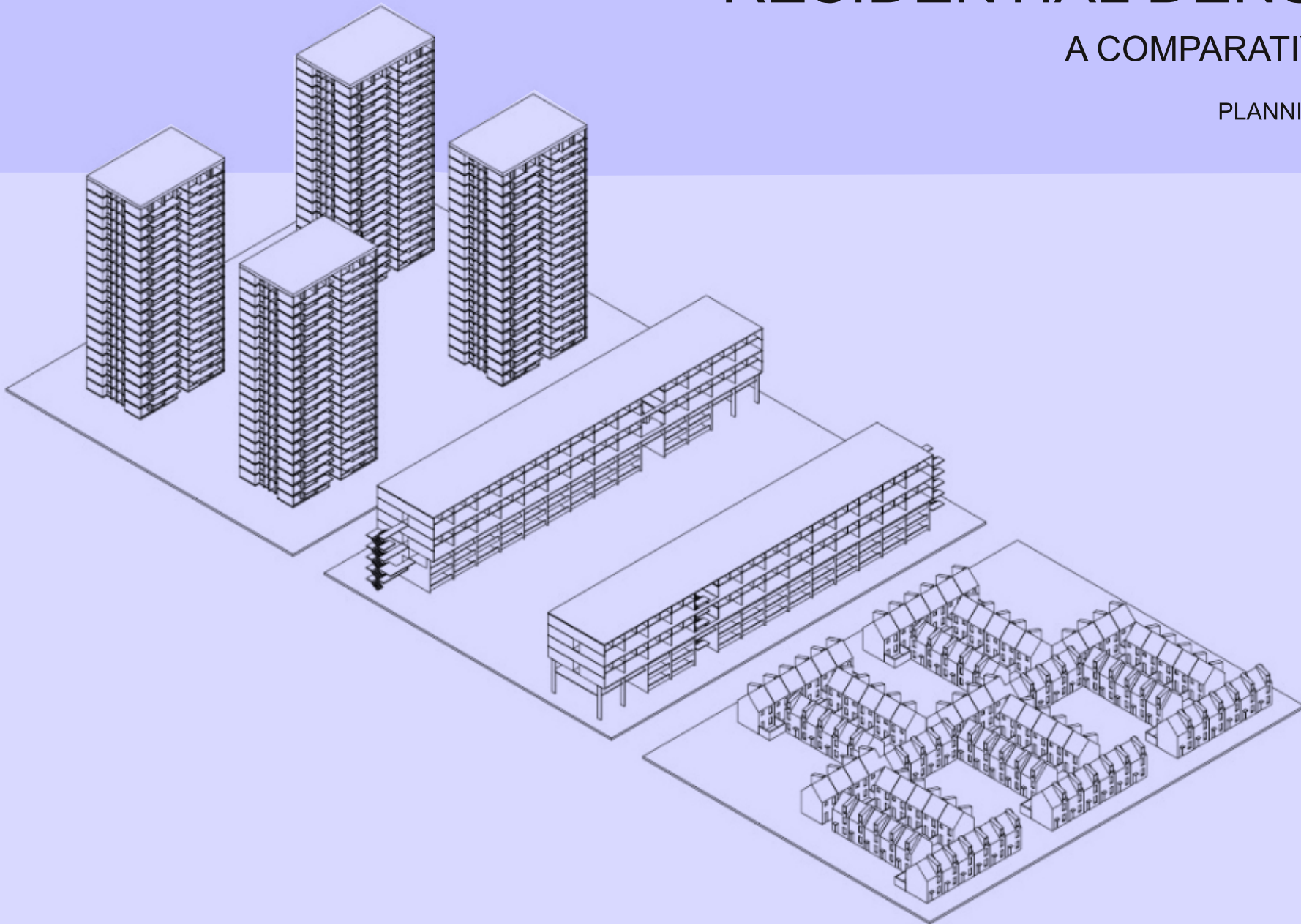


RESIDENTIAL DENSITIES

A COMPARATIVE STUDY

PLANNING AND PLACE

APRIL 2017

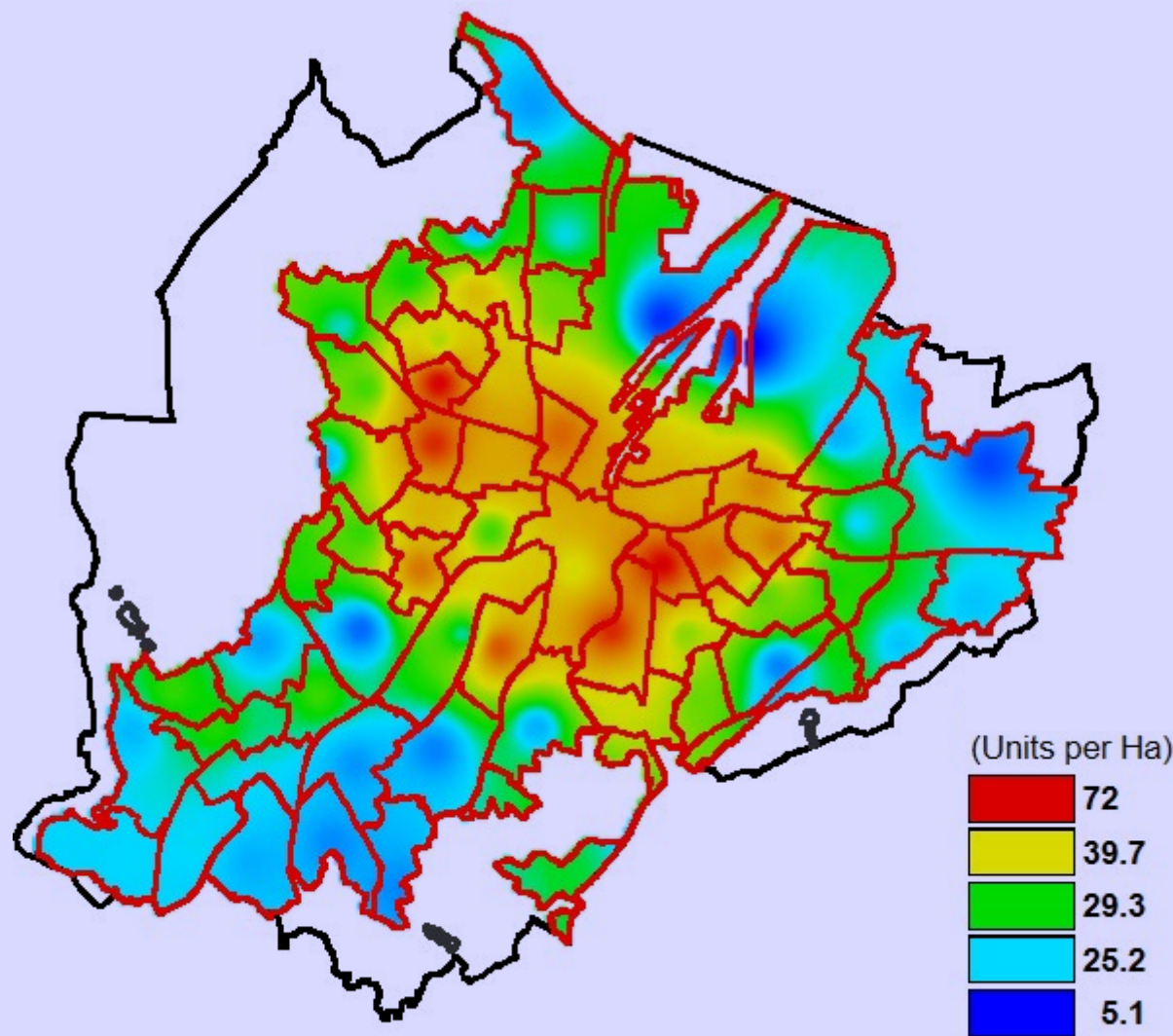


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- 266 Glossop Road, Sheffield
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- Hammond Court, Waltham Forest, London
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- Buccleuch House, Hackney, London



Wards by density, Belfast City Council area

A. WHAT DO WE MEAN BY DENSITY?

Density is the degree to which an area is filled or occupied. Measuring and understanding density is useful as a way of gauging how land is utilised and can help in making informed decisions in relation to new development, as well as the type of infrastructure required to support it. From a planning viewpoint, density generally refers to the number of units, such as people, dwellings, habitable rooms, within a given area. The predominant UK measure of density is **dwellings per hectare** (dph).

Densities can be calculated based on **gross site areas** (including land required for roads, parking, servicing and open space for example) or **net site areas** (only the land on which the building stands). As those elements included within the former often form integral components of final residential schemes, densities calculated within this report are based on gross site areas.



Queens Parade, Belfast

B. HIGHER DENSITY DOES NOT MEAN HIGH RISE

Higher density development can be an emotive subject. Historically there has been a lot of public misunderstanding regarding high density, with parallels drawn with poorly maintained 1960s tower blocks. While people often equate, or draw correlations between, higher densities and poor urban quality, **it must be noted that density is only a 'measure'**. While it is a product of design, it is not determined by it.

What is sometimes overlooked is that a large proportion of our much admired Georgian, Victorian and Edwardian terraces resulted in higher densities that often far exceed density limits advocated within existing development plans. As it is only a measure, the challenge is to avoid a 'one size fits all' approach and instead encourage a variety of densities and building types that collectively sustain the local character of an area while contributing to its sense of place.



