The Countryside Agency

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Ecole Nationale Supérieure Agronomique de Montpellier

Sustainable Urban Development

Comparative study on three examples

Opportunities for a future neighbourhood in Ashford

By Sophie Laroche, placement report, *July 2006*

Contents

Introduction

Due to increasing environmental problems including Climate Change, sustainable development considerations are getting more important in the different levels of the society. Even if the actions are often not yet concrete, organisations have to justify their deeds and decisions more regarding these issues. This evolution in the way of thinking concerns especially the town planning institutions. In fact, the energy consumption for transport and domestic use represents respectively 35 and 29 % of the UK's Consumption and town planning can directly impact on both. In order to achieve the target of emission reduction, it has to deliver sustainable urban developments.

South East England's growth context offers especially opportunities to meet these aims and requirements. In fact, with a population of 8.1 million in 2004,13.5% of the UK total, it is amongst the fastest growing regions. In this context, the Office of Deputy Prime Minister announced in 2003 that in order to meet the future economic growth, and the subsequent housing supply that would be needed, it was committed to change the approach of regeneration of towns and cities. In the region, four Growth Areas have been identified to concentrate and manage the expected growth. Ashford, in Kent, is one of them. The city, which is expected to growth by 31,000 homes and 28,000 jobs by 2031, offers the challenge to meet the sustainability requirements for the new developments.

The purpose of this report is to explore examples of Sustainable Urban Development in England, show the difference with the current traditional developments and suggest a way to achieve sustainability in Ashford, with a focus on a specific designated development area, Chilmington Green.

Firstly, the report presents Ashford's and Chilmington Green's context; in a second part it explores sustainability for urban development through an analysis of BedZED, Greenwich Millennium Village and Brisley Farm, with a specific focus on economical feasibility; and finally develops recommendations and suggestions for Chilmington Green area, with a particular attention for landscape integration as a way to achieve sustainability.

I. Ashford Context and Chilmington Green Area

I.1. Background

In March 2001, the UK Government identified through the Regional Planning Guidance (RPG9) four Growth Areas, including Ashford and its surroundings (cf. Appendices, A1. to A3.). This guidance formulates a need for more houses, but also promotes a sustainable way to develop, requiring a good design and a high quality for the new housing, and the protection of the surrounding countryside. The Growth Areas were in fact identified as the major opportunities to apply these sustainability principles.

The scope of expected growth for Ashford was not defined, but the local authorities had to evaluate it and to propose a way to achieve it. The Ashford's Future Study (Halcrow) was published in 2002 and introduced an expansion for the town by 31,000 homes and 28,000 jobs within the period to 2031. This study, even without being a formal policy document, has fed into a number of policy documents, like *Sustainable Communities in the South East, building for the future*, (ODPM, February 2003), *Regional Planning Guidance for the* South East, Chapter *12 – Ashford Growing Area* (Government Office for the South East, July 2004) and *Draft Kent and Medway Structure Plan* (September 2003).

In order to plan this development and to make it meet the principles of the Office of the Deputy Prime Minister 's *Sustainable Communities Plan*, Ashford's Future and Ashford Borough Council, supported by English Partnerships, commissioned in 2004 a consultant team, *Urban Initiative*, to define the Greater Ashford Development Framework (GADF). This work included a wide study about Ashford's context, defined the principles to follow for the development and a clear Masterplan for the town. The result is the working plan, with a map available (cf. Appendices, A4.), which shows the expansion of the town and the different use of urban areas. The GADF also define a schedule to implement the expected plan, with three development phases: 2001-2011, 2011-2021,

and 2021-2031. For each of them, expected house and job provision are calculated, and illustration maps provided (cf. Appendices, A5 to A10.).
This work, although precise, has no legal value, but should be a basis for the Local Development Framework (LDF), which is currently under process and through which the Ashford Borough Council will define, with a legal value, the development until 2021. The issue is to ensure that all the sustainability principles announced in the GADF are going to be implemented through the LDF.

I.2. Ashford's development context

The town shows a very specific morphology characterised by a series of disconnected and independent urban areas. This shape is due to the natural systems, especially the floodplain, but was also caused by policies, practices and major infrastructure intervention.
Ashford was a market town; further development was promoted by railway in 1842, around the medieval buildings of the current town centre. Later, the post-war extensions created disconnected suburban housing estates showing a lot of shortcomings. Because of the presence of five main rivers in Ashford, the flooding is widespread in the area, which made the development planning complex. In the 1990s, this constraint was reduced with the provision of detention storage reservoirs upstream on the two main rivers. In 1996, the development of the International Station in the town centre increased the development of the town and the future opportunities for growth.

Ashford's population is almost 57,000 people (2002), and the Borough population 102,000. Its growth level makes it the Kent's fastest growing Borough.
Ashford is expected to grow because of its strategic role and location. The transport connections are especially well developed, at the junction of five rail links, including the Channel Tunnel Rail Link, which makes Ashford a gateway to Europe. The town is at 40 minutes from London and from France, what is a noticeable geo-strategic advantage. The road network is also prominent, with two junctions off the motorway M20 and the primary roads A28, A251, A2070 and A20.

I.3. Presentation of Chilmington green and GADF plans for the area

Chilmington Green is a countryside hamlet located on the southwest fringe of Ashford (Great Chart and Singleton Parish and Kingsnorth Parish).

There are few houses, including some listed buildings (medieval farms), and the surrounding land is used for agriculture.

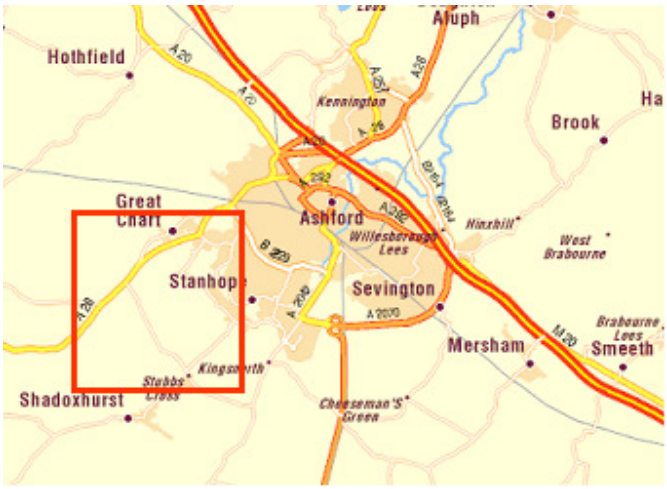


Fig.1. Chilmington Green location

The area was designated by the GADF to support one of the three major parts of the urban expansion for residential mixed-use and should provide by 2031 6,000 houses and 1,000 jobs.

The GADF plans for this area are shown on the following map:

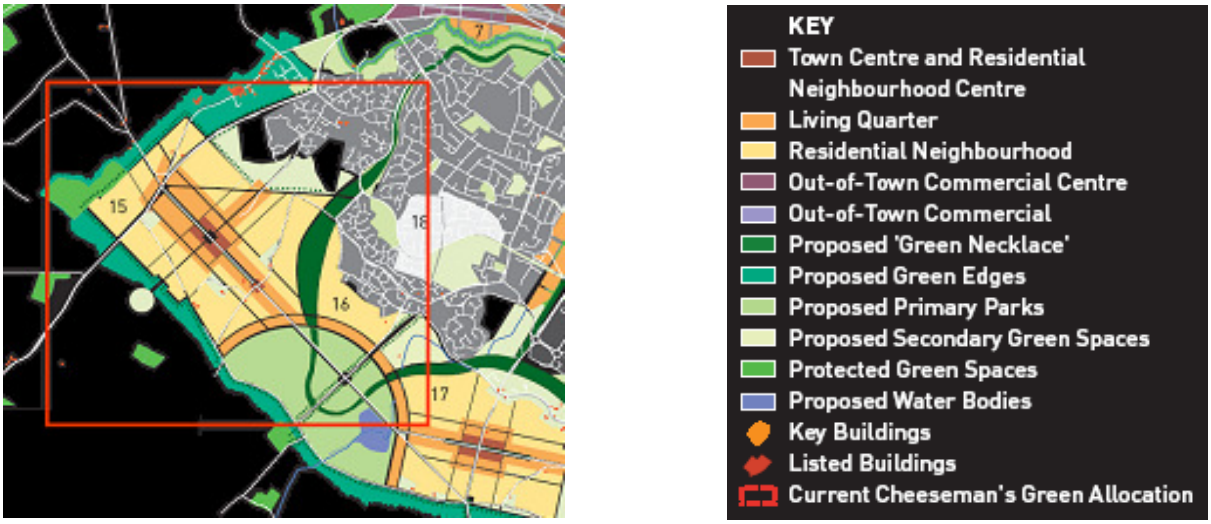


Fig.2. The GADF Working plan for Chilmington Green area, GADF, p143

The development is expected to present a mix of use and densities. The GADF Working plan was built using different 25 ha tiles. The three kind of residential tiles have been used for Chilmington Green framework and their characteristics are presented bellow:

Fig.3. The three types of 25 hectares tiles used to plan Chilmington Green's development, GADF, p79

The following table uses the GADF definition of these development units to present the densities expected for the different areas of Chilmington Green:

	Chilmington Green		
	Centre	Living quarter	Residential area
	General information		
Total size	250-300 ha (between A28, Long Length and Magpie Hall Lane)		
Date	2011	2011-2021-2031	2011-2021-2031
Location	Southwest Ashford	Southwest Ashford	Southwest Ashford
Initial use	Agricultural land	Agricultural land	Agricultural land
	Densities /ha)		
Houses	60	48	24
Jobs	120	30	0
Public open space (ha)	0.03	0.14	0.2
Facilities	Civic	0.088	0.08
Shops	2400 m2	0.24 shop	0.06 shop
Schools	0.04	0.044	0.048

Fig.4. Densities for Chilmington Green area

The comparison between the following aerial picture and the Working Plan map shows the amount of greenfield land, which will be consumed by the development. A good quality countryside landscape will disappear to allow the development of the town. The GADF provides additional information explaining the choice of the development areas.

Fig.5. Aerial Photography of the area (1999)

The following illustrations superposes the current landscape of the area with the main elements of the GADF Working plan, in order to illustrate what is going to happen where, and how big the planned changes are.

