodate outdoor dining (table and chairs) in addition to additional amenity items such as potted plants and patios heaters. As a guide it is recommended that each dwelling be provided with a private open space of 12-15 sqm, with a typical minimum dimension of 2 metres.

- Private open space for houses is usually in the form of front, side and rear private gardens. In general the requirement will be 60 to 75 sq. m minimum for 3/4/5 bedroom houses, in order to ensure that a variety of household activities can be accommodated, while also adding to the visual amenity value of the surrounding neighbourhood. The maximum normal site coverage of any residential housing site shall be 65%.

- Dwellings (including apartments) should be pre-dominantly dual-aspect (with windows/ openings on two or more elevations). Where single aspect dwellings are unavoidable, single aspect units should have a predominantly south facing aspect and north-facing elevations will not be permitted.

- Within apartments, long corridors are discouraged.

- Entrance halls, corridors and all habitable rooms within apartment complexes should be well designed with provisions made for natural ventilation and day lighting.

- Communal facilities for apartments (including open space, washing and drying areas, refuse storage and car parking) should be included with adequate and easy access.

- Externally accessible and covered storage space should also be considered for play equipment and bicycles.

- Within apartments, internal individual storage spaces/facilities will be provided in all apartments. These must be separate to those areas containing the water tank and hot water cylinder, and must be designed to permit easy access and use.

Sustainable architecture

Entrance corridor

- Service ducts serving two or more apartments should be accessible from common circulation areas for maintenance purposes.

- In the design of residential developments incorporating duplex and apartment units it is recommended that opportunities for own-door access to dwellings from streets and shared open spaces are maximised and the need for communal hallways and stair/lift cores are minimised.

- Where access to apartment and duplex units is provided via an open gallery it is recommended that the number of apartments accessed from the gallery is limited to 6 units.

- Where access to apartment and duplex units is provided via an enclosed stair and lift core, it is recommended that the number of dwellings accessed on each floor is limited to 4-5 units.

- The communal hallways and stair/lift core areas in apartment buildings should be naturally daylit and the need for artificial lighting of internal spaces minimised.

- Where apartment units are provided two levels or more above the street or ground level (for example on the second or third floor of an apartment building) it is advised that a lift be provided.

Views of surrounding landscape from dwellings

5.3.3 Car Parking

- Where car parking for dwellings is provided in on street form as oppose to being provided in front gardens; a landscaped strip of private garden space with a minimum depth of 1.5metres should be provided to the front of each house.

- Additional guidance on car-parking in general is provided under section 5.8 of the design guide.

5.3.4 Bin-storage & Recycling

- In apartment complexes and areas of terraced / duplex housing, designated communal bin storage shall be provided and suitable screen where located outdoors, as shall all composting and recycling facilities.

- Refuse storage, recycling and composting areas for apartment developments should be addressed at the design stage.

Shared Open Space in Residential Development

Design guidance with regard to shared open space in residential development is provided under section 5.6 of the design guide.

Car parking screened by planting

5.4 Architectural Design Statement

New buildings should be of their own time in appearance and should not replicate the style and detailing of heritage buildings. The replication of historic architectural styles is considered to be counter productive to heritage conservation in principle as it blurs the distinction between what is historic and what is contemporary and can lead to the emergence of poorly considered and inauthentic buildings. Accordingly, as a general design principle, the Council shall encourage innovative and contemporary architectural design within the Loughmacask LAP area.

Within developments it is recommended that a select limited palette of architectural materials and patterns should prevail to give visual coherency and in turn an identifiable character to the area, whilst still accommodating a degree of visual diversity.

In considering materials it would inappropriate to prescribe an exact material palette for all architectural elements, as supply and cost of materials can vary significantly over short periods of time and new materials may be introduced into the market in the future, which maybe desirable in regard to visual quality, durability, energy saving and/or cost.

The use of limestone in public buildings (such as the Castle, Rothe House and Hibernian Hotel) and in the paving of city streets and spaces is a strong characteristic of Kilkenny. Typical of most Irish towns the dominant architectural language of the town is of 2-4 storey buildings with rendered facades, pitched slate roofs and windows with a vertical proportion.

Such a palette of materials (limestone, rendered with light tones and slate) could form an appropriate base palette for developments in Loughmacask, a palette that would resonate with the evolved architectural character of the city. However this does not suggest that new developments should imitate historic form, proportion and order. For example specifying the incorporation of modest scaled vertical orientated windows in the elevations of new buildings simply because it is an evolved tradition in the built fabric of Kilkenny, would be misguided, as it ignores the benefits and attraction of large windows, for day-light and views.

Framed historic view

Local historic pedestrianised street

Historic facade

Play area integrated in housing development

Residential access path

Contemporary building design

5.5 Sustainable Building Design and Technology

Buildings can be designed so as to respond intelligently to the existing topography and climate. For maximum effect and economy the aim should be for integration of appropriate design and technology into the overall building form and not simply to apply technology as an afterthought. The County and Borough Councils' seek that sustainable building technologies and sustainable use of resources in the construction of buildings be demonstrated within all new developments proposals within the Loughmacask LAP area. In this manner, new developments should, where possible, seek to maximise energy efficiency through their location, layout, design and/or make appropriate use of energy conservation techniques.

5.5.1 Long life use and adaptability

In areas close to the village centre, the Councils' will promote an approach to building design and technology that is flexible and allows for adaptation and for change of use in the long term, for example; the potential for office and retail space to be converted to living space and vice versa. Equally, the long term life of residential apartments should be considered through design that provides them with potential to be adapted over time (See Fig. 24).

A building should not become obsolete on cessation of an activity, but should be capable of facilitating new activities without onerous renovation.

Long life use and adaptability can be assisted through application of the following:

- Floor to ceiling height for residential developments can be higher than the norm (e.g. higher than 2.7 metres) to allow for possible conversion to office or retail use later, in particular at ground floor level.
- A preference for own door access (directly from the street) to residential units.

- Design devices such as demountable walls; movable partitions; retractable fixtures and fittings (bolts & screws rather than nails etc); recyclable materials, easy access to services, and space provision for future additions will also assist in a buildings adaptability.

- Good load bearing capacity in structural walls, floors and columns to facilitate change of use.

5.5.2 Microclimate

Urban design should be responsive to climatic factors in a manner that conserves the amount of energy used to light and heat buildings and creates sunlit and comfortable public open spaces. The design and arrangement of buildings on a site results in the creation of a microclimate, influencing the effects of temperature, sunlight and wind movement. Certain orientations and design can enhance comfort on exposed sites and maximise the potential of daylight and solar gain.