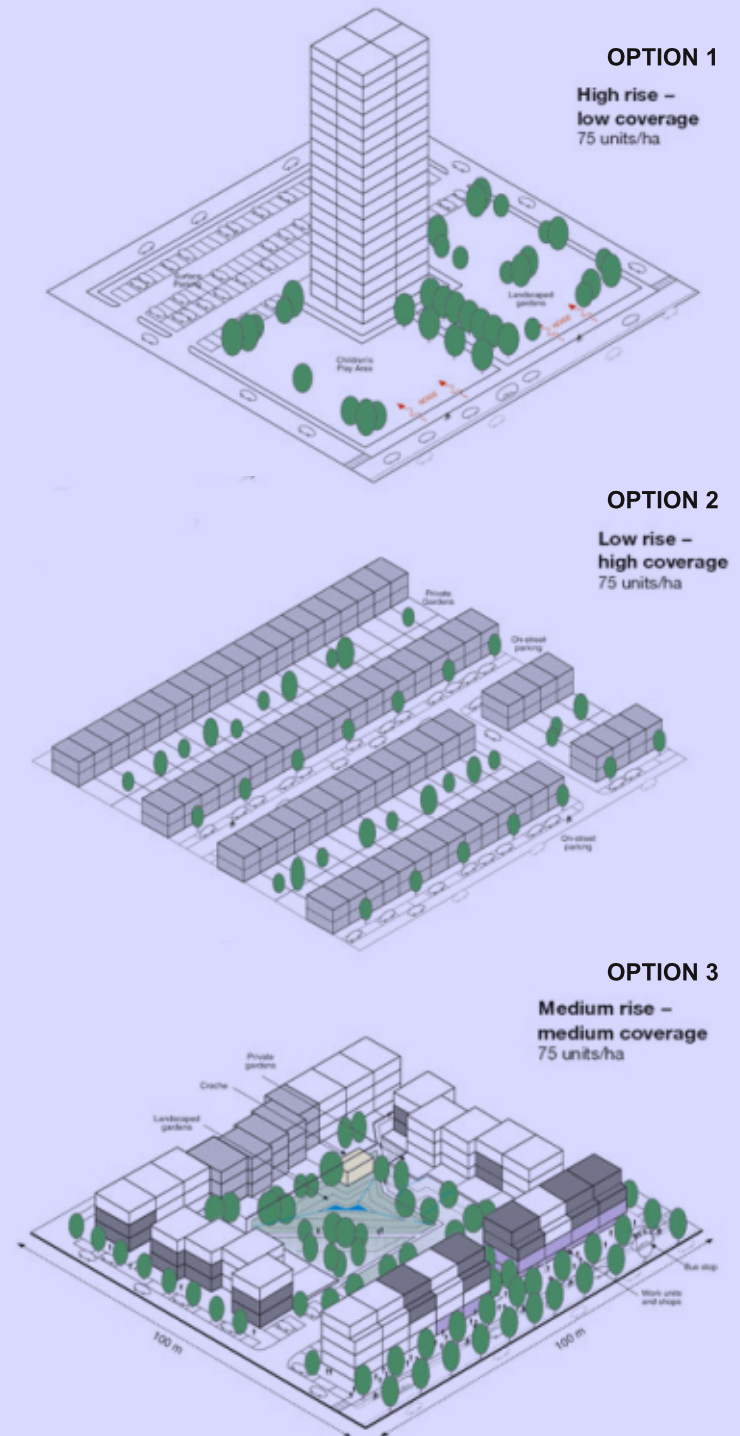
Chadwick Street, Belfast

C. WHAT IS AN APPROPRIATE DENSITY?

In achieving 'sustainable' development we should be striving to generate a critical mass of people that is able to support appropriate levels of services in particular locations be these retail, employment, education or public transport. Average densities of new development in the UK have been rising from 22 dph between 1981-91 (Bibby and Shepherd, 1997) to 44 dph in 2007 (DCLG). Research suggests that a minimum density of 25 dph is necessary to sustain a good bus service whereas a minimum density of 60 dph is required for a tram service in more central areas.

The image to the right, from 'Towards an Urban Renaissance' a 1999 report by the Urban Task Force, illustrates several ways in which the same density can be achieved within a given site. While the Urban Task Force was examining best planning and design practice, the image is useful in looking at existing population density. It demonstrates that rows of compacted two-story housing with small gardens (Option 2), such as those associated with Stranmillis Park in South Belfast (see overleaf) or Glandore Gardens in North Belfast, can amount to as much density as more bulker-looking buildings such as Queens Parade (Option 1). What is of note is that each of these three options would have a marked difference on the quality of our built environment.

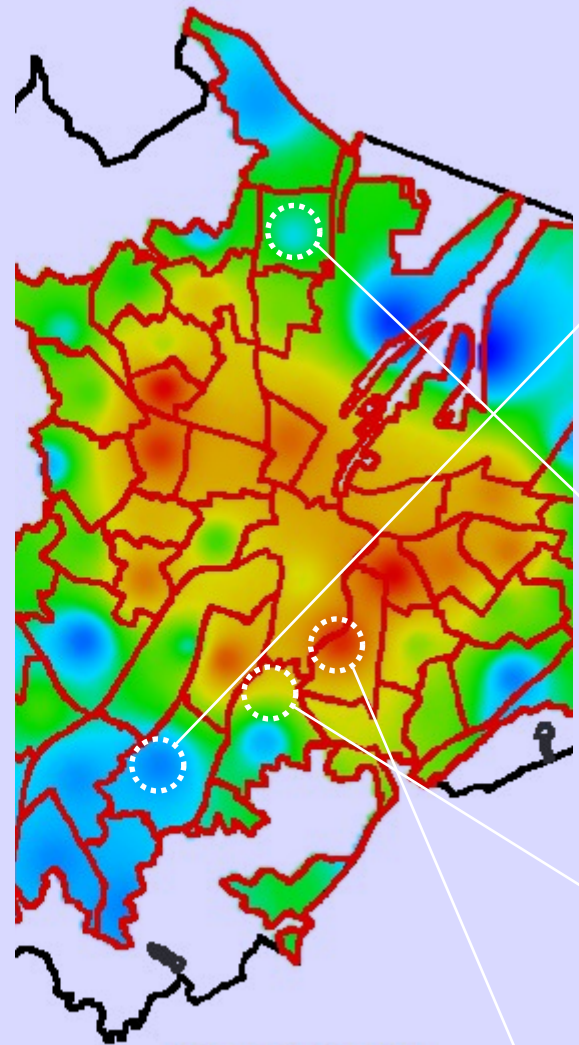
From a land efficiency point of view, building arrangements such as that illustrated within Option 3 tends to tick a number of boxes as its flexibility allows for a broader range of land uses and mix of housing types and tenures. It also allows for the creation of well defined public spaces, integrated parking arrangements, the articulation of active frontages and a hierarchy of built form in massing terms. This option tends to achieve higher densities with minimal land consumption and yet results in a human scale environment where residents still feel a form of connection with the street and in turn the city.



D. THE BELFAST CONTEXT

The examples to the far right demonstrate a range of housing density levels across Belfast, with the white dotted box representing one hectare. These include, at its lower end, low density development in Deramore Park. As an area synonymous with large detached houses within generous plots, from a density point of view Deramore Park equates to an average of 12 dwellings per hectare (dph). As we move up the scale, areas such as Strathmore Park at the foot of the Cavehill in north Belfast is almost double that density at around 22 dph. Stranmillis Park in the heart of Stranmillis Village in south Belfast, which largely comprises terraces of two storey houses, is representative of densities close to 80 dph. Whereas at the upper end of the scale areas such as the Holylands, a network of residential streets within inner-south Belfast, a higher density of around 128 dph is achieved, equivalent to more than ten times that of Deramore Park. In the cases of single family dwelling units, those densities witnessed in areas such as the Holylands, or similar streets in the New Lodge and Ardoyne, tend to top out at the 130-150 dph range. Densities beyond these levels tend to involve a mix of accommodation types, a component of which would normally include apartment provision.