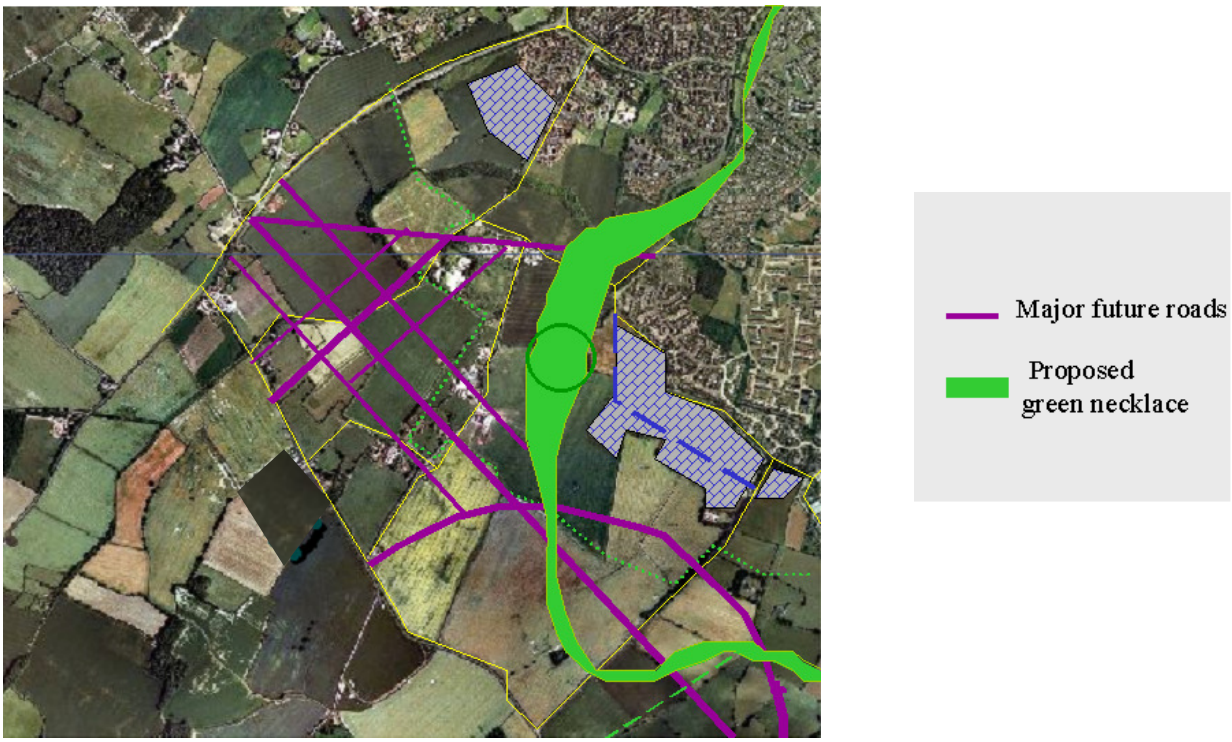


Fig.6. Superposition of current aerial photography and major axis from the Working Plan

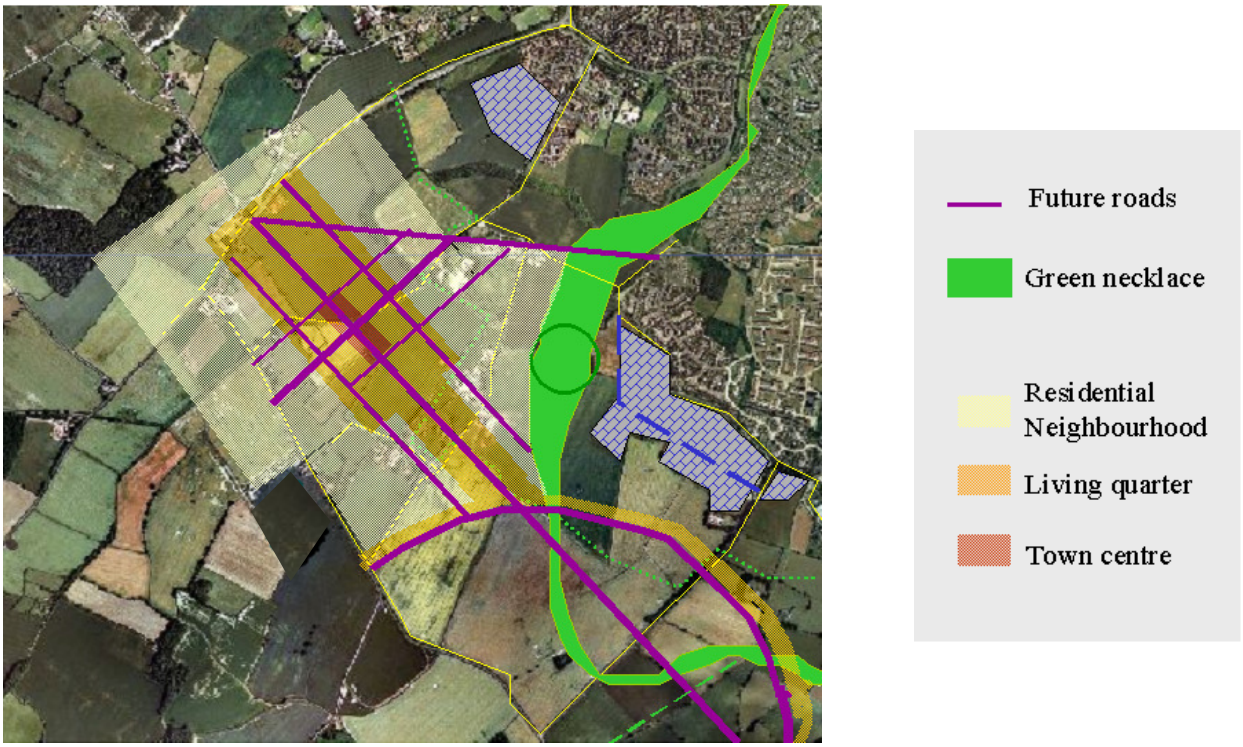


Fig.7. Current aerial photography, major axis and built areas from the Working Plan

Delimitation of the study area

It was necessary for technical reasons to define boundaries for the study location. By convenience, I chose the current edge of the town, the roads A28, Magpie Hall Lane and Long Length road. This boundary is visible on the previous illustrations. The size of the area is 250-300 ha.

The Schedule of the development

The development of Chilmington Green will be progressive, but mainly during the second phase of Ashford's development, between 2011 and 2021. The following illustration shows the three-development stage for Chilmington Green, and the table details the number of houses and jobs created during each stage.

Fig.8. The three phases of the plan implementation, GADF, p177, 191, 201

Phase	Period	Number of houses planned	Number of new job to create
Phase 1	2001-2011	500	100
Phase 2	2011-2021	2900	500
Phase 3	2021-2031	2600	400
Total		**6000**	**1000**

Fig.9. Schedule of house and job creation for Chilmington Green area, GADF

Because Discovery Park area is partly integrated in the study location, the information for its development is also provided.

Phase	Period	Number of houses planned	Number of new job to create
Phase 1	2001-2011	200	0
Phase 2	2011-2021	550	125
Phase 3	2021-2031	0	0
Total		**750**	**125**

Fig.10. Schedule of house and job creation for Discovery Park area, GADF

Most of Chilmington Green development will happen during the second phase, with 2900 houses and 500 jobs planned. However, the new urban village centre would be built during the first phase, in the five next years.

The information shown above, and as presented in the GADF, has no legal value, but gives an idea of the likely scale of development, type and location.
Under the new planning system (LDF) detailed policies for Chilmington Green will be coming forward in an *Issues and Options Report* in September 2007. These are expected to reflect the sustainability recommendations outlined in the GADF.

The following part presents three examples of development, and economic issue, which would be useful references to achieve sustainability in Chilmington Green.

II. Sustainable Urban Development – Case study and economic feasibility

II.1. Comparative study on three recent British developments - Characteristics and sustainability

Methodology

The aim of this part of the report is to describe, using common sustainability criteria, three examples of recent development to show available technologies and possibilities for Chilmington Green, but being conscious of the different contexts of each of them. The purpose is to learn something from these examples, to give concrete information about sustainability, and not only big ideas or principles. It is also to bring to light some of the shortcomings of the examples, and to show the gap between sustainable and traditional development.

Each of the examples is British, located in the Southeast. This choice allows a useful setting for comparison with the future neighbourhood of Chilmington Green, because of the same political and economical growth context.

Because of the aim of enhancing sustainability, two innovative development close to London were chosen:

-**BedZED**, in Beddington (Wallington, Surrey, Southwest London) because of the revolutionary measures taken to improve sustainability, and because of the amount of specific information on this development.

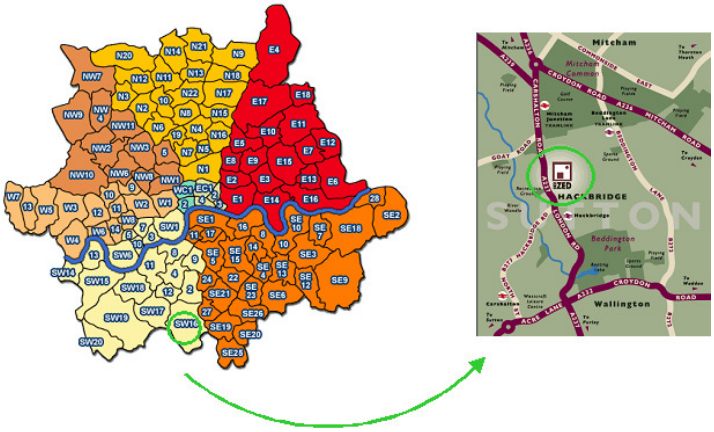


Fig.11. BedZED location, London map and detail map

However, the size of this exemplar development is quite limited (1.7 ha, 83 dwellings), and of an entirely different scale compared to a whole new neighbourhood in Chilmington Green (6000 houses planned)

Fig.12. Aerial view of BedZED (Bill Dunster architects)

-**Greenwich Millennium Village** (Greenwich Peninsula, East London), the second innovative and sustainable development chosen is interesting because it is a bigger scale development (3000 dwellings), closer to the size of Chilmington Green, even if the density will not be the same.

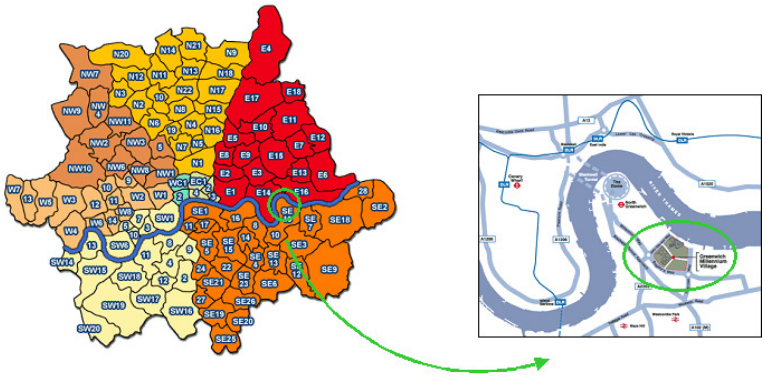


Fig.13. Greenwich Millennium Village location, London map and detail map

The information about Greenwich Millennium Village is more difficult to find, and the design choices are sometimes open to criticism. Another point is that this development is currently still under construction, and it is difficult to draw a conclusion on the global teaching of this development.

Fig.14. View of a part of GMV from the park

Another difference between both examples and Chilmington Green area is the different initial use of the land. Chilmington is currently a greenfield, while BedZED and Greenwich Millennium Village were urban brownfield sites. The question of the landscape integration, minor for both BedZED and Greenwich Millennium Village, will be really crucial for Chilmington Green. In order to address the local context, and also to present a traditional (non sustainable) example of development, a third case study was chosen:

-**Brisley Farm,** recent development on the border of Chilmington Green, built in a traditional way, and interesting because the local context is similar to Chilmington Green, and because the site shows a lot of shortcomings very useful to understand in order not to reproduce them.

Fig.15. Brisley Farm location, Ashford map and aerial photograph detail

The three examples are described on all aspects of a sustainability checklist. The checklist used here was built using the *Appraisal matrix* of the *GADF* (p 20-21) and the *Sustainability Checklist for Development in the South East*, from *SEEDA*. The target is not to develop each point in much detail, but to present the whole development, allowing a global comprehension of each of them and to permit comparison between these different cases.