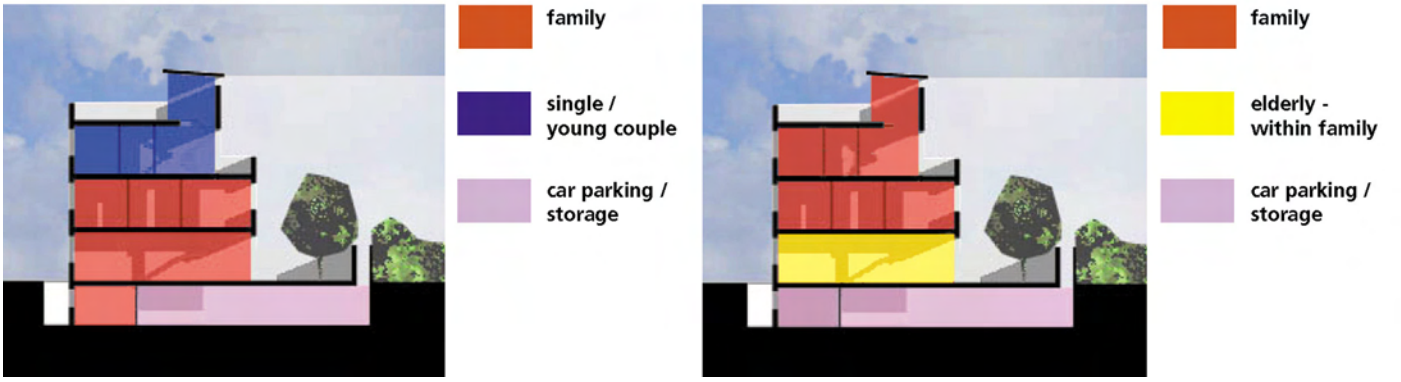


Fig. 24. Adaptability

5.5.3 Energy and Building Materials

Addressing the minimisation of heat loss, encouraging grey water recycling, minimisation of resources used to heat and light buildings, and the use of materials and construction processes that reduce the impact on environmental resources, will all assist in leading to greater sustainability and longevity of the Loughmacask community.

Particularly within housing developments, the Councils' seek to see opportunities for energy conservation applied within any design.

In contrast to passive solar design 'active' solar devices are usually separate pieces of technology with a single function such as to utilise solar radiation to produce hot water. The orientation of the roof to the sun will need to be considered if these items are to be easily roof mounted to gain maximum sunlight exposure. Where a proposed building design and site is determined to have particular good potential for active solar gain, the Council will seek to have it incorporated into building design.

The Councils' recommend that all new development is undertaken with high levels of thermal insulation in all walls, ceilings and under floors.

With regard to energy and materials, where viable, developers may choose to incorporate the following active technology and clean and efficient energy sources within their design:

- Solar, wind or geo-thermal sources of power.
- Minimising waste in construction and pollution in the use of the building.
- Minimising lifetime water consumption of the building by the fitting of low- water use equipment, rainwater harvesting and grey water recycling.
- Minimising necessity for energy consumption through provision of protected outdoor clothes drying areas.
- Incorporating Building Management Systems.
- Installing Solar Thermal Panels, for the production of heat.
- Installing Solar Photovoltaic Panels for the production of electricity.

5.5.4 Plant Rooms

Plant rooms should be adapted into the overall concept for the building; incorporated into the main body of the building or as well considered architectural addition. Provision of plant rooms on roofs is to be avoided, where plant is to be located on a roof, it must be housed in enclosures finished to the same standard and material as on the rest of the facades.

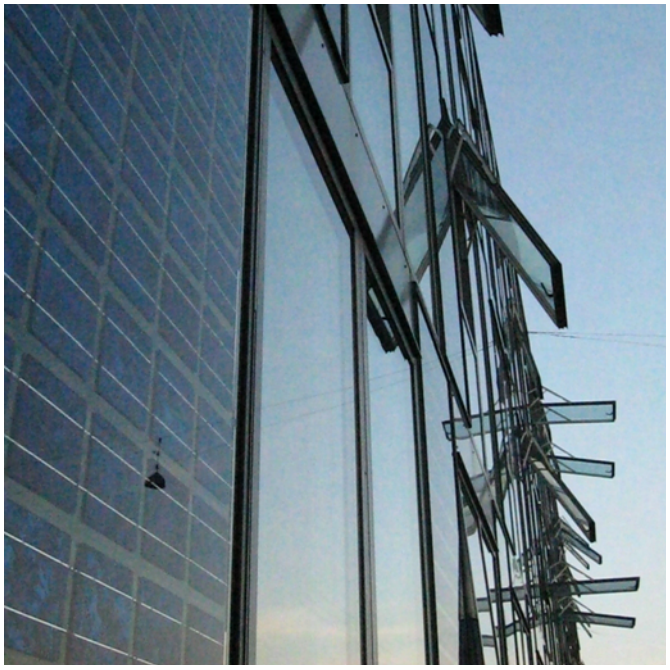
5.5.5 Fenestration

It is advised that the use of PVC framed windows and doors be avoided in preference for hard wood timber joinery and metal fenestration.

5.5.6 Rainwater harvesting and raingoods

It is advised that, where viable, all house units be provided with water butts to harvest rainwater from roofs and downpipes.

Where rainwater goods are external to the façade of the building, they should be of a sufficiently durable material; such as cast aluminium, stainless or galvanised steel.



Solar panels on building facade

5.6 Parks and green links

The identity and image of the Loughmacask LAP area will be derived, at least in part, from the future community's experience of the landscape and open space. It is important to carefully consider the arrangement and typology of open space and the character and function of the connecting networks. Of importance is the relationship between Loughmacask and the adjoining parts of Kilkenny City; the layout of the new urban area should be permeable and pedestrian friendly and be physically and visually integrated to the adjoining city.

As an integral part of the wider network of open space and community facilities, the Borough Council has purchased 2.05 hectares of land (zoned open space), located along the south-east edge of the LAP area. It is envisaged that these lands will be developed in the future for community purposes.

The Loughmacask area will be set apart as a distinct urban area by its network of greenspaces and green links; such as the Lough Macask Park and Lousybush Lane.

An overall approach to the design public open spaces in general is as follows:

- Provide a variety of types of open spaces that are usable and accessible and appropriate to their setting.
- Encourage a variation in the size, character and role of public open spaces, such as; courtyards, hard landscaped squares, leafy pocket parks, neighbourhood greens etc.
- Open spaces should be designed and constructed to a high standard making use of outdoor furniture, lighting and seating as appropriate.
- Provide safe spaces in central locations with adjoining dwellings to provide passive surveillance.
- Establish areas of native woodland planting that will provide shelter, bio-diversity and amenity value.
- Provide a public realm area that is pedestrian friendly and links Loughmacask to the historic city core.
- Provide sufficient lighting for safety.
- Provide open spaces that are universally accessible to people of all abilities.

Green public realm

Waterfeature integrated in public realm

Play

Play in residential area

Shared Open Space in Residential Development

Open space in Residential Development should:

- Be usable and functional, catering for passive and active recreational activity; children's play, sports, social gathering.
- Be of ecological/biodiversity merit or value, by connecting to and extending adjoining habitat areas and green spaces; preserving habitat areas on site (existing trees, wetlands, hedgerows, ditches) and/or incorporating ecological planting of native species. The Council may require the adjoining of public open space with adjacent developments to facilitate wildlife corridors, connectivity and other such considerations.
- Be of benefit in implementing Sustainable Urban Drainage Systems.
- Be central as opposed to peripheral to the layout of the housing area as a whole.
- Be integrated with the pedestrian and cycle network of the local area.
- Be overlooked and positively addressed by adjacent housing and community facilities.
- Be visually and functionally accessible to all residents.
- Provide lighting at a low level, side lit, wall mounted or bollard type, in the interest of minimising ambient light pollution of the night sky and of overlooking dwellings.

Ayresfield

Any future development of the Ayresfield site shall make provision for a walk and cycle way, and open space, over the site as depicted in Map 2 (Appendix A), and figure 28 of this LAP. To assist in creating a public network that is functional and inviting, future design of the site shall specifically seek to address the following matters:

- Night time illumination of walk and cycle ways;
- Ensuring that development adjacent to walk and cycle ways and open space is on-facing;
- Openness allowing for unimpeded views over long distances of the walk and cycle ways and to surrounding developed areas;
- Restrictions on fences and planting along the edge of the walk and cycle ways and open space to maximum 1.2m in height.