In general, new housing schemes should be constructed up to the maximum density that is deemed appropriate in accordance with proper planning and urban design principles and any relevant development plan. Higher density levels can be appropriate in redeveloping brownfield sites, particularly in relation to increasing massing around regional and local centres, public transport nodes, parks and riverfront locations. In these instances the basic tenants of good urban design practice still apply.



Wards By Density
(Units per Ha)

	72
	39.7
	29.3
	25.2
	5.1

12
dph

Deramore Park



22
dph

Strathmore Park



78
dph

Stranmillis Park



128
dph

Holylands



INCREASING DENSITY



1

Parkside Development, Limestone Road, Belfast

Site

This regeneration scheme comprises a total of 85 residential units constructed over three phases on a brownfield site. The site is located at the upper end of the Limestone Road opposite its junction with Atlantic Avenue.

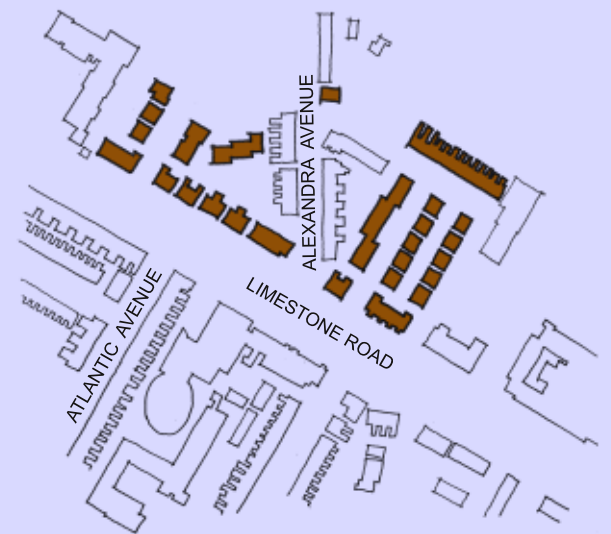
Overview

Parkside represents an ambitious three phase regeneration scheme which aimed to transform a historically volatile interface area of North Belfast. The redevelopment project resulted in a programme of works that was sensitive to the aesthetic of existing homes within the area. Where possible, existing buildings were retained, re-habilitated and integrated with new-build construction. The project represents a successful partnership between Newington Housing Association, local community and design team that ensured the housing solution worked in sync with the values and aspirations of the wider neighbourhood.

Parkside is an example of the far-reaching benefits that can be realised through collaborative working between a housing association and the community it serves. The scheme was the winner at the Royal Institution of Chartered Surveyors (RICS) awards in 2015 with judges describing it as "an innovative social housing project that has achieved an impressive transformation of one of the most volatile flashpoints in north Belfast....showing how important the built environment can be in creating a truly shared society in Northern Ireland."

Density

Site area:	1.70 ha
Total dwellings:	85
Density dph:	50



2

The Bakery, Ormeau Road, Belfast

Site

A five-storey residential development comprising 156 one and two bedroom apartments over 17,000ft² of retail space at ground floor. The development incorporates part of the 1890 Ormeau Bakery building.

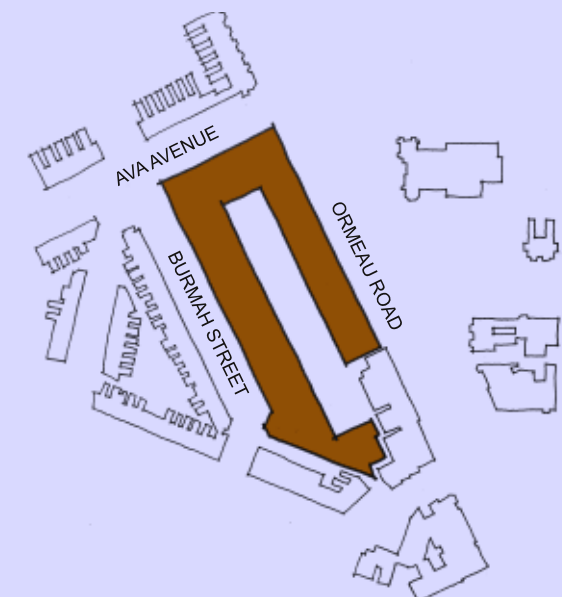
Overview

The 'Ormeau Bakery' is a good example of a sensitively refurbished 19th Century landmark Victorian building and its conversion into high quality 'Loft Style' apartments, using the highest quality materials both internally and externally. Construction commenced in September 2005 and was completed in July 2009. The building's existing facades of note have been retained and restored as part of the scheme, including the original iron bakery clock which fronts onto the Ormeau Road. Due to the prominence of the site in Belfast, it was considered important that any new insertion into the existing building be done respectfully. The development also has a feature landscaped private courtyard garden designed by Dairmuid Gavin.

The Bakery is a good example of how one of the Ormeau Road's most significant historic buildings has been sensitively retained, refurbished and reused for residential accommodation. The retention of the notable facades of the building including all original window openings and tall ceiling heights give the resultant scheme character and personality which can often be overlooked in new developments. Coupled with the fact that amenities such as shops, cafes, pubs, restaurants and a popular park are all on the doorstep of this scheme, has made it an attractive proposition for those that wish to experience modern city centre living

Density

Site area:	0.60 ha
Total dwellings:	156
Density dph:	260



3

Social Housing, Templemore Avenue, Belfast

Site

Housing development consisting of 57 houses and 76 apartments on land bounded by Templemore Avenue, Epworth Street, Lord Street and Chatsworth Street in the east side of the City.