Fig.16. Brisley Farm view from Spine Road

Tables

The sustainability checklist provides general information, to understand the context, including densities, to show the level of housing and the mix of use, describes resources and material use, and to show how the three parts of sustainability are developed, social, environmental and economical considerations.

Information was collected for the three selected developments to make the sustainability checklist shown in the next page.

The following pages present the results of the research for BedZED, Greenwich Millennium Village and Brisley Farm.

Additional comments can be found after the tables.

	1. BedZED	2. Greenwich Millennium Village	3. Brisley Farm
1.	**General information**		
Total size			
Date			
Location			
Cost			
Developer			
Architect			
Initial use			
Context			
2.	**Densities**		
Houses			
Jobs			
Public open space (ha)			
Facilities			
Shops			
Schools			
3.	**Materials and resources**		
Thermal			
Electrical			
Water			
Transport			
Waste management			
Works materials embodied energy			
4.	**Social**		
Quality of live			
Sense of place, identity			
Health and mental well-being			
Mix of uses			
Affordable housing			
Crime and social behaviour			
Community involvement			
5.	**Environmental**		
Resource save			
Landscape context			
Integration and visual impact			
Ecology and biodiversity			
Water and flood management			
6.	**Economical**		
Cost of the works			
Local market			
Example of price per house			
Energy bill saves			
Economical attractive location			

Fig.17. Framework of the sustainability

1.	BedZED
1.	**General information**
Total size	1.7 hectares
Date	1999: planning permission - 2002: first residents
Location	South London, Hackbridge, Sutton
Cost	Global cost: £15.7m, Details: 930 £/m2 for the housing, 752 £/m2 for the offices, 636 £/m2 for the shops.
Developer	Peabody Trust, one of the largest housing associations in London, long-established and forward-thinking social housing provider
Architect	Bill Dunster Architects, former unit leader specialising in environmental design at the Architectural association architecture school in London
Initial use	Urban brownfield site
Context	Initiated by BioRegional Development Group, Charity dedicated to bring sustainable business into the commercial market, and Bill Dunster Architects

1.	BedZED
2.	**Densities**
Houses	48.2 houses / ha, (82 houses or 271 habitable rooms for 1.7 ha) High occupation density, increase of dwelling densities from the initial planning permission, because of reduction of the car parking and road spaces
Jobs	1470.6 m2 / ha 2,500 m2 of commercial or live-work space (for 1.7 ha), Workspace for 100 people
Public open space (ha)	3,114 m2 / ha 5,800 m2 of green spaces for 1,7ha (4,621m2 including football pitch, and 1,182 m2 of sky garden and green roofs
Facilities	Sport facilities, bar, car club, health centre, community composting service
Shops	Food deliveries, internet and local farm
Schools	None, but childcare facilities

1.	BedZED
3.	**Materials and resources**
Thermal	Heat consumption reduction: 88% (comparing with the UK average) South facing terraces for passive solar heat, thermally massive materials for the buildings (300mm insulation jacket and triple-glazing), non insulated internal partition to spread heat, heat recovery for the ventilation system, CHP for heat and hot water
Electrical	Consumption reduction: 25% South facing terraces to provide light in dwellings, low energy lighting and ready fitted energy efficient appliances, CHP plant and solar panels to provide electricity, visible electricity meters
Water	Reduction: Hot water, 57%, mains water 50% Visible water meters, water saving appliances (low flush toilets, spray taps, water-saving showers and washing-machine), Rainwater collection wastewater on site treatment, surface water treatment and porous paving,
Transport	Reduction of fossil fuel mileage: 65% The Green Transport Plan is a condition of the planning permission. Reduction of car use with reduced and paid parking spaces, reduced land area taken up by road, and layout that keeps vehicles to walking speed Home zone, car club, storage for the bicycles, possibilities to work in the same place, promotion of walking (pedestrian first' policy), cycling and use of public transport (two railway stations, two bus routes and a tram link), parking and electricity from solar panel free of charge for electrical cars
Waste management	Composting service, 4 inbuilt divided bins in the kitchen, but the Resident Satisfaction Survey (BedZED 2004) showed that residents require more or larger bins for refuse and recycling
Works materials embodied energy	Where possible, BedZED is built from natural, recycled or reclaimed materials, Minimization of the energy cost of transport to reduce embodied energy

1.	BedZED
4.	**Social**
Quality of live	Innovative and good quality design (sky gardens and sunspace), low car home design, Quiet and safe
Sense of place, identity	Pride of place, neighbourliness, innovative design
Health and mental well-being	Potential to offer a lifestyle of low stress and more healthy exercise, Quiet and safe, car free living
Mix of uses	Housing, commercial and live-work area, facilities, exhibition centre, Imaginative way of creating employment
Affordable housing	58.3 % (23 homes for shared ownership, 10 for key workers and 15 at affordable rent for social housing, for a total of 82 homes)
Crime and social behaviour	Public spaces overlooked, community identity, neighbourliness, Enhancement of an environmentally friendly way of life
Community involvement	High involvement, learning centre, resident handbook and advice

1.	BedZED
5.	**Environmental**
Resource save	Total save of CO2: 147.1 tonnes per year: (Thermal: 18.3 t/y, transport: 46.8 t/y, electricity need 6 t/y, CHP: 70 t/y, photov+C9oltaic: 6t/y. Total save of water: 1,025 m3 per year: (Water-saving appliances: 825 m3/y, rainwater and waste-water recycling: 400 m3/y)
Landscape context	Old urban Brownfield site Urban area, close to London => high density
Integration and visual impact	Very good integration of an innovative design, because of the limited height (3 storeys) and the use of brick and wood. Few green spaces, but quite small development. Enhancement of a dry ditch into an attractive wetland along the front of the site
Ecology and biodiversity	Green roofs and roof gardens, ecological value of the landscaped wetland
Water and flood management	Integrated Green Water Treatment Plant with water recycling and surplus discharge in the close River Wandle, through the landscaped ditch. Rainwater collection and porous paving for the highway and parking spaces with water drain to minimize local hydrological impact.

1.	BedZED
6.	**Economical**
Cost of the works	Global cost: £15.7m, £685,127 of added build costs, £688,000 of potential added revenue
Example of price per house on the local market	3 bedroom flats / terraced houses: £225,000 4 bedroom semi £300,000
Example of price per house	3 bedroom flats / terraced houses: £265,000 4 bedroom semi £350,000 (estimated) Price 17.78% higher in BedZED for both examples
Energy bill saves	£ 3,847 / year
Economical attractive location	Attractive innovative character

2.	Greenwich Millennium Village
1.	**General information**
Total size	29 hectares
Date	1997: English Partnership commitment, first residents in December 2000 Project due for completion in 2012, currently two phases completed for four planned
Location	Southern end of English Partnerships' Greenwich Peninsula (121 ha), Southeast of London
Cost	£250 m (in all the developers have invested about £180 million on site cleaning and preparation, roads, services and landscape works)
Developer	Greenwich Millennium Village Ltd (GMLV), joint venture between Countryside Properties and Taylor Woodrow
Architect	Erskine Tovatt Architects, internationally renowned practice based in Sweden.
Initial use	Site of the largest gas works in Europe from coal (South Metropolitan Gas Works), Initially chemically contaminated soil and groundwater
Context	Short distance to historic Greenwich Part of the global project of Greenwich Peninsula rehabilitation. The area is a significant factor in the regeneration and development of east London. Association with social housing partners, Moat Housing Group and Ujima Housing Association. New agreement to transform the Dome and 190 acres of the peninsula to the north of GMV into a vibrant, mixed use community (10.000 new homes, employment space for 24.000 jobs)

2.	Greenwich Millennium Village
2.	**Densities**
Houses	47.8 houses/ha, Maximum 12 stories 671 homes already built and occupied, but the village will eventually comprise 1377 homes (1079 apartments and 298 houses), planning permission for 2,950 homes
Jobs	172.4 m2/ha 5000 square meters of commercial space planned (for 29 ha) Already over 1000 new jobs created. On whole of Greenwich Peninsula, 28,000 jobs are expected to be created over the course of the development
Public open space (ha)	20 hectares (50 acres) of parkland on whole of the peninsula. Different main areas created: an ecology park, the Southern park and the improved riverside environment (Thames Path, creation of salt marshes). Turf laid close to 20 football pitches, thousand of trees and shrubs planted, meadow grass sown. Walk to the tube station through the Central Park (pleasant commute), and Meridian Gardens on the northwest side of the peninsula.
Facilities	Includes offices, a community centre, a primary school, a health centre, a yacht club, sport facilities, shops, cafes, bars, restaurants, cinema, and communal space for parties, meetings or other gatherings.
Shops	Approximately 172.4m2/ha (5000 square meters or 54,000 square feet) of commercial space planned, all of which will be linked through a local communications network First Sainsbury's eco superstore on the peninsula
Schools	Includes a primary school

2.	Greenwich Millennium Village
3.	**Materials and resources**
Thermal	Primary energy reduced so far by 65% Maximum advantage of climatic factors, daylight (minimal factors of 1.5%), largest windows south facing, improved insulation standards (better than the applicable national regulations) with high performance windows and non-ozone depleting methods for insulation materials, CHP (Combined Heat and Power, most cost effective solution), deciduous trees (shade in the summer, sun in the winter)
Electrical	Daylight, fully fitted kitchens packed with energy efficient appliances, CHP Compromise between pure technical efficiency and development financing constraints
Water	Reduction 20%: Water efficient taps, shower, toilets and white goods, No water recycling (not viable)
Transport	Planned to create a less car dependent environment, however a number of parking spaces will be provided beneath the central landscaped courtyard and excellent road connections Well served by public transport (one stop away from Canary Wharf and Jubilee line, half a mile from North Greenwich station, access to Central London in less than 25 minutes; transit buses, above North Greenwich station up to 50 buses an hour pass through a new bus terminal) Footpaths (12 km created in the peninsula) and cycleway linking to amenities on the Peninsula. Local communications network planned
Waste management	Work with local authorities to develop a waste reduction strategy for the village Recycling stations located at key local points with special environmental measures Kitchen with two integrated 15-litres recycling bins, further larger recycling box of 30-litres capacity in a designated area, external space in bin stores provided for additional recycling space, work with the resident association, facilities also available for all non residential buildings.
Works materials embodied energy	Embodied energy reduced by 25% (use of BRE Green Guide) Construction waste reduced by 59% (30 to 40 percent of the wood and aluminium construction waste was recycled) Timber from sustainable sources; recycled materials, especially for landscaped areas.