Sports and play areas

Play areas and equipment provided within public open spaces, should reflect primarily the character of that space and the catchment population or role of that space. For example in a small courtyard space it may be preferable to only provide a modest scale play area focussed on providing for residential immediately adjoining the space. It is also important that the play areas and equipment provided in spaces with a very localised catchment provide for the needs of younger pre-teen children, who by virtue of their age do not have the ability to travel unaccompanied to park and sports facilities.

In general play areas within public open spaces can be described as follows:

Local Areas for Play (LAPs):

Approx. 100m2 Play area for toddlers in 1 min proximity of and overlooked by housing. With small indicative items of equipment. The majority of public open spaces immediately adjacent housing areas should incorporate an LAP.

GAA Sports

Local Equipped Areas for Play (LEAPs):

For children of school age (4-8 years) within 5 mins of travelling time to home. The site should have a minimum of 5 different pieces of high quality play equipment and a small games area (grass) within the boundary of the playground. The site should be overlooked by housing, pedestrian routes or other well-used public facilities.

Neighbourhood Equipped Areas for Play (NEAPs):

For children of 4-12 years situated within 15 min. of travelling time to housing units. Each site should have a minimum of 8 different pieces of high quality play and a hard surfaced kickabout/ skating/ cycling area. It is recommended that there should be at least one NEAP in the Loughmacask Park.

Larger public spaces such as the Loughmacask Park can incorporate sports facilities and attractions for older children and teenagers in addition to providing for the younger generation. Such sports facilities could consist of multi-use games areas (MUGAS) incorporating all weather courts for ball games (such as basketball and 5 aside soccer). Consideration could also be given to incorporating a hurling wall and skate boarding ramps and a supervised adventure playground and/or scouting skills area.

Loughmacask Park

Loughmacask's green spine is a parkland stretching from the north of the site through to the south, providing a future connection between the Breagagh and Nore Valley's. The Green Spine will consist of a number of smaller areas separated by the road network (See Fig. 25). However the spine must always be viewed as one integrated area and must be designed as such.

(i) Consistency

It is important to create consistency throughout the park both in the layout and design of the park and in the choice of materials, planting and street furniture.

(ii) A Layout for the Park

Area 1	Proposed Green Open Space. This area should be incorporated to become a green open space and bufferzone for the adjacent existing residential development.
Area 2	Cycle Link. The Northern edge of the IRR will have a cycle link connecting the Green Spine with the River Nore Valley Park.
Area 3	Bufferzone. This area should incorporate a green bufferzone (e.g. of dense planting) between the IRR and the residential area.
Area 4	Existing Green Open Space.This existing green should be incorporated into the design for the Loughmacask Park Area.
Area 5	Loughmacask Park Area. This is the main recreational area in the Green Spine. A park that relates to the surrounding residential areas should be created with Loughmacask Lake as the main feature.
Area 6	Woodland Area. The Seveso Areas should be planted with dense woodland planting. The Main Path runs along the edge of this area and makes it an area to look into rather than an area to enter. The planting should be designed to accommodate this.
Area 7	Dicksboro GAA. This area contains existing sports pitches.
Area 8	Expansion of Dicksboro GAA. The expansion of the Dicksboro GAA is the most southern green space is on sloping ground and should be treated as the end of the park offering a viewing area from the top of the slope across the site and the GAA Pitches.

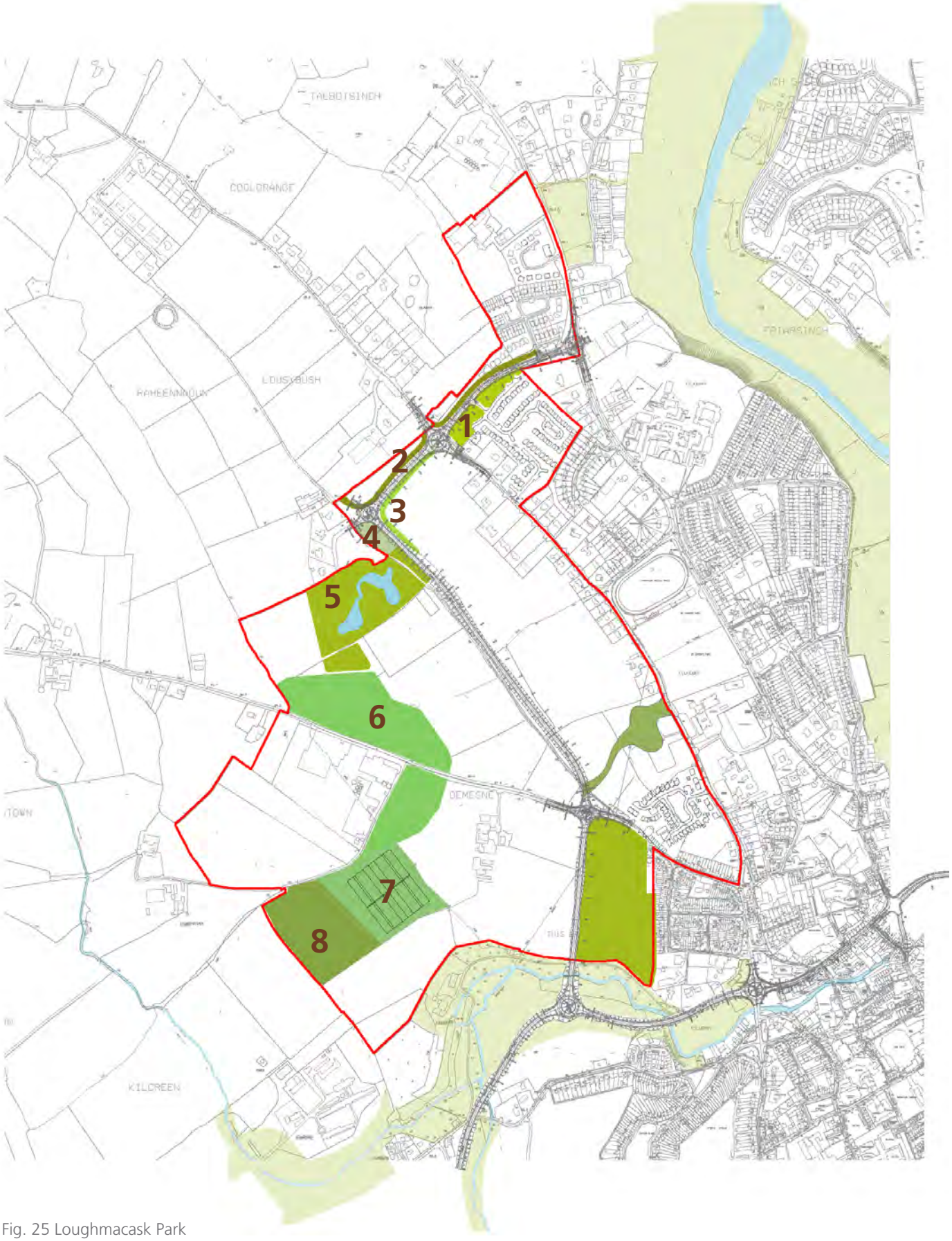


Fig. 25 Loughmacask Park

(iii) Connections to surrounding area

The park should interact with the surrounding areas both in the design of the layout and in the way the functions and the facilities of the park are distributed. Distinctive views within the parkland area towards Kilkenny City (such as those of the St Mary's and St Canice's Cathedral's) should be assessed at the time of design and, where appropriate, protected and strengthened. This is primarily done in the initial phase when the park is designed. Where roads separate the different areas of the parkland, there should be easy and pedestrian friendly access across the road.