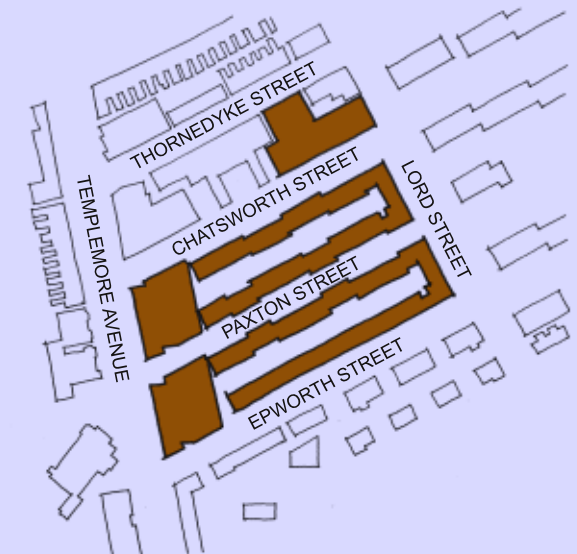
Overview

This innovative scheme has seen the transformation of two urban blocks along the eastern side of Templemore Avenue, close to its junction with the Albertbridge Road. The incorporation of shared surfaces throughout the scheme, much of which comprises high quality stone, conveys a deliberate effort to promote pedestrian priority measures within the overall design approach. This is reminiscent of the Dutch 'Woonerf' model, a living street designed primarily with the interests of pedestrians and cyclists in mind.

This is emphasised within the scheme through the absence of demarcated on-street parking spaces which allows for more informal parking arrangements immediately next to homes. Elements such as street trees, planters, seating and bollards are subtly utilised along both Paxton Street and Chatsworth Street to reduce the speed and dominance of vehicles. This approach has also created social spaces where people can meet and where children can play safely.

Density

Site area:	1.30 ha
Total dwellings:	133
Density dph:	102



4

Former St Malachy's Convent of Mercy, Belfast

Site

The retention, conversion and extension of a former convent house within inner city Belfast for the provision of 12 one and two bedroom apartments.

Overview

Designed and built in the gothic revival style in 1878, listed building consent was recently granted in 2016 for the conversion and extension of the former St Malachy's Convent of Mercy for residential use. The site is in close proximity to a listed terrace of buildings along Joy Street which are of special architectural and historic importance, the setting of which had particular implications for the new modern extension.

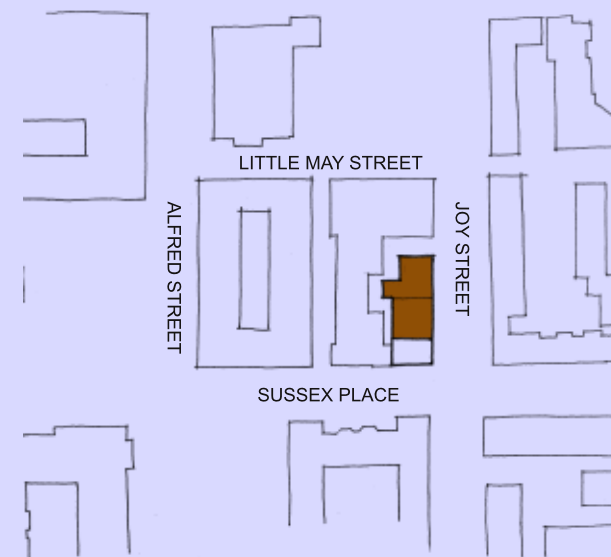
The principle of the conversion and extension to apartments was considered acceptable in principle as it did not conflict with area plan designations and did not adversely affect the listed building. With development currently underway, a large proportion of the historic character of the building will be retained as part of this conversion project, including features of architectural interest such as façade details, internal walls, window openings, doors and door openings. Of particular note is the rebuilding of the historic wall around the front and side boundary of the building thereby reinstating a feature which was once integral to the building when first constructed. The development will result in the provision of 12 apartments ranging from 44m² to 95m² in size in a highly central location a short distance from the City Hall and in close proximity to a wide range of services and amenities.

Density

Site area: 0.03 ha

Total dwellings: 12

Density dph: 400



5

Timberyard Social Housing, Cork Street, Dublin

Site

Named after the sites previous use, Timberyard consists of a new housing scheme comprising 47 dwellings and a street level community facility in the historic Liberties area of Dublin.

Overview

Connecting new development in the area to the historic character of the Liberties, the scheme is located between the general six storey scale proposed along the new Cork Street corridor and the smaller scale of the existing houses to the rear of the site. The new buildings are in brick, with hardwood windows and screens to terraces and roof gardens, with windows offset from each other in order to work with the complexity of the residential accommodation within and to emphasise the continuity of the brick surface. The building line generally follows the street line, with landscaped planters and steps, that allow for some privacy to those units accessed off the street. The central courtyard provides a secure space and is well overlooked by the adjacent apartments. The scheme opens up two new pedestrian routes through the main courtyard and the Grotto at the east end of the building, re-stitching connections through the urban fabric.

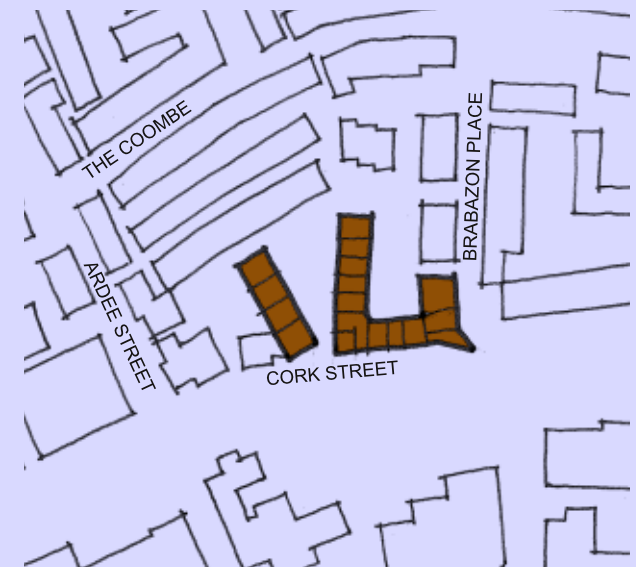
Timberyard is a great example of social housing project that opens up to its neighbours. The central open space is truly open and welcoming to visitors and residents alike. Small elements along Cort Street, such as integrated flowerbeds and street benches used by people waiting for the bus all strengthen the schemes relationship with its surrounding public realm.