2.	Greenwich Millennium Village
4.	**Social**
Quality of live	Planned as a real and vital community, Wide amenities and green space but quite controversial design
Sense of place, identity	Special design, resident identity with the resident association, Village centre at short walk from every house
Health and mental well-being	Proximity of fitness facilities to improve health, of medical facilities, Lots of green space, free car zones…
Mix of uses	Includes homes, mobility homes for the disabled, a community centre, a primary school, a health centre, shops, cafes, bars, and offices
Affordable housing	20% planned
Crime and social behaviour	Enhancement of the community Environmentally friendly way of life
Community involvement	Community centre Residents involvement in the management of the Village CHP facilities

2.	Greenwich Millennium Village
5.	**Environmental**
Resource save	"Excellent Eco Home" rating, CHP and insulation gives 65% reduction in CO_2 emissions
Landscape context	Major site remediation because of ground contamination: extraction and removal of the worst areas of contaminated soil, bentonite slurry wall adjacent to the River Thames, installation of an engineered capping layer of soil across the whole site
Integration and visual impact	Very innovative and striking choices in the shapes and colours for building design, not always harmonious. Urban site, so no visual impact of the design on sensitive landscapes. Other issue: how will this kind of design grow old? Excellent design for the green spaces and the ecology park.
Ecology and biodiversity	Ecology Park: man-made lake with inter-connection ponds, reed beds and islets. Habitat for estuarine birds and migrating species, wide variety of wildlife. Reintroduction of the Lewisham Black Poplar in the Central Park. The creation of salt marshes on the riverside provides both an ecological defence and an haven for wildlife.
Water and flood management	Creation of new wetlands, enhancement and protection of the riverside (installation of a bentonite slurry wall to stop any shallow contaminated groundwater from migrating into the River Thames)

2.	Greenwich Millennium Village
6.	**Economical**
Cost of the works	£250 m. Construction cost reduced by 12% while maintaining high specification levels through value engineering, partnership with suppliers and standardisation
Example of price per house on the local market	Unreported
Example of price per house	In 2003, one bedrooms apartments started from £205,000 Two bedroom apartments from £265,000
Energy bill saves	Unreported
Economical attractive location	Private companies attracted to the whole Greenwich peninsula have already invested £340m and created over 1000 new jobs. In all 28,000 jobs are expected to be created over the course of the development on whole of Peninsula.

3.	Brisley Farm
1.	**General information**
Total size	13.8 ha excluding the "school" site, 1.6 ha
Date	Outline planning permission: February 1999. All phases completed, except phase 6, currently still under development
Location	Southwest Ashford
Cost	Unreported
Developer	Ward Homes Ltd (phases1-7), Jarvis Homes (phase 8) The second developer bought the land before Ward Homes, relationship problems between the two developers
Architect	Kent Design Partnership (phases 1-7)
Initial use	Agricultural land (Brisley farm) mainly used as pasture Archaeology site
Context	Part of the area shown as Site 19 in the Ashford Borough Local Plan. Developer point of view: rapid building, to "built up the capacity of the house building industry" Adjacent countryside, the development create a very clear boundary between the built environment and the countryside

3.	Brisley Farm
2.	**Densities**
Houses	Global density 30.14 dwelling/ha. Total of 416 dwellings (about 40 built per year). The density was sensibly increased across the different phases to meet the need of Ashford's Growth and to avoid the use of more Greenfield land.
Jobs	No job, residential use only
Public open space (ha)	Access to open space is limited There are 3 bits of open space: the play area on phase 1, the open space between phase 7 and Coleman's Kitchen wood and a space on the other side of Long Length, available for ball games. The problem is that all these spaces are around the development and there is nothing inside. Some areas around the ponds are attractive features and they could be very pleasant green spaces, but they are very small and quite inaccessible.
Facilities	No infrastructure and local amenities. No medical facility, the closest is Singleton centre. Planned improvement in a closer neighbourhood, with the Stanhope PFI scheme
Shops	No local shop Closer shops: Tesco, 2 miles distance, and an other in Singleton, shop centre in the middle of Stanhope, small shop between Stanhope and Brisley Farm
Schools	Currently no school in walking distance A school close to Brisley farm to the north is under construction, the new singleton primary school off Cuckoo Lane 1.6 ha in Brisley farm designated to become a new school. However the project is not decided, and Kent County Council has to give the land back to the developer if no decision is taken in the next couple of years.

3.	Brisley Farm
3.	**Materials and resources**
Thermal	Standard, linked with building date
Electrical	Standard, linked with building date
Water	Standard, linked with building date
Transport	Car reliant for sports and recreational facilities (north side of the town), school and shop (Tesco, 2 miles distance). New pedestrian and cycle road: Chart Road is now car free, replaced by Spine Road, but is not really enhanced. On the main road, there are pedestrian and cycle ways on the pavement. The closest bus route, 2A (Stagecoach) run across the development on the other side of Chart Road, other bus routes (528,1, 400, Stagecoach and 297,Arriva) are farer but in same area of Ashford. Currently without bus route, Spine Road is designed and could be equipped to provide for one. There are "too many parking spaces", according to a resident, but it's quite standard (for example parking provision: 1.58 spaces/dwelling in phase 6)
Waste management	No recycling facilities included in the development. Ashford's standards for waste sorting for recycling purposes: blue boxes for paper and glass, with separate collection
Works materials embodied energy	Standard, linked with building date

3.	Brisley Farm
4.	**Social**
Quality of live	Quite luxurious houses, but no facilities. For the resident it is a choice to live here, the sale turnover is normal. Some of them complain about the traffic increase in the main road since the end of the works, but it was planned, and is not currently very high. The densities are not the sane across the development, the quality of life is not uniform
Sense of place, identity	Poor, but getting better. Global impression of posh and rich houses. Good mix of buildings size and architectural details, but with a very artificial effect. Effort in phase 4 to have smaller roads, more footpath, but lack of landscaping management in the opinion of many residents. Specific identity comparing with other Ashford's neighbourhoods. The identity is not wonderful, but exists. The main road is quite a separation in the middle of the development
Health and mental well-being	Houses built under and near power lines (phases 6and 7), possible health effects. The development is very close to the countryside, but the existing footpaths are not really enhanced. The developer use the countryside proximity as sales argument, but urban areas are soon going to be developed all around.
Mix of uses	No job, local amenities and recreation facilities. The development is only residential
Affordable housing	Around 10 % of affordable houses for shared equity, for key workers. Less than today's requirements (around 35% of affordable houses for rent and shared ownership), but improvement during the recent phases, for example phase 4: 40 affordable houses for a total of 157 (34%)
Crime and social behaviour	No real sense of community, but few problems regarding community safety (only complains for noise in the children play area and teenagers using the park to "hang about")
Community involvement	Existence of Brisley Farm Residents Association, Parish Council involvement (Kingsnorth). Nearest community facilities in Singleton

3.	Brisley Farm
5.	**Environmental**
Resource save	Standard, linked with building date
Landscape context	Edge of town and countryside Proximity of the floodplain, clay soils
Integration and visual impact	Abrupt boundary between the countryside and the built environment, visually intrusive, due to the progressive growth of the town. Effort to landscape the development, but lack of space around the features with opportunity, especially the ponds, and lack of recreational facilities for the residents (access and gates, bridges...). Luxurious and mixed house style, but the main problem is really the artificial aspect.
Ecology and biodiversity	Initial biodiversity in Coleman's Kitchen Wood, ponds, ditches and hedgerows. In the agricultural fields, quite poor biodiversity because of grazing. No protected species in the area. No requirement for ecological survey before the start of the works. Open space near the wood retained by Ashford borough Council to protect its biodiversity, some hedges, ditches and ponds retained in the development, but mismanagement problem.
Water and flood management	Proximity of the flood risk area. Ponds have two different functions: the main is the land drainage system, but the ponds fill up dangerously fast at present (need of a large generator pomp to get rid of the excess water), the other one is the surface water attenuation and the ornamental function. Present drainage plant: deep and dangerous water collection pits and ponds. The drainage ditch at the south of phases 2-6 fills up quickly even in short periods of rain. The intervention of the house developer in 2002 to deepen the ditch made the banks very steep and damaged the vegetation. Silting up of the main pond. Ponds mostly handed over by Wards to the residents who have to pay annual maintenance fees to the management company (discontentment)

3.	Brisley Farm
6.	**Economical**
Cost of the works	Unreported
Example of price per house on the local market	Close to the Brisley Farm prices
Example of price per house	Phase 6: Semi detached house, 3 bedrooms: £210,000 Detached house, 4 bedrooms: £290,000
Energy bill saves	None
Economical attractive location	"This is not a way to attract new people or business to Ashford or enhance the quality of life in the borough", according to DR. Davies (Brisley Farm resident, November 2003) Difficult to know the activity of the residents

	1. BedZED	2. Greenwich Millennium Village	3. Brisley Farm
1.	**General information**		
Total size	1.7 ha	29 ha	13.8 ha
Date (first residents)	2002	2000	2000
Location	South London	Southeast London	Southwest Ashford
Cost	£15.7m	£250m	Unreported
Developer	Peabody trust	GMVL	Wards homes, Jarvis Homes
Architect	Bill Dunstrer Architects	Erskine Tovatt Architects	Kent Design Partnership
Initial use	Brownfield site	Brownfield	Agricultural land
Context	Initiated by BioRregional	Peninsula rehabilitation	Site 19 in Ashford B. Local Plan
2.	**Densities**		
Houses	48.2 / ha	47,8 / ha	30,1 / ha
Jobs	Workspace: 1470.6 m2/ha	172,4 m2/ha	No job
Public open space (ha)	3,114 m2 / ha	20 ha on the whole peninsula	Limited
Facilities	Wide	Very wide	None
Shops	Food deliveries system	172,4 m2/ha	None
Schools	None but childcare facilities	Primary school	None, but uncertain project
3.	**Materials and resources**		
Thermal	Consumption reduction: 88%	Primary energy reduced so far by 65%	Standard
Electrical	Consumption reduction: 25%		Standard
Water	Consumption reduction: 50%	Consumption reduction: 20%	Standard
Transport	Mileage reduction: 65 %	Less car but car infrastructure	Car reliant
Waste management	Composting, waste sorting	Recycling stations	Ashford's standard
Works materials embodied energy	Reduction where possible	Energy:-25%, waste:-59%	Standard
4.	**Social**		
Quality of live	Good, innovative and quiet	Good but striking design	Luxurious, but lack of facilities
Sense of place, identity	High	High	Poor but getting better
Health and mental well-being	Low stress and healthy	Health Facilities, lot of parks	Power lines, lack of park
Mix of uses	Important	Very high	Only residential
Affordable housing	58.3	20 % planned	Around 10 %
Crime and social behaviour	Sense of community	Sense of community	No real sense of community
Community involvement	High	High	Resident association
5.	**Environmental**		
Resource save	147.1 t of CO2 saved/year	CO2 emission reduced by 65%	Standard
Landscape context	Urban area, high density	Solved ground contamination	Proximity of the floodplain
Integration and visual impact	Good, traditional materials	Good parks but striking design	Abrupt edge with the countryside
Ecology and biodiversity	Green roofs, wet ditch	High, Ecology Park	No previous ecological survey
Water and flood management	Treatment plant, porous paving	New wetlands, river protection	Drainage problems with the ponds
6.	**Economical**		
Cost of the works	£15.7 m	£250m	Unreported
Local market (house price)	3 bedrooms; £225,000	Unreported	Close to the Brisley Farm prices
Example of price per house	3 bedroom: £265,000	2 bedroom, 2003: £265,000	3 bedroom; £210,000
Energy bill saves	£3,847/year	Unreported	None
Economical attractive location	Innovative character	Already 1000 new jobs (Peninsula)	Low

Fig.18. Summary of the sustainability

Comments

Bed Zed

BedZED is a very interesting example of sustainable development. A lot of energy savings and community involvement measures are taken and are successful. The design too is really a success. It is very innovative and modern, but also perfectly integrated in the building style around.