Green Links

Within residential areas, public spaces and green links have been located to coincide with the existing hollows (low points) in the topography. This allows for Stormwater run-off from hard areas to be drained to attenuation areas within greenspace.

In addition, the green links have been identified to increase connections with surrounding areas. In particular, the Ayresfield House site offers an opportunity to provide a pedestrian linkage between Grange Road and the future village centre within the Loughmacask LAP area.

Green links form a part of the public open space system, and can take a number of different forms:

1. A pedestrian/cycleway set in a green path, with trees shrubs and grass on either side.

2. A green open space to the front of buildings separating the built environment from the road, creating small neighbourhood pocket parks including small play areas.

3. A green open space to the back of buildings, created where back gardens offer connections and overlooking of green open spaces.

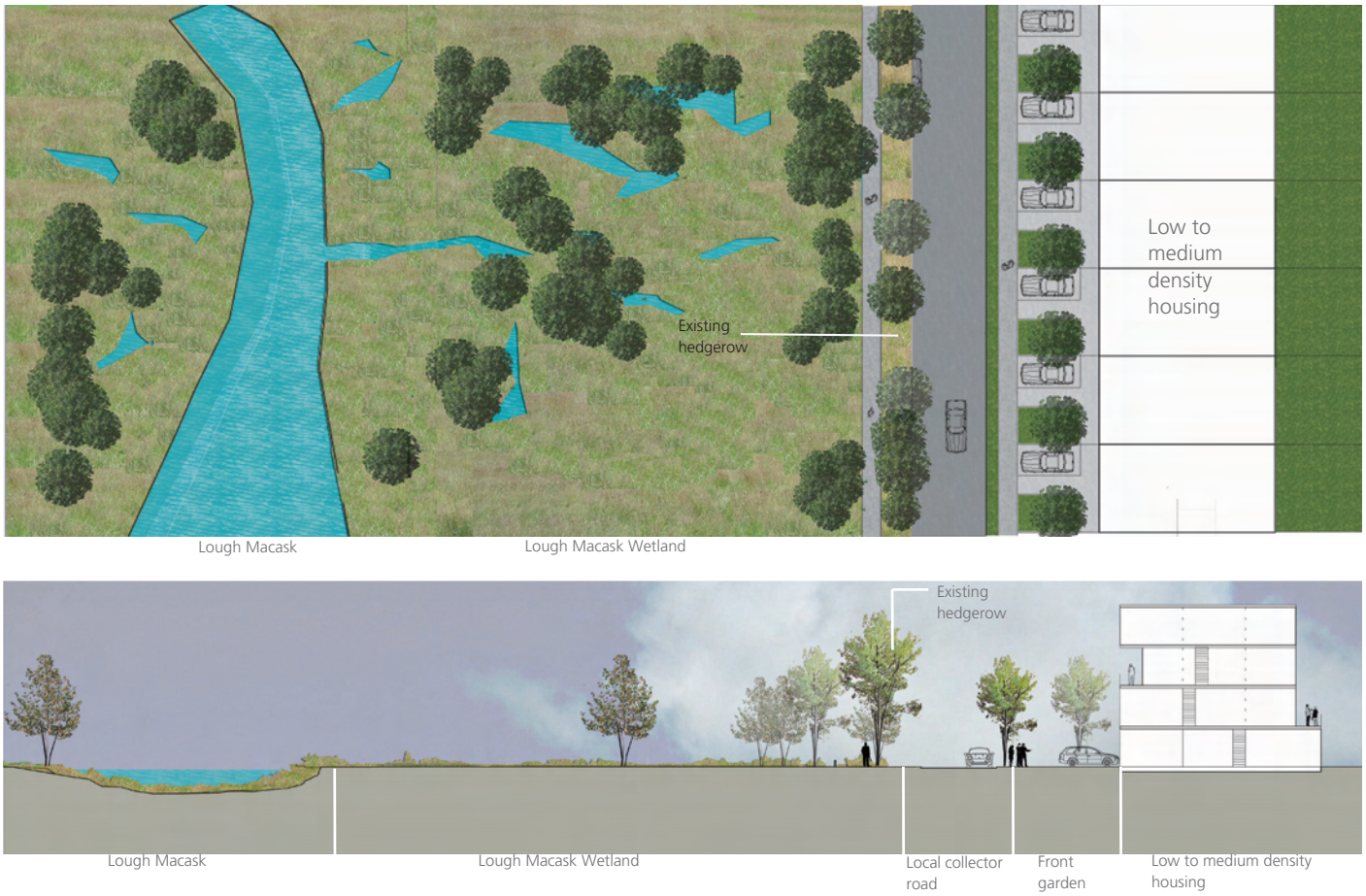


Fig. 26. Section D - Lough Macask, showing the relationship between the low / medium density housing and Lough Macask