Density

Site area: 0.38 ha

Total dwellings: 47

Density dph: 124



6

Borneo-Sporenburg Island, Amsterdam

Site

Two peninsulas in the eastern part of the Amsterdam docks upon which 2500 low-rise dwelling units have been constructed.

Overview

A new interpretation of the traditional Dutch canal house, the designers suggested new types of three-storey, ground-accessed houses deviating from the usual terraced house in being strongly oriented to the private realm by incorporating patios and roof gardens. This typology has been repeated in a great variety of modes and with maximum architectural variation. At a larger scale, a delicately balanced relationship exists between the repetition of the individual dwellings, the roofscape and the great scale of the docks.

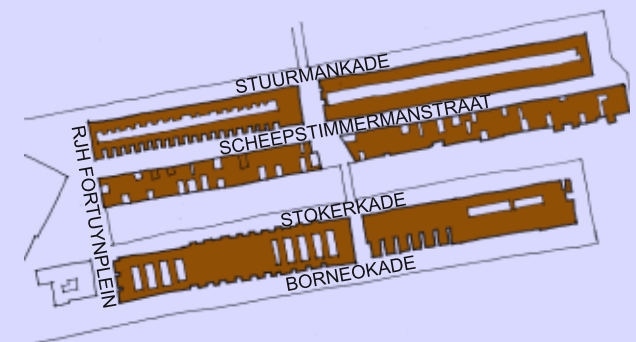
The resultant scheme has produced high density living that satisfies the demands of an ordinary household. A commitment was made to create unique structures within a unified whole by way of design codes which looked at the design of a range of criteria including access, parking, private open space, storey height, plot width and building materials. These codes also specified that dwellings should be designed by a diversity of architects and to date more than 100 architects have participated in developing new housing prototypes and the resulting designs include patios, roof gardens and striking views of the waterfront. The variety of house types produced alongside the distinctive apartment blocks and waterfront, have added character to the peninsulas and made the neighbourhoods easy to navigate.

Density

Site area: 25.0 ha

Total dwellings: 2500

Density dph: **100**



7

266 Glossop Road, Sheffield

Site

Redevelopment of a mid Victorian terrace to create a new retail emporium and offices together with 22 apartments above and car parking at basement level.

Overview

The site is bounded by roads on three sides with the footprint comprising a three sided square around a central well. This arrangement provides light to a double height atrium to the rear of the shop and sheltered access decks for the residents above. The three public facades of the building are wrapped in jet-black machine made brick which challenges the surrounding municipal red brick vernacular. The windows to the apartments on upper floors, which are all floor to ceiling in height, are deeply recessed within the brick skin and occur at random intervals across the facade.

266 Glossop Road demonstrates how a high quality contemporary design approach can energise a mid Victorian terrace in an inner city context. It achieves a relatively high density considering that the bulk of the development only reads as three storeys over an active ground floor use. The upper floor has been discreetly set back from the main body of the building and allows for the provision of generous roof top open space. However it is also its bold approach to materials and attention to detail that owes a lot to the success of this scheme as an innovative addition to Sheffield's streetscape. The building has garnered numerous awards including an RIBA award, Yorkshire Building of the Year, Building for Life Award and a Housing Design Award.

Density

Site area:	0.20 ha
Total dwellings:	22
Density dph:	110



8

Donnybrook Quarter, Hackney, London

Site

Donnybrook Quarter is a low rise, high density street based city quarter located on a prominent corner site just south of Victoria Park in Hackney that provides for 40 apartments and was completed in 2006.

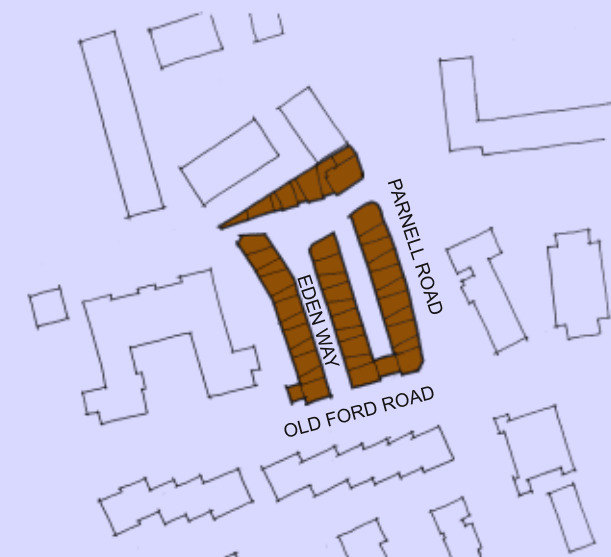
Overview

This innovative housing scheme is laid out around two new tree lined streets which cross the site and create strong spatial connections with adjacent neighbourhoods. In terms of typologies, the logic of placing a maisonette on top of a flat makes for a very generous roof terrace that also acts as the entrance to these apartments.

While high density, the resultant design layout provides every dwelling with its own front door and good sized garden or terrace, alongside a car-free pedestrian street which is well overlooked by all residents. Balconies and oriel windows overhang the street, while individual terraces and numerous front doors create a sense of ownership and the opportunity for personalisation. The streets have an intimate scale (7.5m wide) and are bordered on each side by two and three storey buildings. At their intersection at the heart of the scheme, the two streets broaden out into a tree lined square. The project achieves an ultra high density of up to 520 habitable rooms per hectare while remaining only two and three storeys high and is considered to be a successful example of densified city living that promotes urban sustainability.