Fig.19. BedZED view from the road

An other point is we can notice the real effort to think “community”, to promote facilities in the development, even if it is not really a big one (only 82 houses). It shows an interesting way of thinking on this subject: if the neighbourhood is too small to invest in shops inside, a sustainable possibility is to promote and organize deliveries via Internet.
This development also shows that the design of the urban area has a real role to play to promote a low-car way of life, main factor of greenhouse gas emissions and urban stress. It is not enough to offer possibilities with footpaths and cycles way. To be really efficient, it is important that the design encourage people not to own a car (few and expensive car park spaces, few roads, home zone, and also car-club from an organizational point of view).
Finally, one of the other main sustainability successes in BedZED is the very well designed mix of use, with a very important portion assigned to work space. It allows reduced commuting if people can live and work in the same place, but principally to make the neighbourhood alive both during the day and in the evening (useful for security feeling too). `

Perhaps the only aspect, which could be criticised in BedZED, is the green space provision. The main green space is a football pitch, very good for children and teenagers to play, but which doesn't allow a short walk, quite contemplation, etc. And the ditch landscaped in the border of the area is a small space for an area of 82 houses. The private sky gardens are a kind of compensation, but an area of public green space, even if small, could be expected within this kind of visionary development.

Globally, BedZED is a very well considered development, which allows a lot of savings with easily available and cost effectives measures. Comparing with some conventional development, it is simply a well-designed one, with environmental consideration, and which use a little bit more man imaginative resources to save a lot of environmental resources.
BedZED example, which shows also evidence of economic feasibility for sustainable housing, can really be used as a model for new developments. The team is available to share technical or economic information in order to help the expansion of similar developments (cf. next paragraph, II.2.)
We really have to integrate some of these aspects in future Ashford development, and especially in areas with high densities. In Ashford, where the job and housing opportunities are expected to grow together, the mix of use showed in this example is really inspiring. The way to think environmentally friendly into the details is often not complicated, very achievable and cheap, but just need to be thought.
Likewise, the scale of the development proposed in Chilmington Green is different, and it might be difficult to reproduce BedZED on such a large scale, but we can plan for different projects similar to BedZED. In this case, more attention needs to be given at the landscape integration, because of the current rural character of the area (cf. part III).

To summarize about BedZED, there are a lot of achievable measures for Chilmington Green development, even if more attention need to be given to the landscape integration and the green spaces provision. To introduce this kind of thinking in Ashford's development will require motivated and specialized developers, for who this kind of development represents a future market, but also a really strong planning policy in the LDF.

Greenwich Millennium Village

Many of the comments made for BedZED are also valid for Greenwich Millennium Village, because it is the same kind of ideological precursory development. However, context, scale and some aspects are different.
As in BedZED, mix of use, environmentally friendly character, residential area and wide facilities provided are very good sustainable and reproducible measures. The bigger size of Greenwich Millennium Village allows a provision of a wider and more complete range of facilities, but it also makes it harder to apply some of the idealistic and quasi-militant steps of BedZED. Greenwich Millennium Village is a compromise between the sustainable aims and the currently feasible way to promote a big scale development. So some sustainable measures are not as strong in Greenwich Millennium Village as in BedZED, like the car flow management, described for Greenwich Millennium Village as "a number of parking spaces provided, with excellent road connections" when BedZED promotes a "reduction of car use with reduced and paid parking spaces, reduced land area taken up by road, and layout that keeps vehicles to walking speed", with a result of fossil fuel mileage reduction to 65%. And in fact, we can notice than both developments don't communicate on the same aspects: when in BedZED the energy savings and the "green" way of life are really promoted in the marketing strategy, in Greenwich Millennium Village the innovative and modern way of life, the comfort and the facilities provided seem to be more important in the marketing strategy, and even if the environmentally level is also very high, there is less communication about that.

To clarify the comparison of BedZED and Greenwich Millennium Village environmental performance, the following tables show the available information about monitored reduction in both developments. We can notice that the titles are not exactly the same in both cases, but the table allows having an idea about the difference in environmental performance between both. The reference is also specified in the BedZED study (national average), but is not available for Greenwich Millennium Village.

Reduction in BedZED	
space heating	88%
electricity	25%
hot water	57%
mains water	50%
embodied environmental impact	20-30 %
fossil fuel car mielage	65%

Fig.20. Comparison between the national average and BedZED monitoring results for the firs year of occupation (Source: BedZED Toolkit for Carbon Neutral Development-Part II, Bioregional)

Reduction in GMV	
primary energy	65%
water consuption	20%
embodied energy	25%
construction waste	59%
construction cost	12%

Fig.21. Reduction achieved in Greenwich Millennium Village in December 2003
(Source: Greenwich Millennium Village Fact Sheet 1, Further Reading, www.greenwich-village.co.uk)

We notice that embodied energy and primary energy reduction are almost the same in both, and that reduction of water consumption is more important in BedZED.

One aspect of Greenwich Millennium Village, which is very interesting for Chilmington Green, is the fact that Greenwich Millennium Village is not an isolated project but is integrated in a wider plan of development, also localized in a growth area. This context could be compared to the global plan for Ashford's Growth. Chilmington Green wouldn't be an isolated development, but would be designed to be linked with the other part of the town. However the main difference is that Greenwich Peninsula project deals with the rehabilitation of a brownfield site, while Chilmington Green development will use a lot of greenfield. So a lot of things are acceptable in Greenwich Millennium Village, but could

never be applicable in Chilmington Green, like the striking design or the height of the buildings (12 stories maximum).

Fig.22. Example of Greenwich Millennium Village's Design

The density planned in Chilmington Green centre is higher (60 dwellings/ha for an average density of 48 dwellings/ha in Greenwich Millennium Village) but the acreage allocated to green spaces in the centre will certainly be smaller, so the buildings would not be so high, and certainly the design would have to be less intrusive in this sensitive greenfield area. The green spaces provision is of good quality in Greenwich Millennium Village and could be an example for Chilmington Green.

Fig.23. Greenwich Millennium Village's Ecology Park

It could be especially inspiring for the Discovery Park design, but also for all the smaller green spaces needed across the development. However, designers would have to use and integrate natural features in Chilmington Green, while the whole landscape is manmade in Greenwich Millennium Village.

Brisley Farm

Brisley Farm is very close to Chilmington Green area, which makes this case study interesting. The development started in 1999 (planning permission), on agricultural land. Geographically, it is a part of Chilmington Green area and can be considered as the beginning of its urbanisation, although this development predates the GADF, and is a part of the "Site 19" of the Ashford Borough Local Plan. Because of this difference, we might expect a rupture between the style of the Brisley Farm development and the future development in Chilmington Green, which is planned to be a consistent entity.

However, studying this development allows understanding the current standards of a residential, and quite luxurious, development.
We can notice that the area is designed with care, e.g. the mix of house size and type, the provision of a green strip on each side of the road, an effort to landscape the area…
We also acknowledge that footpaths and cycle ways are provided, and that globally this development, because recent, is better than older developments. The developer won the building Awards 2004 (regional house builder of the year).
However we can still notice shortcomings in this development. The main one is the artificial impression created by the ensemble. The development is quite nice but looks false, more like a decor than a neighbourhood.

Fig.24. Brisley Farm example of street scene

It is not alive and you feel something is wrong. This feeling is due both to the fact that it is a recent development, and, like all things, it could look artificial in the beginning, and to the fact that it is deserted during the day, because of the lack of mix of use.

This last point constitutes the second main problem. The lack of facilities and the absence of workspace provision make this development score bad on the sustainability checklist. There is no social sustainability and no existing sense of community.
To finish, the landscaping of the area, even with the effort made by the developer, is still considered “poor” by many residents, (according to DR.S.A.Davies’ letter from 14-11-2003, appendices of planning application number 03/01679/AS). In fact a lot of ponds or landscaping elements are interesting features, but are not really well enhanced, because of a lack of space all around, management problems (main pond eutrophication), and a lack of access.

Fig.25. Brisley Farm main pond

These issues are interesting regarding to Chilmington Green development because they could happen again due to the number of ponds and wetlands in Chilmington Green area for proposed development. These different features would have been perfect opportunities to create green spaces in the development, and not in the periphery, as it is currently. We could very well imagine a park all around the main pond rather than the small lawn currently around it. It could have been the heart of the neighbourhood, and a nice way to integrate green inside the urban area.
This kind of reflection has to be made for the future development of Chilmington Green, in order to use the natural features to create green spaces and footpaths with a true identity.

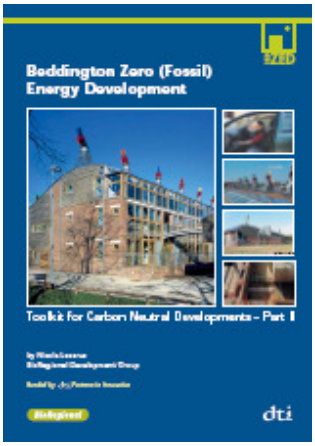
Globally, if we look at the comparison between Brisley Farm and the two example of sustainable development, we can notice a lot of difference. Brisley Farm is a development managed by a standard developer, who cares lass about the future

community well-being. Sustainable measures, which appear to be an extra cost at first sight, could really become an additional value if the developer uses it as marketing tool. In order to promote sustainability in Ashfords' development as in other places, it is first of all the developers' way of thinking that has to change. They have to realize that sustainable housing has a true economical feasibility and is for them a future market.

II.2. Economic feasibility - Data and references

The target of this paragraph is not to develop the economic evidences for sustainable urban development projects feasibility. However, because financial issues are so important in the current context of development, it is really useful for this work to present a quick summary and examples dealing with these issues.
Two documents edited by Bioregional Development Group about costs and benefits of sustainable development have been used to de this. They are clear and complete and give evidence and useful tools to manage sustainable urban development with an economic point of view. Their presentations and summaries follow, however the whole documents are useful for this issue.

- The first of these publications is a case study dealing with BedZED:



Beddington Zero (Fossil) Energy Development, Toolkit for Carbon Neutral Development – Part II*, by Nicole Lazarus, Bioregional Development Group, Funded by dti, Partners in Innovation,* available from Bioregional Development Group (info@bioregional.com)

It explains in details the measures taken in BedZED to achieve sustainability and quantifies the cost and the benefits of each of them: planning gain, thermal, electrical, water, transport, renewable energy, quality of life (cf. Appendices, A11. to A16.).

The next diagram is an extract from this publication, which summarises its main information. Cost and benefits are calculated for a 6-plot terrace containing 18 units of

1,2 and 3-bedrooms, in order to have information applicable to future developments of any size.