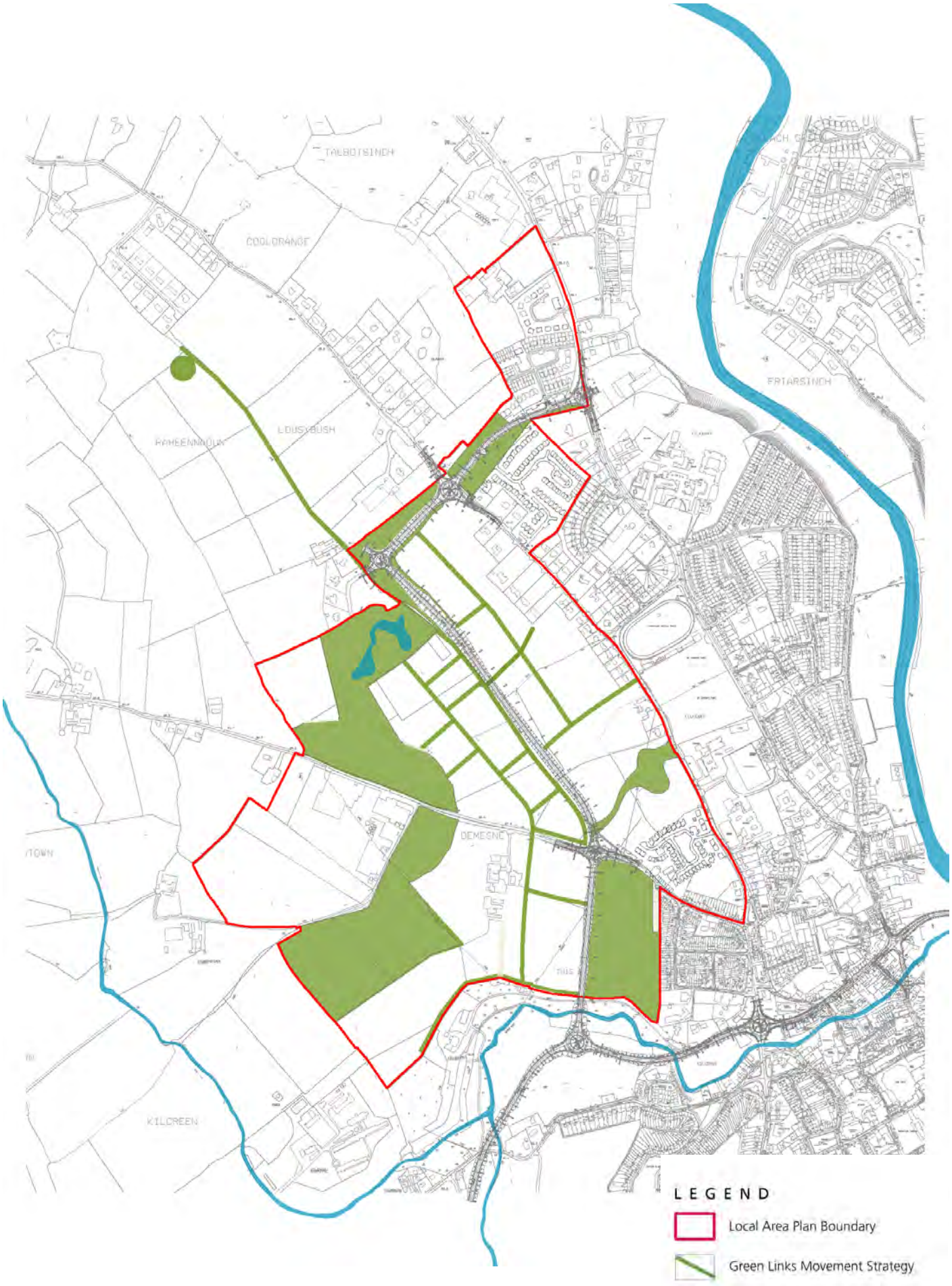


Fig. 27. Green Links

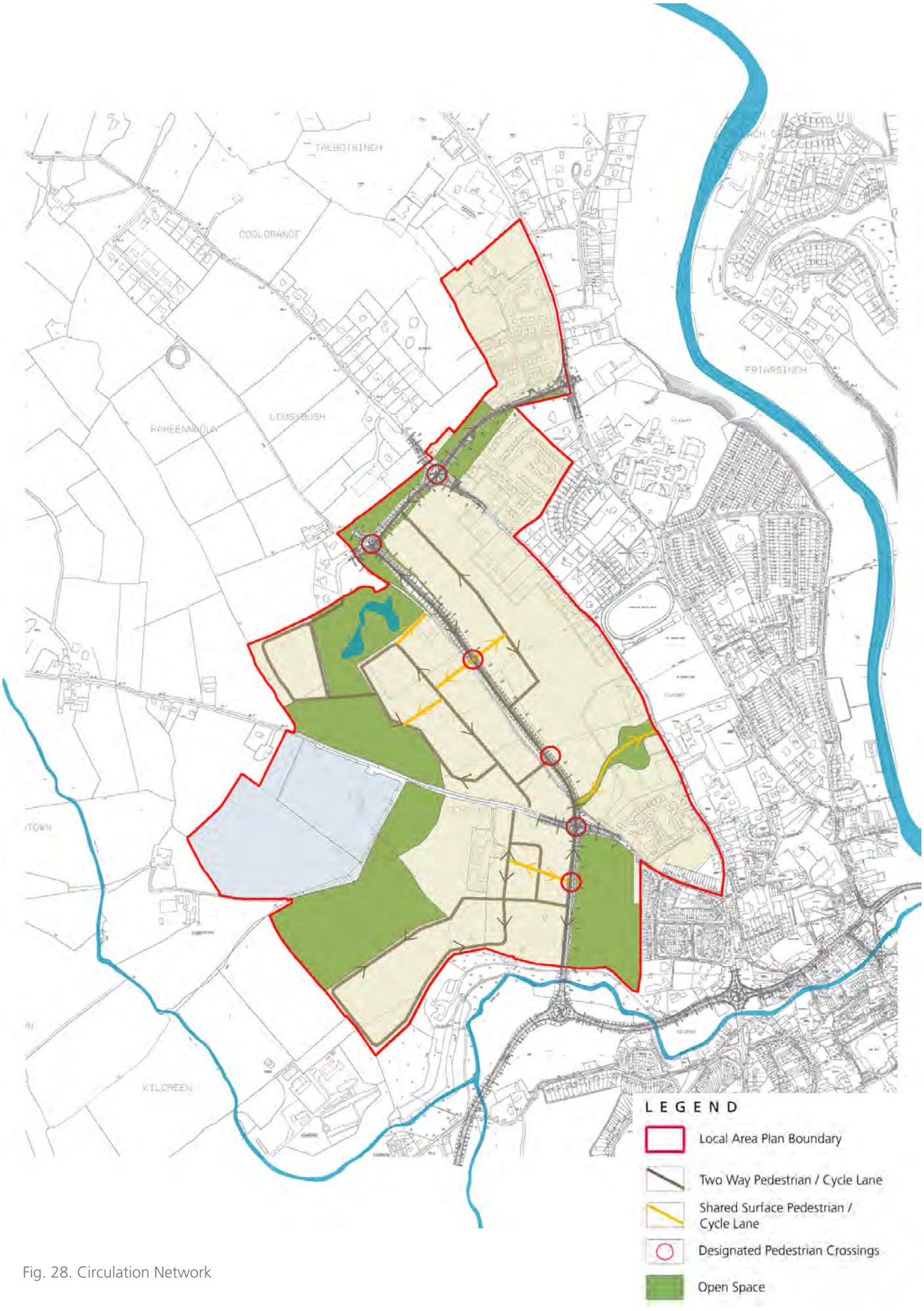


Fig. 28. Circulation Network

5.0 URBAN DESIGN GUIDANCE

5.7 Getting Around

Fundamental to a vibrant and healthy community is permeability and access. The purpose of this section is to outline design guidance in relation to matters of movement, connectivity, and accessibility throughout the Loughmacask LAP area. In particular, this section outlines design guidance in regard to:

- Green Networks – Pedestrian and Cycle Routes
- Street Network and Design
- Parking

Green Networks

Pedestrian and cycle routes are not only channels for circulation, they are also an integral part of green open-space network. The width and positioning of walking and cycle routes should not adhere to a rigid standard, but should respond to their particular location and function.

The open space zoning arrangement set out in the LAP offers the potential of creating a linear sequence of open space to link the Freshford Road to the Dicksboro GAA facilities. There is also the possibility of linking the Loughmacask LAP area to the existing historic core of Kilkenny.

Accordingly, where appropriate, developments should seek to establish and/or enhance the network of pedestrian and cycle ways throughout the Loughmacask LAP area. Adequate width should be ensured along paths for pedestrians and cyclist to pass one another safely and comfortably.

It is advantageous that pedestrian and cycle routes form part of the wider green network of the Loughmacask area, promoting enhanced opportunities for biodiversity and supporting sustainable urban drainage systems where possible (See Fig. 28).

Urban car parking area

Cycle path

Residential parking area

Integrated parking surface

Street Network and Design

It is important to consider both the road capacity and the character of the road when designing. Road design should adhere to the proposed classification of street types (described above) which considers both character and capacity in the road design; the road types are inner relief road, high street, local access and shared surface. Road carriageways should form a coherent legible street network.

Road capacity requirements will therefore have a direct affect on design and, accordingly, the following classification and design guidelines are considered appropriate to the Loughmacask LAP area:

Pedestrian and cycle path

Road Type	Description
Inner Relief Road	This road will function as the primary vehicular distributor road allowing traffic movement both within Loughmacask and the city and Western Environs. The relationship and scale between fronting buildings and road width should be carefully considered. This road should have the character of an urban boulevard with streetscape and tree planting to a high quality design.
Local Access Road	This road type should accommodate a mix of uses with an active ground floor frontage. It should be pedestrian and cycle friendly using 2 way shared surface that permits vehicular movement at speeds not exceeding 30 kph.
Local Collector Road	Providing access to and from residential areas, this road type should encompass both on street parking with off street parking to the sides of houses or in garages. Frontage should address the road to create a sense of enclosure and scale. The streetscape should include on street tree planting and generous foot paths.
Shared surface – residential area	One or two way shared surface laneways facilitate pedestrian and cycle access but permit vehicles to access dwellings. Car parking should be off street, to the sides of houses, to facilitate the creation of a narrow street width at an intimate scale.