Density

Site area:	0.30 ha
Total dwellings:	40
Density dph:	130



9

Claredale Street, Bethnal Green, London

Site

The scheme includes a total of 77 residential units within two north-south orientated streets. It comprises three elements within its layout; an apartment block, a perimeter block of 2- and 3-storey houses and a 3-storey terrace of town houses.

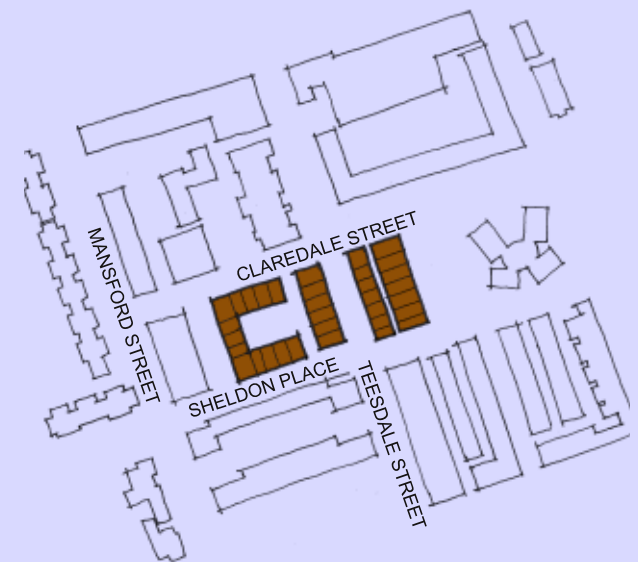
Overview

Elements within the Claredale Street scheme such as massing, window lines and colour palette echo an existing Victorian terraces. The full terrace incorporates two doors to the street; the first opening to a ground-floor flat whose deep plan pushes some accommodation to the very back of the site, wrapping a private courtyard space with glazed walls. The second door opens to stairs taking residents up to a duplex apartment on first and second floors, which face 4-bedroom town houses across a pedestrianised street. The range of housing types and tenure adds to the accommodation range along the street, with town houses aimed at attracting larger families and smaller units aimed at smaller families, couples and singles.

The perimeter block puts town houses on three sides for social rent with rear gardens behind and on its western edge are shallow single-aspect 2-storey units with private terraces. These wrap a semi secure courtyard shared by a 7-storey apartment block comprising six storey of apartments (studios to 3-bed) and penthouses above. The cross subsidy from these units reduced the level of grant support required. All three building blocks incorporate green roofs with solar thermal panels, while the facing material is predominantly copper sheeting, a nod to the area's artisanal history.

Density

Site area:	0.36 ha
Total dwellings:	77
Density du/ha:	210



10

Hammond Court, Waltham Forest, London**Site**

Hammond Court is a 43 unit residential scheme comprising a mixture of rental, private sale and shared ownership units, which regenerates and replaces a series of unpopular 1970s buildings.

Overview

Hammond Court represents a well designed scheme that includes attractive architecture, attention to detail and contributes to a strong sense of place. Defensible space to the front of each dwelling, inset balconies and a secure south facing landscaped courtyard with private gardens, presents a clear delineation between public and private space. Homes are dual aspect, incorporate generous space standards and are designed for longevity and flexibility, achieving Code for Sustainable Homes Level 4. The design takes inspiration from the surrounding Warner Estate's local vernacular: good proportions, large picture windows and careful attention to architectural detailing and popular half-houses and its associated philosophy, which was to enable residents to "Live well and cheaply".

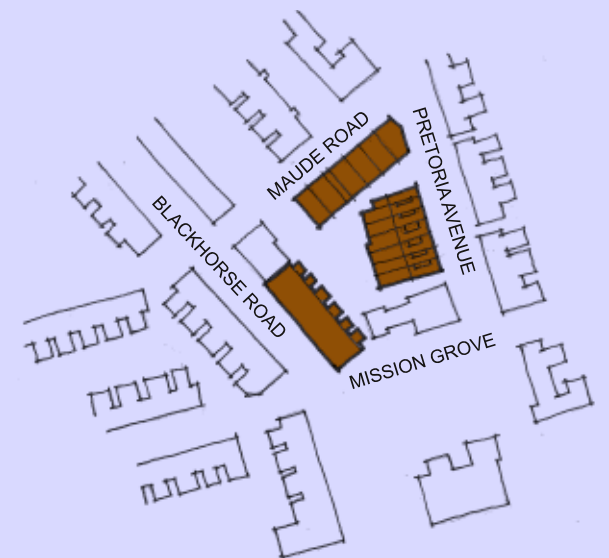
The scheme demonstrates how investment in affordable housing can help to improve the quality of life for residents and was designed to meet the East Thames Housing Design Guide standards. It won the inaugural Brick Development Association Chairman's Award where it was recognised as, "an outstanding example of humane infill urban design that was well detailed and modern in its language and architecture and one which complemented the surrounding traditional housing."

Density

Site area: 0.35 ha

Total dwellings: 43

Density dph: **123**



11

Newhall Be, Harlow, London

Site

Newhall Be consists of 84 units across four building types; courtyard houses, terraced houses, villas and apartment buildings.

Overview

This scheme offers a denser urban format based on a new typology of terraced patio houses which mixed new and familiar house typologies within a highly efficient masterplan. By halving the size of the gardens while providing roof terraces to equal the land lost, an extra eight houses were accommodated on the site. The two storey courtyard houses which have become synonymous with this scheme, represent a radical reconfiguration of typical long and narrow plots (5x20m) to a more robust plot (9.5x10.5m) plot. This configuration allows for a wide house footprint with outdoor rooms that interlock with kitchen/dining and living rooms.