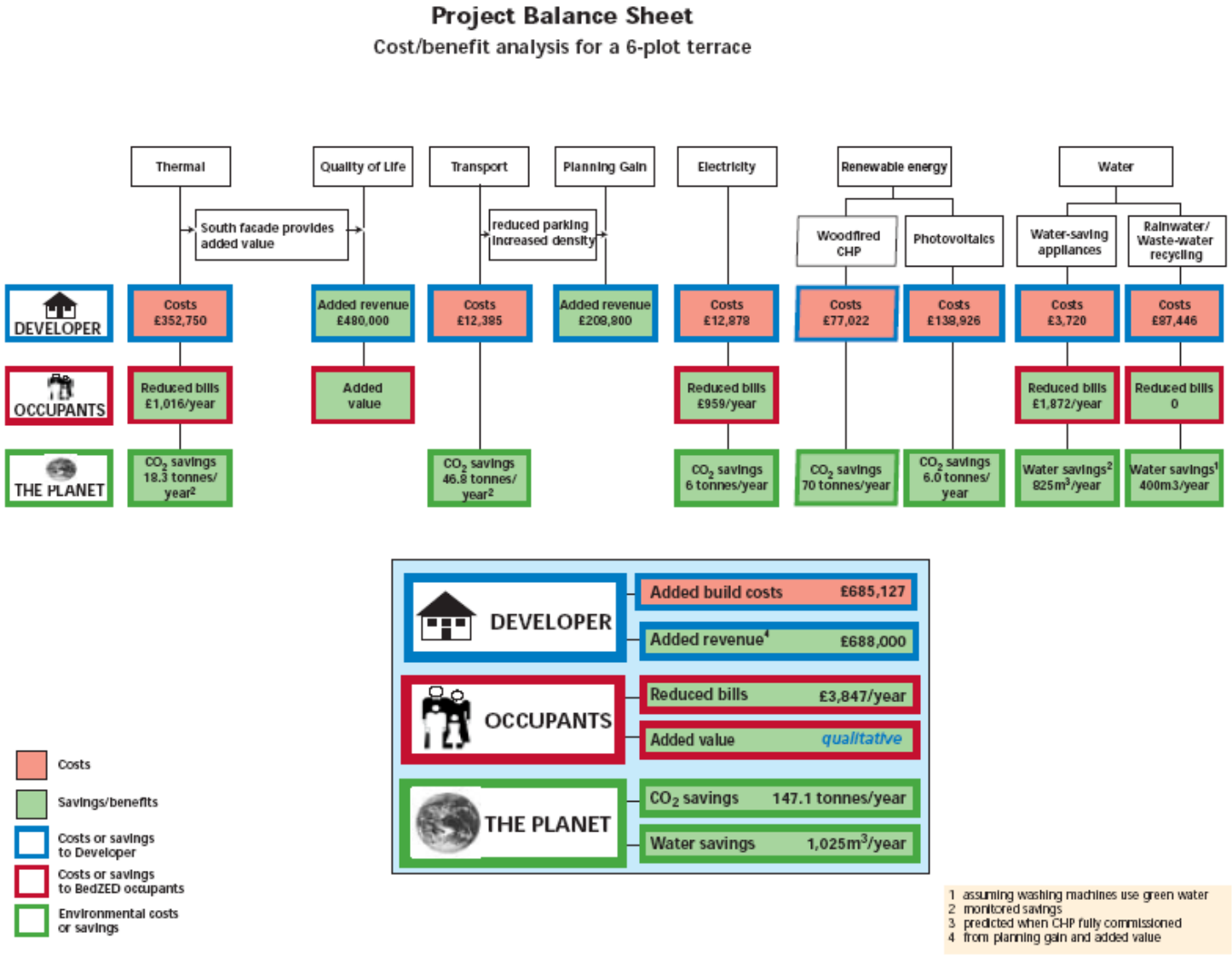


Fig.26. Global cost/benefit analyse of BedZED's environmental measures, p 44

All costs and savings are given relative to a "conventional" development. Costs are compared with buildings compliant with 2000 Building Regulations, supplied by Gardiner & Theobald Quantity Surveyors. All bill savings and environmental savings are compared with typical UK averages except for thermal performance.

The conclusion the report shows that the added revenue for the developer (£688,000) is higher than the added built cost (£685,127). This conclusion allows a new and attractive market for this kind of sustainable development. The methodology used to come to this conclusion is explained in the report, so this information is verifiable.

- The second publication is a global study, published for the Countryside agency by Bioregional Consulting:

Cost and benefits of sustainable solution to Community Planning and Development - A study for the Countryside Agency*, by Sumeet Manchanda, Bioregional Consulting Ltd, January 2005,* available from the Countryside Agency

According to this report, there are various overall costing estimates of planning sustainable homes built to various standards, and on consumer perceptions on costs. The summary of these findings is as below:

Overall Costs and Benefits of Sustainable Homes	• Additional costs of building to 'achievable' sustainability standards (LEED levels 1-3; up to EcoHomes 'Very Good') range from 0.5% to 2.5% • Additional costs of building to 'aspirational' standards (LEED level 4; EcoHomes Excellent) range from 2.5% to 6.5% • Costs of building to very high environmental standards can be offset by planning gain • Lifetime savings will result, especially if occupants' economic productivity gains are taken into account
Consumer perceptions	• Consumers are willing to pay cost premium of 2% extra for sustainability features • BedZED homes command an average of 15% premium over surrounding properties

Fig.27. Overall costing estimates of Sustainable Homes and consumer perception, p1

This report contains a table relating the Sustainability Principles and Aims and for each of them, the Strategies and the Headline findings.
It also contains a Cost/Benefice Summary listing the strategies, their cost and benefits, and providing with the sources.
These tables, which are useful for economic considerations of sustainable housings, can be found in the Appendices, A17.1. to A18.

Both documents offer tools and economical feasibility evidences for sustainable housing. The aim of these is to inform and facilitate future development using the same principles. This information is available, and has to be used for Chilmington Green, in order to meet the sustainability principles announced in the GADF.

The information of this part that could be useful for Chilmington Green deals mainly with the environmental quality standard for the housing, and the way to achieve the mix of use. However in Chilmington Green area the landscape integration will be essential to achieve sustainability. This aspect will be developed in the next part of the report.

III. Sustainable Development suggestions and landscape integration for Chilmington Green

The aim of this part is to provide a framework for a sustainable urban development in Chilmington Green. For most of the sustainability checklist points, BedZED and Greenwich Millennium Village can be used as good examples to achieve a sustainable development in Chilmington Green, especially for the mix of use and the environmentally friendly way of life. However, regarding landscape integration and green spaces, Chilmington Green case is really different, because of the historical Greenfield use. Specific attention is required for this aspect, and the aim of this part is to provide a lead to answer this question. The purpose is to understand the current landscape, to identify the main features and to show opportunities to conserve these in the future development, with clear benefits for the sustainability of the development.
As explained in Part I, the plans for Chilmington Green are currently limited to the GADF information, and could be expected to change in the LDF. It is currently not possible to use detailed plan as basis for this work, so ideas proposed in this part are quite general, and have to be deepen after the LDF publication.

This part presents the description of *Ashford Landscape Character Assessment* for the study area, and, for some specific locations, shows the opportunities and proposes some ideas for the future development, using the lessons from Part II of the report.

III.1. Extracts of the Ashford's Landscape Character Assessment

The study area is a part of the *Bethersden Farmlands* (*BF*) County Landscape Character Area of the. Chilmington Green contains four District Landscape Types (DLT), which are not limited to this area and extend in the surrounding countryside. The parts of the DLT within the borders of the study area are shown on the following picture:

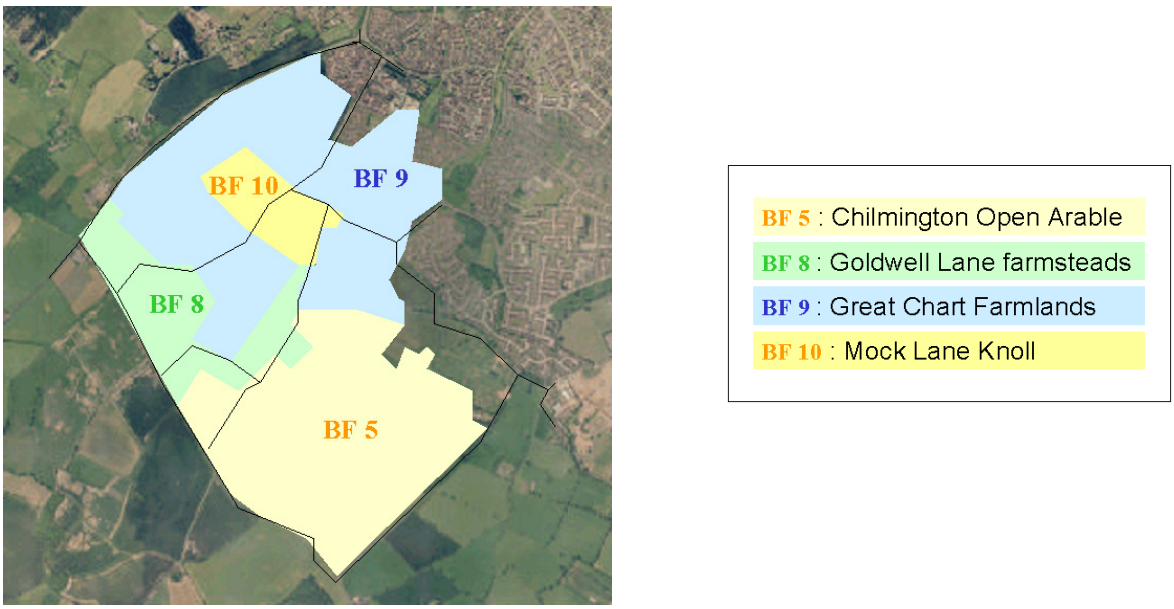


Fig.28. Location of BF 5,8,9 and 10 District Landscape Types within the study area

General description

The global types of farmland are large prairie style arable fields with hedgerow removal, particularly marked around the Chilmington Green settlement. This loss of field boundaries, and the large arable fields erodes somewhat the sense of place, but on the other hand offers a very wide view on the surrounding landscape. The isolated coppice woodland, Coleman's Kitchen Wood in this study area, is a prominent feature in the open landscape and the "green tunnel" of Long length with mature hedges is also especially distinctive.

Around Great Chart, Mock Lane and Singleton, the large fields of predominantly arable land are gently sloping. We can notice in this area horse paddocks and community woodland, but its global character is quite neglected. An important point is the fact there are elevated views eastwards towards Ashford, and westwards on the surrounding countryside.

From some part of the countryside, the urban fringe of Ashford is very visible, and quite abrupt.

The four District Landscape Types of the Landscape Character Assessment

Fig.29. Sloping visible land, view from Chilmington Green hamlet toward Coleman's Kitchen Wood

BF 5: Chilmington Open Arable

-Unified pattern of elements of vast open prairie arable fields with ditches, gentle slopes rising to Coleman's Kitchen Wood. Intensively farmed landscape

-Extensive loss of hedgerows leaving remnant hedgerow trees isolated in the middle of vast fields: removal of wildlife habitats and corridors

-Pollarded willows along the B-road near Great Chilmington

- The area is crisscrossed by a network of footpaths

-Expansive views, especially around Coleman's Kitchen Wood

The recommendations are "restore and create":

- Restore hedgerows; extend and create new woodlands
- Create green grid incorporating gently sloping visible lands towards Coleman's Kitchen Wood

BF 8: Goldwell Lane farmsteads

-Scattered pre 20th century farmsteads and medieval houses- some with moats- along a winding country lane. The initial use has been converted in only two farms, Blue Barn Farm, now a small business enterprise, and Little Moat Farm, converted to modern residential dwellings.

-The small field pattern is retained in the paddocks with semi-improved pasture enclosed by hedges and poplar shelterbelts.

The cultural heritage and the sense of place are defined as "high"

The recommendations are "conserve and create"

BF 9: Great Chart Farmlands

-Gently sloping large fields of predominantly arable land

-Pasture and mixed use around Great Chart and Singleton with horse paddock, recreational areas and community woodland

-The land rise along Mock Lane, which is well vegetated and sunken in places and gives elevated views southwards towards Chilmington Green and beyond.