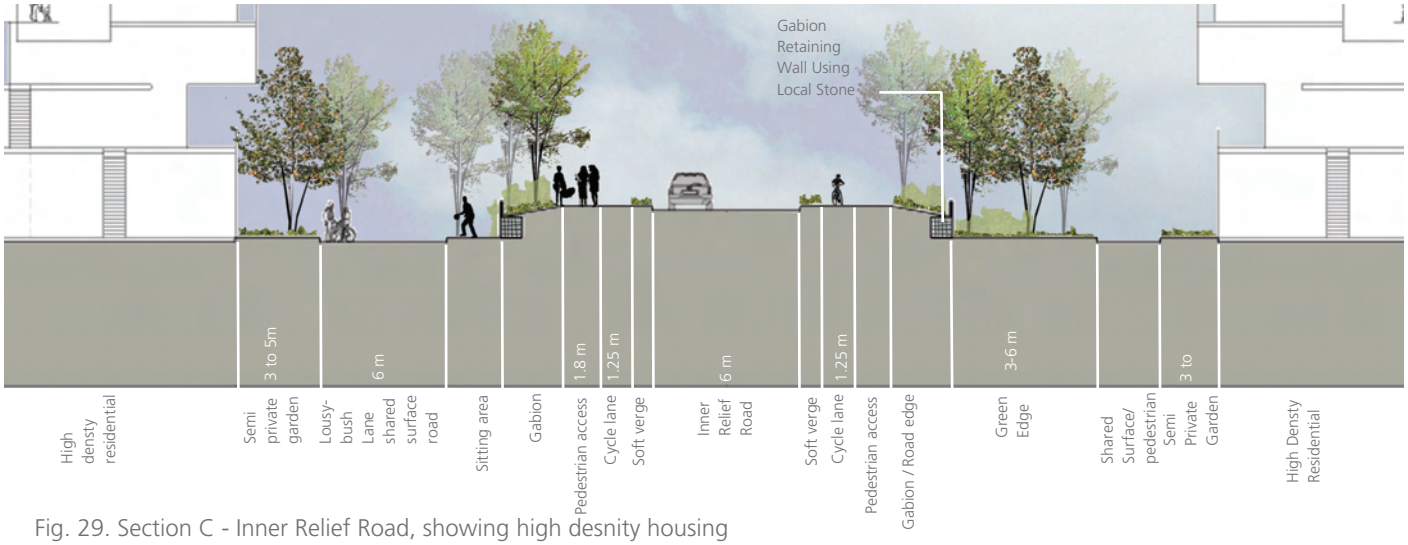


Fig. 29. Section C - Inner Relief Road, showing high desnity housing

5.0 URBAN DESIGN GUIDANCE

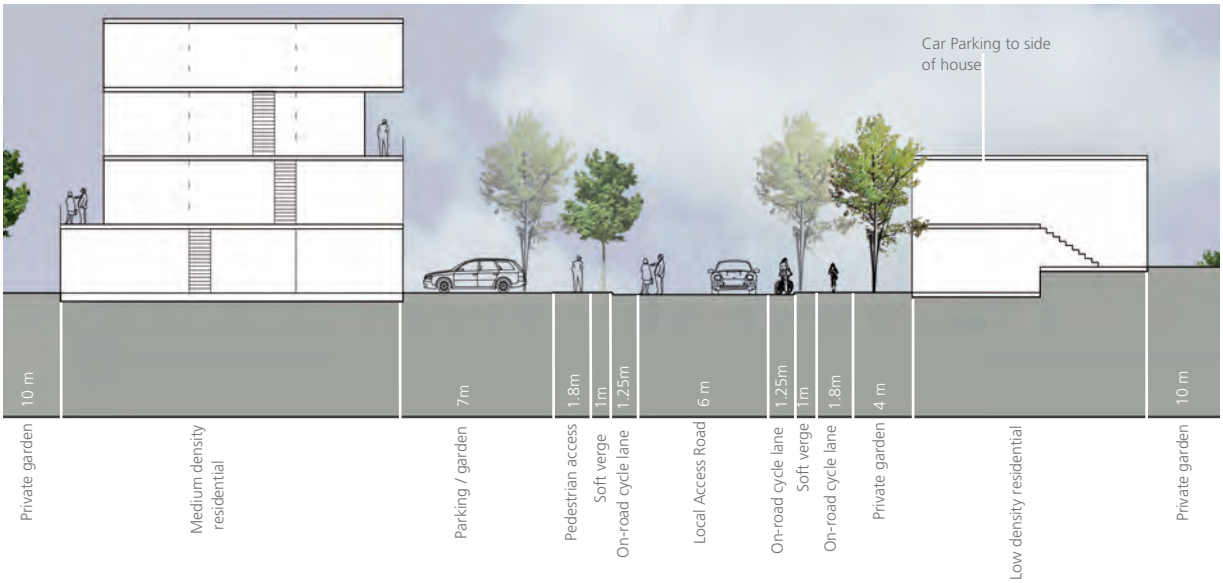


Fig. 30. Section B - Local Access Road

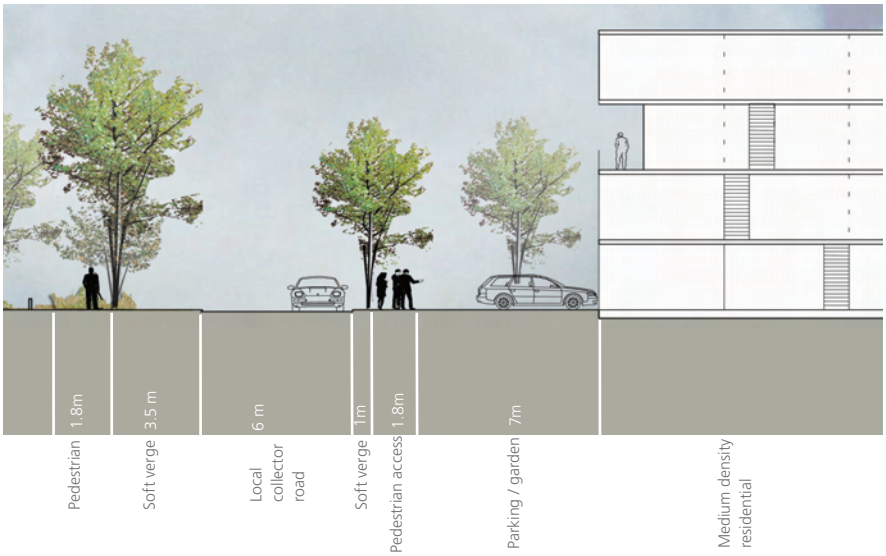


Fig. 31. Section D - Local Collector Road

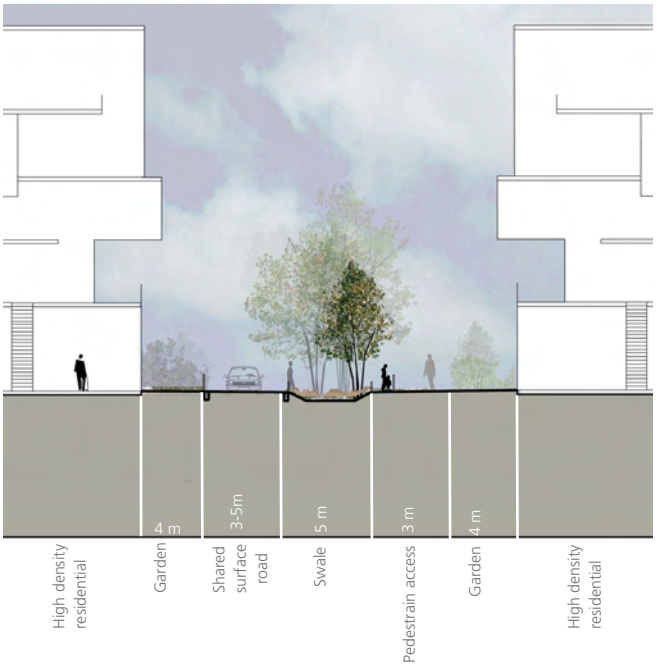


Fig. 32. Section E - Shared Surface Road

Parking

While vehicle parking is essential, it should be provided in such a manner that it does not diminish local amenity or dominate the frontage of buildings. Typically car parking in residential areas should be provided off street; to the side or front of the dwelling. This approach allows the appropriate scale and character of the street to be maintained. Garages or parking in front of the building line has the potential to undermine the relationship between dwellings and the street. Appropriately designed on-street parking or parking in courtyards/clustered parking can improve the visual and recreational quality of the surroundings.

In higher density residential developments where significant areas of car-parking are required it may not be possible to provide these in a discreet manner to the front of the building line and providing all of the parking space to the front of the buildings would cumulatively detract from the visual quality of the street and the urban area. As a rule car-parking to the front of the building line should be no more than a single row of side-on parking spaces, arranged in groups of no more than 4 spaces with breaks for tree planting and pedestrian access.

It is recommended under such circumstances additional car-parking spaces are provided to the rear of the building in courtyards or alternatively in basements or beneath a podium; where the space above the podium can be utilised as a shared open space.

In addition to the above, the Council promotes the following design guidelines for parking:

- To encourage multi-use communal car parking.
- To design off street car parks as integral parts of the urban streetscape.
- All communal parking areas should be well-lit, open to natural surveillance and have obvious pedestrian routes.
- Where possible and appropriate tree planting should be incorporated into car-parking areas.
- Where car-parking areas are viewed from above, it is suggested that consideration be given to incorporating pergola structure to support climbing plants as a screening to the car-park area.

Covered car parking

5.8 Sustainable Urban Drainage Systems

Sustainable urban drainage systems (SUDS) will be encouraged throughout the Loughmacask LAP area. Where viable these will operate on two broad levels – minimisation of water run-off from individual sites and a central storm water drainage system to attenuate to a large wetland prior to discharge to the Bregagh River.

Minimise water run-off

The principle in this case is that each development area should endeavour where possible to minimise the volume of storm water to be discharged to the main storm water system. This can be implemented in two ways as follows:

Permeable paving surfaces:

Permeable surfaces such as gravel, grass-cretes or permeable paving systems can be used on driveways, parking places and pathways to allow storm water to percolate directly into the underlying sub-soil. These systems work on the principle of ground infiltration of storm water thus reducing the pressure on the main storm water drainage system. In addition rain water can be collected from roofs and used for watering gardens or flushing toilets.

Accordingly, the following guidelines should be applied to all development where possible:

- Design parking areas, paths and walkways, and garden areas to maximise water soaking into the ground.