Apartment blocks form important markers at street junctions and act as gateways to the development. The east-west lanes that run through the site incorporate shared surfaces and are utilised as communal outdoor spaces. The schemes geometry and choice of materials were also inspired by the roof forms and simplicity of Essex's rural buildings. Commentators have noted that the scheme raises the bar for suburban housing and if emulated in concept, could have a significant impact on development across the UK.

Density

Site area:	1.60 ha
Total dwellings:	84
Density dph:	52



12

Buccleuch House, Hackney, London**Site**

Scheme comprising 107 apartments on a site formerly occupied by a number of poor quality bedsits within the Clapton Common conservation area.

Overview

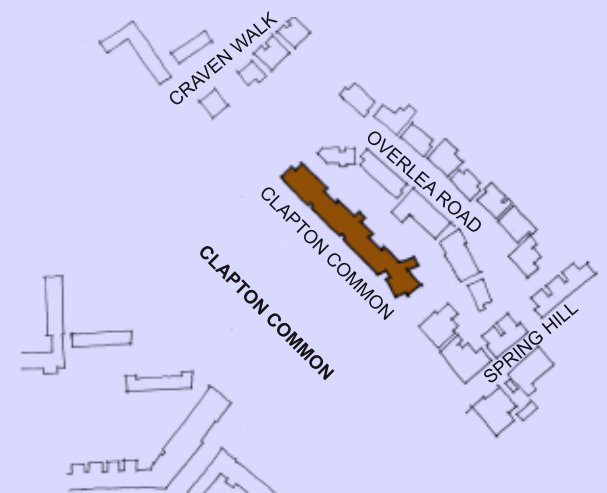
An intergenerational housing scheme that accommodates three very different resident groups; apartments in an extra care facility for residents over the age of 55, homes for first time buyers alongside affordable rent and shared ownership home for the Orthodox Jewish community. The apartments are split into three elements of the six storey building. At its southern end are a total of 41 one and two bedroom assisted living apartments for older people and at its northern end 38 one and two bedroom apartments for private sale. Within the centre of the building 28 apartments were provided for local Orthodox Jewish residents, largely comprising three and four bedroom units. For management practicalities, the three sections of the building have separate entrances and circulation areas, however externally the building's brick facade is consistent and harmonised through an attractive contemporary design. A high quality landscape scheme also aimed to revitalise the protected London Square adjacent to Clapton Common in front of the building.

Integrated housing schemes such as Buccleuch House are rare and demonstrates how intergenerational schemes could be rolled out successfully elsewhere within the UK, although the ways in which developments are procured remains a challenge to such projects.

Density

Site area: 0.60 ha
Total dwellings: 107

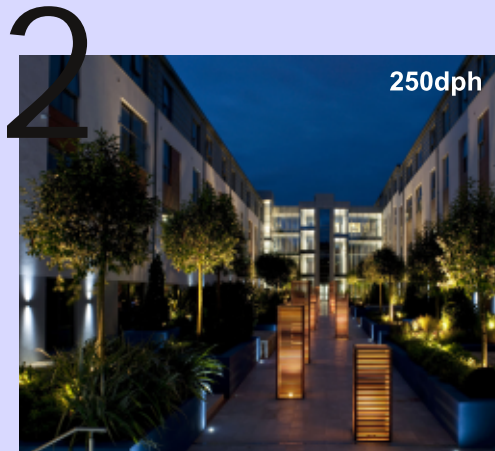
Density dph: **180**





50dph

PARKSIDE



250dph

THE BAKERY



102dph

TEMPLEMORE AVENUE



400dph

FORMER ST MALACHYS CONVENT



124dph

TIMBERYARD



100dph

BORNEO-SPORENBURG ISLAND



110dph

GLOSSOP ROAD



130dph

DONNYBROOK QUARTER



210dph

CLAREDALE STREET



120dph

HAMMOND COURT



110dph

NEWHALL BE



130dph

BUCCLEUCH HOUSE

E. CONCLUSION

The benefits of higher densities are many. They make efficient use of land, provide economies of scale, reduce travel distances and times, create less pollution and provide increased access to services. As demonstrated within this report, higher densities do not have to result in town cramming and the creation of poor environments. Within the Belfast context, development density will vary from site to site and will be dependent on a variety of factors including market need, local topography, relationships to adjacent buildings and proximity to services. The application of minimum densities would go some way to establishing and controlling thresholds within predefined areas and make more efficient use of land. However it must be noted that without the proper balances and checks in place, the adoption of minimum densities could also impact the levels of flexibility required for proper placemaking and the creation of successful places.

As a rule Local Development Plan policies should strive to promote housing development to the highest density possible, which is consistent with a predetermined local density range. There are many examples of higher density areas within Belfast which are desirable. These areas generally comprise large number of terraced housing in close proximity to existing services and facilities and well serviced in terms of public transport.

The diagram at the bottom of the page illustrates the range of densities achieved within the 12 exemplars contained within this report. One way of structuring LDP policy relating to density may be to establish broad density ranges that are appropriate to the various settlement tiers within the city with the aim of supporting higher residential densities in sustainable locations. In terms of hierarchy, this could include at its lower end densities appropriate to new development within the **wider urban area**, then along key **arterial/transport routes** into and out of the city, and moving up, higher densities for development of the urban area around existing connected **strategic centres**. The highest densities would then be within the context of the defined **inner city centre** within which key areas could be identified where consideration could be given to **tall buildings** (see diagram below). Limited housing of lower densities may also be a requirement within areas where the overarching desire is to retain and create areas of nature conservation, landscape enhancement or greenbelt. In these cases housing development would need to demonstrate how it enhances the landscape and biodiversity value of the site with the design and layout appropriate to the rural setting.