-Coleman's Kitchen Wood is a distinctive hornbeam/ hazel coppice on an outlying knoll of greensand.

-High quality farmed land (Grade 2)

The functionality, landform and visibility are defined as "high"

The recommendations are "conserve and restore"

BF 10: Mock Lane Knoll

-Plateau comprising a working gravel/ sand quarry, travellers site with dumping

-Former landfill site, now grazed by horses, bisected by Mock lane

-Discordant fragmented pattern of elements with neglected and degraded character and intermittent visibility

The Landform and the detracting features are defined as "high"

The recommendations are "create and reinforce"

- Create green grid route from town to countryside with open views
- Reinforce adjacent community forest by additional planting.

These descriptions, assessments and recommendations by the Ashford Landscape Character Assessment offer a global perception of the area's character and opportunities. However this work deals mainly with the current situation and does not take into account the GADF plan for Chilmington Green. The following paragraphs provide with general recommendations, and then - using Landscape Character Assessment comments - show opportunities and ideas for some key locations in the area.

III.2. Local features and development suggestions

We can notice from the following illustrations that the area contains numerous interesting features, including ponds and a footpath network well-developed. These aspects are opportunities to create Blue and Green Grid in the new development.

Fig.30. Aerial photography of Chilmington Green area, with indication of the main features

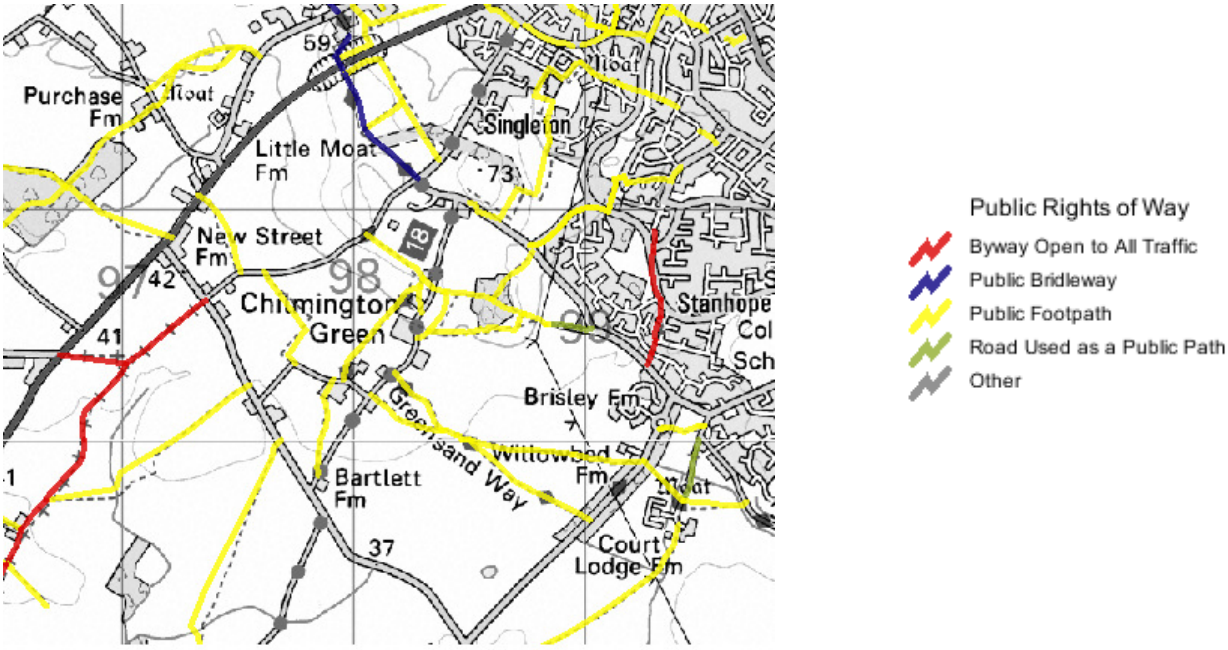


Fig.31. Chilmington Green Right of Way map, K-LIS, 2004

The aerial photograph shows current works, the Coleman's Kitchen Wood and the travellers site cited in the Landscape Character Assessment. Brisley Farm development is also represented.

General recommendations

Design

-Bring variety in the shape of houses; take into account the current style of the houses (work with different designers). But be careful not too have to many colours, which could create an artificial feeling. Try to get variety with integrity.

-Avoid straight shape for the roads and the neighbourhood plans with using historic roads and topography characteristics.

-Use naming for streets or neighbourhoods as tool in new development to refer to "historic elements".

-Use widely green screening (e.g. retain the old existing trees, hedges…)

High environmental quality

Keep attention on pedestrians and cycle ways (density of network and quality), public transport, and environmentally friendly and good quality design for the building.

Green spaces

-A way to improve green space visibility could be to put the gardens between the road and the house, with edges to make people feel more at home. It could be a way to avoid the noise of the road, and to have a lot of green spaces on both sides of the road. However garden at the back could offer possibilities of a bigger shared garden, rather than smaller private gardens.

-Use the current footpaths and hydrology network to create multifunctional green spaces in the neighbourhood, with links between the private garden, smaller green spaces, the Discovery Park and the countryside.

-Bring variety in the green space landscaping not to create boring and monotonous green spaces and use the features of the different places, especially in the green necklace, because green spaces have to attract people.

-The Discovery Park is designed on a town scale, to organize big events, but will not provide everything Chilmington Green needs. In the GADF plan, we notice three "secondary green spaces", but there is a need of more small green space and links spread in the entire neighbourhood.

-Retain the current hedgerows, and create additional belt of trees between the housing. It would bring a lot of benefits, including some linked with global warming (cf. GADF, p58):

Take the energy out of the wind

Provide protection to the development from storms

Cooling urban areas in summer times

Network of SUDs (Sustainable Urban Drainage systems)

Biodiversity conservation

- Take into account the very wet character of the area (springs levels, meadows, wetlands) and the geology (clay soils) to design the drainage system and the green space provision (multi-functionality).

Access to the countryside

-Avoid woods for the green edge, which could create a too distinct separation between the town and the countryside – which is the opposite of Countryside Agency's aims. The border should fit with the local landscape character and should make use of existing features e.g. local roads, hedgerows, tree lines, topography characteristics, local context, etc. to gently screen the development (hide it should not be necessary as the buildings should be visually integrated) and at the same time form a strong edge to prevent further urban sprawl.

-Create adapted roads and paths to provide easy access to the countryside, use existing Rights of Way.

Mock Lane

Current situation

Mock lane is historic countryside road linking Magpie Hall Lane with Singleton. Its shape is particular and it contains well vegetated historic hedges.
The land rises along the road towards Singleton, which offers elevated views southwards towards Chilmington Green.

Fig.32. Aerial view of Mock Lane (scale 1:9375) and specific view to the west

The top of the road leads to Mock Lane Knoll, which is a plateau comprising a working gravel / sand quarry, horse grazing and travellers site with dumping. The global impression of this hill is a neglected and degraded character with intermittent visibility. The landform offers opportunities for good views, but the numerous detracting features make the site unattractive.

GADF plan

Mock Lane road is not integrated on the GADF plans.
As shown on the next illustration, the current location of the road would cross the three areas with different densities, with a main part in the Living quarter (medium density), but with a central crossing in the urban village centre.

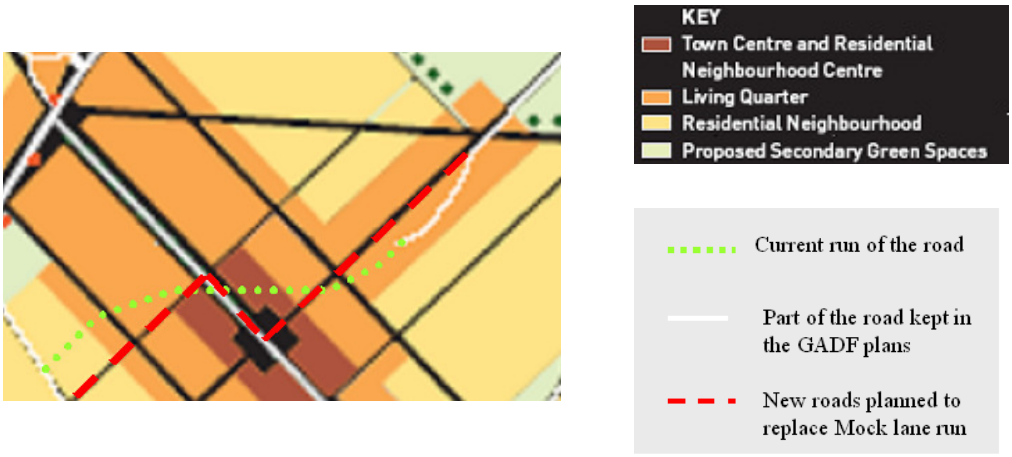


Fig.33. Current Mock Lane run, regarding to the GADF plans

We can also notice that new roads would replace Mock Lane run, making it useless in the new development.

Opportunities

Because this historic and characteristic road would cross the future Chilmington Green urban village and its centre, it would be interesting to retain it in the development, which would be a way to conserve a trace of the local features and to introduce a historic identity in the new urban landscape. It would permit in particular to avoid having only straight roads, strange to the local character and topography.
However the nature of the road would not allow busy car traffic, what could explained that the road was not retained in the GADF Working Plan, and replaced by new and straight roads. However, there is an opportunity to use Mock Lane to create a greenway, open for pedestrians, horses or cycles. It could be both a way to secure bike use, and a strong incitation for people to leave the car at home.

The rising topography and the open views offered from the road are additional arguments to enhance a recreational use for the road. The hill, where landscape enhancement is needed, could offer green spaces by reinforcing the adjacent community forest through additional planting and landscaping, with open views to the surrounding countryside, and visible from far.

So Mock Lane could be an opportunity for a green link between the countryside and Mock Lane hill through the new neighbourhood and into the centre. We could also imagine prolonging this green link from the hill to the planned green necklace, contributing building a Green Grid for Chilmington Green neighbourhood.

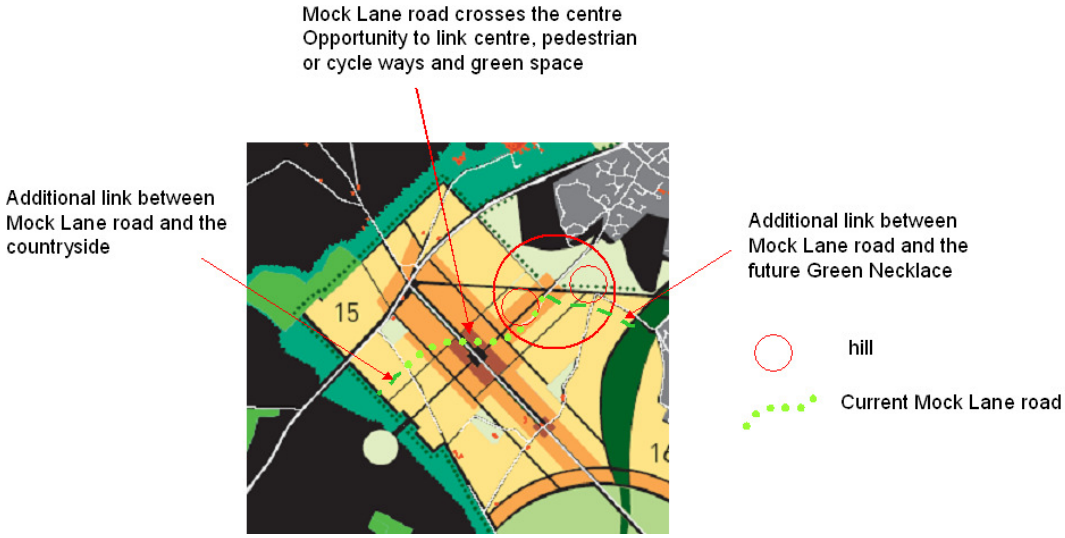


Fig.34. Scheme summarizing the opportunities for Mock Lane road and hill

The following text box presents useful experience, which has to be taken into account in order to improve as much as possible the use of Mock lane Road.