- Collect water in water tanks and use for either watering gardens or flushing toilets.

Swales

The use of swales for local attenuation of storm water is another method of reducing the storm water load to the main drainage system. Swales are drainage channels which are designed to locally attenuate storm water run-off from impervious surfaces such as the local residential road network, parking areas and small residential areas. Storm water is conveyed to the swale which typically runs alongside the road network; water is periodically stored within the swale and allowed to infiltrate into the underlying soil. The advantages of using swales are as follows:

- storm water velocity is reduced
- storm water discharge to the mains system is reduced
- pollutants can be removed by infiltration
- vegetation / planting of the swale contributes to local biodiversity

The undulating nature of the topography of the LAP lands affords the opportunity to use swales to effect by locating them alongside shared surface roads and local collector roads which are situated in localised low spots as shown on figure 37.

Swales can be used to attenuate storm water at a local or neighbourhood level. An over-flow discharge pipe can be provided to connect to the main storm water drainage system.

Swale

Design Guidance

Swales should be provided within residential neighbourhoods at localised low spots where viable. Swales should be designed to adjoin shared surface streets or local collector roads. Swales should be integrated within the network of green links as described in section 5.6. In this regard pedestrian and cycle access should be provided alongside the swales; swales should also be used to form ecological connections where possible. A boundary swale could be provided to the southern edge of the LAP lands to adjoin the Bregagh River Valley as shown on figure 34.

Figure 33 shows a section through a swale. The base of the swale should be no wider than 3m. It is important that the appropriate soil matrix is used in the base of the swale to facilitate ground water infiltration. The swale can be planted with grass –meadow planting to include wetland flora which can tolerate periodic inundation. For more detailed technical guidance on the construction of swales refer to the Greater Dublin Strategic Drainage Study (Volume 3, Environmental Strategy, 2005).

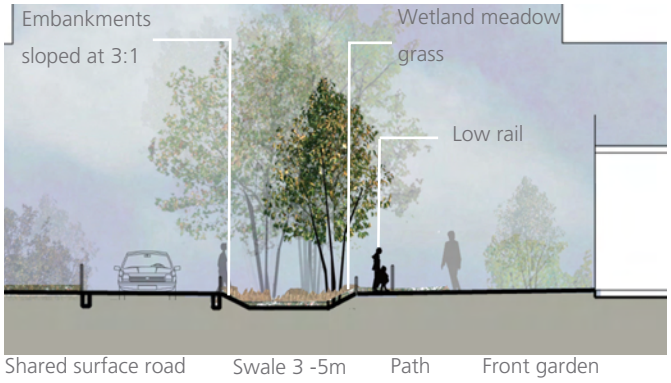


Fig. 33. Section E - Shared Surface Road, typical swale section

IRR Storm Water Drainage System

The IRR transverses the LAP lands in a north south direction. The road system will include a main storm water drainage system which will collect and pipe water from the road surface and the adjoining residential areas. The storm-water collected from the IRR will need to be attenuated before discharge into Kilkenny City's main drainage system. There are various design options for this including underground storm-water attenuation cells or a large scale attenuation pond.

Figure 35 shows the possibility of creating a large scale attenuation canal alongside the IRR adjacent to the Bregagh River Valley. The attenuation canal could be designed as an Integrated Constructed Wetland (ICW).

This proposal is viable from a drainage perspective as the proposed wetland canal is located on the lowest part of the LAP lands adjacent to the Bregagh River Valley.

The advantages of using an ICW are as follows:

- ICW would treat and cleanse storm-water before discharge into the Bregagh
- ICWs would have a high amenity and ecological value

A second consideration with regard to storm water run off form the IRR is the relationship between the IRR and the Lough Macask wetland system. It is necessary from a pollution prevention perspective that surface water drainage from the IRR is not discharged into the wetland.

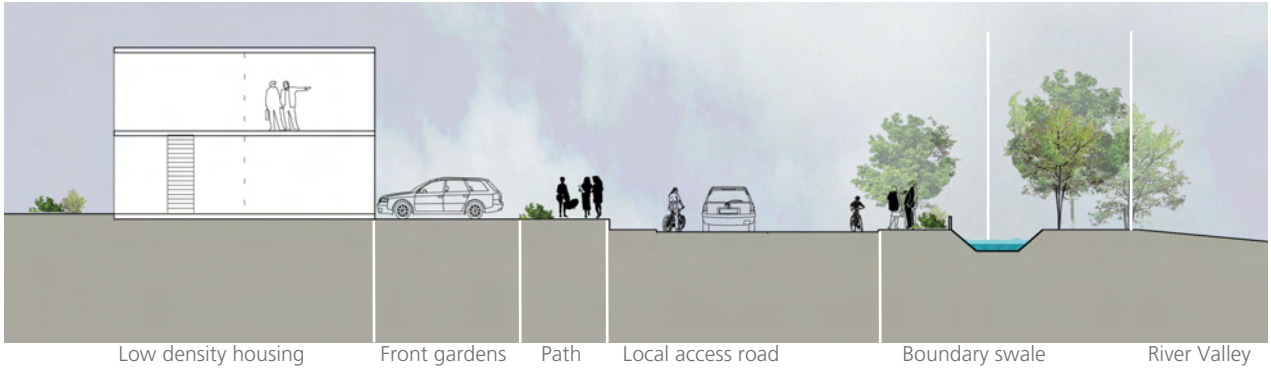


Fig. 34. Section F - Southern Boundary of the LAP Area (adjacent to the Bregagh River Valley), through swale

Design Guidance: Integrated Constructed Wetland

An indicative section through the IRR and adjoining wetland canal is shown in figure 36.

The constructed wetland canal would form a landscaped edge to the IRR. Design of the constructed wetland canal should take into account the following:

- The constructed wetland could hold a standing level of water all year round with enough freeboard capacity to attenuate large volumes of storm water run-off. Hydrocarbon interceptors should be fitted to the IRR to remove pollutants before entering the constructed wetland.
- The constructed wetland would provide secondary treatment of storm water run-off; planting should be primarily with reeds, sedges and rushes which will trap pollutants and cleanse the water.
- Alnus Glutinosa and Salix alba could be planted along the embankments.
- The base of the wetland should be impervious to prevent contamination of the ground water and to hold water within the canal.
- Outflow from the constructed wetland would be discharged to the River Bregagh at a controlled rate.

Constructed wetland

Wetland area

Fig. 35. Section G - Integrated Constructed Wetland (ICW) Canal

Lough Macask:

Figure 37 shows the low lying topographical basin within which the Lough Macask wetland is situated. The low lying area extends to the north east of the IRR. An indicative section through the IRR is shown on figure 36. As outlined in the road section drainage could be provided under the road to connect the Lough Macask wetland to the low lying area to the north east of the IRR. The advantages of the under road drainage system are as follows:

- The IRR is designed to be independent from the hydrological functioning of the wetland; the road design allows for water levels to fluctuate providing additional flood capacity to the north –east of the IRR.

- The drainage pipes allow for both a hydrological and ecological connection either side of the IRR.

The indicative section shows how Lousybush lane could be re-configured as a raised deck to which would provide views of the wetland.

Development on the eastern side of the proposed Inner Relief Road and adjacent to the Loughmacask flood area (indicated on Fig 37 by a dashed blue line) shall have due regard to the natural drainage patterns of the site and, where possible, seek to maintain and enhance wetland features associated with the afore mentioned Loughmacask flood area.

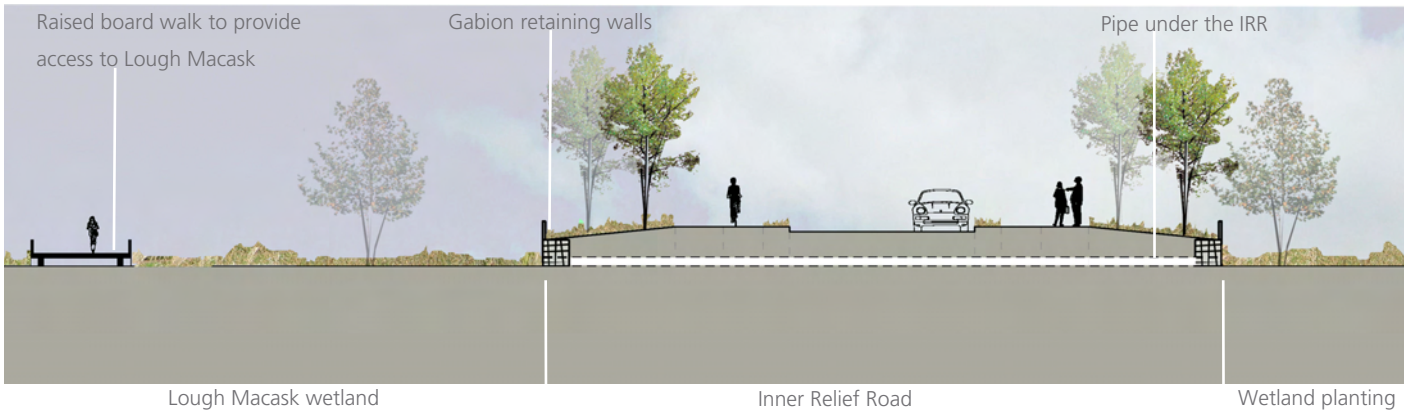


Fig. 36. Section H - Inner Relief Road, and Lough Macask

Fig. 37. SUDS Strategy

5.9 Dark Skies

Excessive lighting of the urban environment can have adverse impacts on local biodiversity and is wasteful of electrical energy. Many towns and cities suffer from skyglow where ambient light emissions are significant and air dust particles are illuminated to a level where they cause light pollution.

A Dark Sky approach in respect of lighting can assist reducing the effects of skyglow. Guidance in regard to the choice and use of lighting fixtures is provided to improve the experiential light at ground level, making the night space more legible, safer and more accessible to the public.

The principle design guidelines are outlined as follows:

- All high level pole mounted and wall mounted fittings should illuminate downwards.
- The illumination or floodlighting of buildings is to be restricted to buildings of local cultural or historical importance.
- Backlit signage should be avoided.
- Neon should not be used externally except where considered a part of the heritage of Protected Structures.
- All street lighting units should have a 100% cut off (having a deep shade for the lamp and having no spill over above 180 degrees).
- Within the village centre the lamps on pole-mounted streetlights should be set at a level no higher than 8metres from street level. This may require that lamp standards are set at closer offsets than typical for lighting urban roads.
- Consideration should be given to the use of low-level bollard or wall mounted lighting where appropriate in open spaces and along pedestrian/cycle paths.
- Light trespass can have significant negative impacts on the amenity of adjoining properties: reducing privacy, hindering sleep, and giving the area an unattractive look. Light trespass onto neighbouring properties and into habitable rooms should therefore be avoided.
- Many outdoor lights waste energy by spilling much of their light where it is not needed, such as up into the sky. This waste results in high electricity costs and should therefore be minimised.
- It is recommended that high-pressure sodium lamps (SON) are used rather than the low pressure sodium lamps (SOX). The tubes of SOX lamps have larger arc dimensions than SON lamps, making it very difficult to achieve full cut-off with SOX lamps. SON lamps also provide considerably improved colour rendering, with a white versus orange hue.

Urban area lit by night