Chart Road case lessons (cf. Brisley Farm, part II)

Chart Road

Concerning the enhancement of existing roads as pedestrian and cycle way, the current example of Chart road shows that retaining the road without adapting it is not sufficient. This road is located between Brisley Farm and the neighbouring development, and car-free since the completion of Spine Road.

Because nothing was done to link both developments to this road, it is now quite isolated, and more a boundary than an enjoyable footpath. The old road asphalt also makes it unattractive for pedestrian and cycle use.

Long Length (Discovery Park)

Current description of the area

This road is currently linking the edge of the town (from Brisley farm development) and the surrounding countryside and includes over half the length an impressive channel of trees. The other half is bordered by low hedges and offers wide views on the surrounding countryside.

Fig.35. Aerial view of Long Length (scale 1:18750) and specific view in the middle of the tree channel

This place is currently offering a remarkably quiet and isolated space, although close to the urban area. The beginning of the road is separating Brisley Farm development from the play area; however, some trees from the channel were cut because of the development.
There are ditches on the both sides, between the road and the surrounding fields.

GADF plan

This road is pictured as the Future central boulevard of Discovery Park. However, this boulevard will be mainly the currently open part of the road. A short section of the part

with the channel of trees will be used at the entrance of the discovery park, but it will mainly be in the middle of urban development.

Opportunities

The existence of this remarkable feature should be enhanced. It's possible to see it as an opportunity, even if the channel is not included in the Discovery Park: The tree channel has to be preserved and protected during the development. The main axis of the Discovery Park will certainly be a pedestrian and cycle way, so we can imagine to make also the first part of the Long Length, under the channel of trees, a car-free zone, which could become a privileged way to access to the park. This tree channel, contributing to the Green Grid, will also offer a soft transition between the development, screened from the road, and the open landscape. When people would arrive at the end of the channel, they would be in the heart of the open parkland.
Improvements of the road surface would have to be done to replace asphalt by something more suitable and attractive for the pedestrian and cycle use. We can also imagine extending the tree lines to the south, with more spread trees, to enhance the surrounding landscape. A place could be laid out in the transition between the two parts of the road, and could offer public amenities and departures for other paths crossing the park.

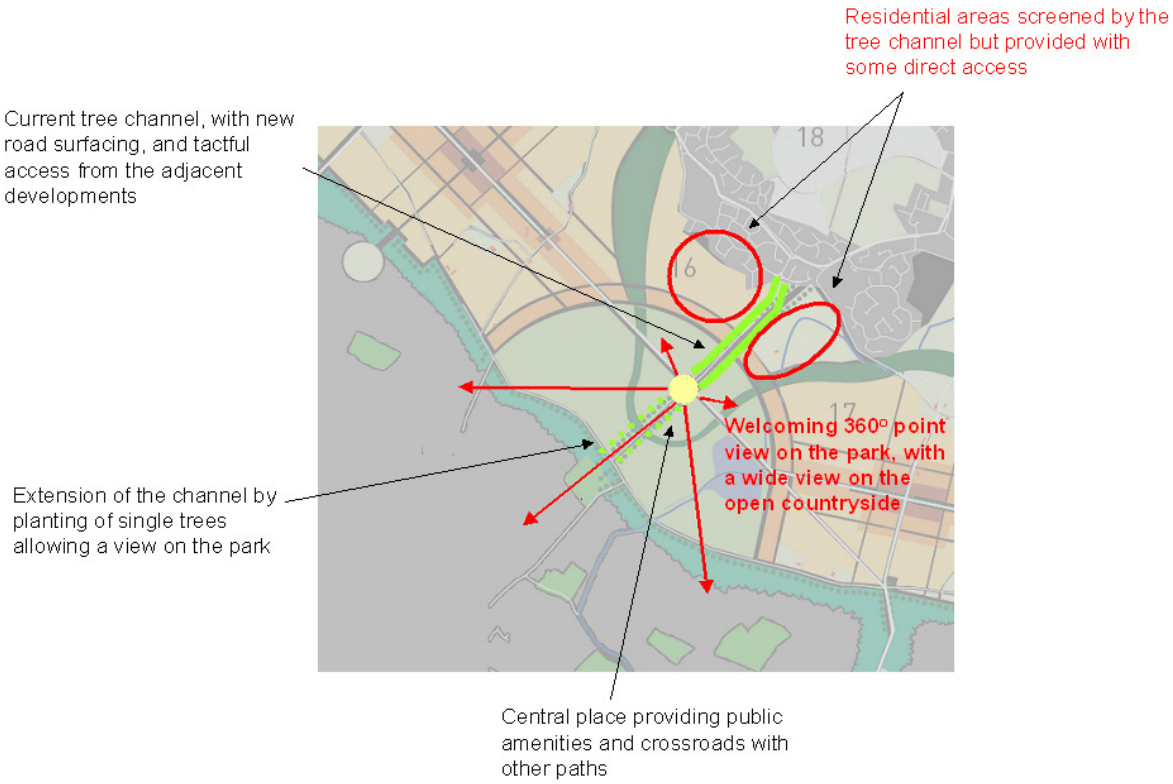


Fig.36. Suggestions for Long Length

Blue Grid – Specific focus on Chilmington hamlet

Current situation

Even if there is no main river in the study area, the blue grid should be part of the future development, especially within the green spaces provision and the Sustainable Urban Drainage scheme.

The area is a part of the upper Beult catchment, and contains many ponds and small streams, which play a key role in the local hydrology and wildlife habitats. They could also offer great opportunities for recreational areas, meeting the principles of landscape multi-functionality.

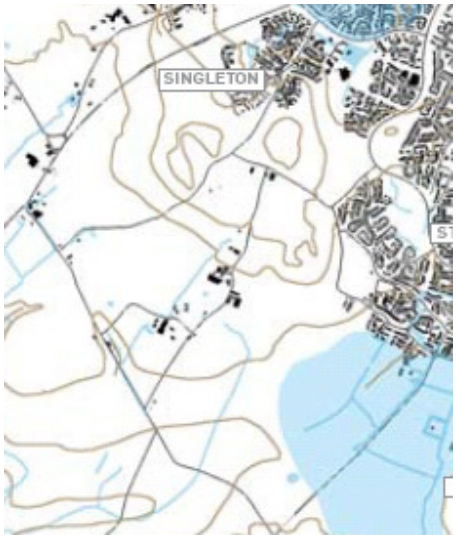


Fig.37. Global hydrology of the study area

Source: Environment Agency, Undefended Flood Plain Plan, 2003

We can see that ponds and streams are especially abundant around Chilmington Green hamlet. This area also contains some medieval farms, including moats and listed buildings. For both aspects, a specific attention needs to be given in the future development.

Rights of Way network (K-LIS)

Blue grid map (Catherine Bickmore Associates)

Aerial photography (99, K-LIS)

GADF Working plan

Fig.38. Four representation of Chilmington hamlet

GADF plan

The area is expected to become mainly a “residential neighbourhood” of the new urban village. The lower densities have been allocated along the both roads of the current hamlet, excepted in the reduced area crossing the main boulevard of the future development, which would be a very localized second urban village centre, showing a quick transition from the lowest densities to the highest. The second centre is linked to the main centre by the boulevard and has certainly be localised at this specific crossing to recognise the historical importance of the countryside road as the initial centre of the hamlet. The current road of Chilmington Green hamlet is still crossed by two secondary planned roads, in low densities areas. Two “secondary green spaces” are planned at these crossings. We can notice that the listed buildings of this area are specified.

Opportunities

The hydrology map shows a stream in this area, currently bordered by hedgerows and crossing the fields towards Magpie Hall Road. The north part of the stream is followed by a footpath, which shows a recreational interest. We can notice on GADF plans that a “secondary green spaces” would be created close to this footpath. Preserve the whole footpath along the stream, towards the urban border, would be an interesting way to link the future development with the adjacent countryside, and this from a secondary green space and through the landscaping of a path along a stream. This kind of measures, even if it looks modest, is important to complement bigger green spaces and major green links such as the Discovery Park and the Green Necklace. It is the addition of a number of localized and modest initiatives that can create a Blue and Green Grid and lead to more sustainability the new development.

Brisley Farm blue grid lessons

Brisley Farm pond

Brisley farm's green and blue grid is a very instructive case study. As explained in part II, the natural or manmade water features are numerous and offer multiples ornamental and recreational opportunities, but are not accessible enough, and do not provide green links or enjoyable spaces.

To summarise, Chilmington Green offers a lot of interesting features, which have to be retained and enhanced to create a Blue and Green Grid, making the new development sustainable and visually integrated. In this process, the Landscape Character Assessment is an essential element to understand the landscape and propose adapted measures.

Conclusion

The future development of Ashford town is expected to increase by 31,000 homes and create 28,000 jobs by 2031, and is an opportunity to deliver sustainable urban principles. The challenge has been defined in the GADF, and has now to be confirmed in the LDF before implementation. Most of Chilmington Green's development would happen during the Second Phase, but the future neighbourhood centre would be developed during the First Phase. The changes are going to start soon, and it is important to think now about the future development. To meet this aim, BedZED and Greenwich Millennium Village case studies offer useful lessons for implementing Sustainable Urban Development in Chilmington Green. Brisley Farm analysis provides useful background about the traditional development and the local context. In Chilmington Green, landscape integration needs particular attention to achieve sustainability. It offers a lot of quality features and opportunities, which need to be used, integrated and enhanced to build a Green and Blue Grid, contributing to sustainable development for the area. Landscape Character Assessment is an essential tool to understand landscape and meet this challenge.

These principles need to be delivered on the ground, and the aim of this report, by focusing on a specific location, is to contribute to this.

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Glossary

ALAC .....Ashford Landscape Character Assessment

BedZED .....Beddington Zero (Fossil) Energy Development
BF .....Bethersden Farmlands
BRE .....Building Research Establishment

CABE space.....Commission for Architectural and Built Environment space

CHP .....Combined Heat and Power

DTL.....District Local Type

GADF.....Greater Ashford Development Framework
GMV.....Greenwich Millennium Village
GMVL.....Greenwich Millennium Village Ltd

K-LIS.....Kent Landscape Information System

LAC.....Landscape Character Assessment
LAR.....Landscape Access Recreation
LDF .....Local Development Framework
LEED

ODPM.....Office of the Deputy Prime Minister

RNPB.....River Nene Regional Park
RPG9.....Regional Planning Guidance 9

SEEDA.....South East England Development Agency
SUD .....Sustainable Urban Drainage

UK.....United Kingdom

ZED.....Zero (Fossil) Energy Development

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I wish you all good luck with Natural England.

Appendices