Sustainable Urban Drainage (SUDs)

7.78 The proposed drainage strategy is designed not to exacerbate any existing flood risk in accordance with principles set out within the NPPF.

7.79 Sustainable drainage systems (SUDs) will be implemented throughout the development and have been calculated to incorporate an additional 30% allowance from increases in peak rainfall due to climate change again as set out in the NPPF.

7.80 The proposed development drainage arrangement will comprise a traditional drainage network that will be supplemented, where appropriate, with various SUDs devices to provide source control, water quality treatment and biodiversity enhancements and will include three attenuation basins and swales. The exact arrangement of the SUDs devices will be provided at detailed design stage following further consultation with the local authority and relevant regulatory bodies.

7.81 The network of swales broadly runs adjacent to the primary road connecting into the attenuation basins. These will take the form of shallow grassed ditches that will be carefully and sensitively incorporated into the landscape design of the green corridors and green avenues adjacent to the roads. These swales will provide important wildlife corridors and habitat creation areas within the development.

7.82 In addition to the swales there will be a minimum of three attenuation basins within the application site. Their embankments and overall shape will utilise smooth and flowing contours so as to be assimilated into the natural landscape. They may contain a wetland meadow grass mix that will be chosen for ecological enhancement. The detailed design will form part of the reserved matters applications.
Planting strategy

7.83 The topsoil will be conserved and protected during construction in accordance with BS3882 for re-use through the landscape areas. The soils in this area are slowly permeable and seasonally wet, slightly acid but base-rich loams and clays of moderate fertility. Retained hedgerows and trees will be protected during construction in accordance with BS5837. Any plants that are susceptible to disease such as the current problems with ash and box will not be used within the planting scheme and mitigation planting will reflect successfully growing local species.

7.84 The street tree planting will be selected to provide local distinctiveness by creating a street hierarchy with interesting form, character and colour. The species selected will be informed by the Essex Design Guide and existing species on the site. These may be Liquidamber styraciflua, Quercus robur, Platanus hispanica, Quercus cerris, Tilia petiolaris, Tilia platyphyllos, Robinia pseudoacacia, Corylus colurna, Crataegus Prunifolia and Pyrus chauticler. Where possible trees will be used to frame views of focal buildings or create focal points themselves at the end of vistas.

7.85 Trees will be chosen ensuring that the ultimate size is appropriate to the location. Tree positions will be co-ordinated with utilities, SUDs and parking and root barriers will be used where appropriate.

7.86 Planting within front gardens will consist of ornamental hedges of a species and size appropriate to the space allowed and the specific character type of their location. There will also be a mixture of planting including shrubs, ground cover, grasses and perennials that will be carefully selected according to aspect and ground conditions.

7.87 Formal public open space will contain trees, shrubs, some herbaceous species and areas of grass. Larger tree species will be used with greater longevity and long term public amenity within areas of public open space.

7.88 Informal open space will use ornamental and native hedges and low understorey planting ensuring that there is sufficient visual surveillance around access points and along footpaths and cycleways.

7.89 Planting within the play areas will be non-toxic species that are suitably robust with colour, scent and texture. The planting chosen will ensure that visual surveillance is maintained.

7.90 Planting under the high voltage electricity pylons will be small species such as blackthorn, crab apple, guelder rose, hawthorn, hazel, holly, rowan, spindle, wayfaring trees and wild service trees. There may also be some ornamental broadleaves such as small maples, sorbus varieties, Magnololia, Eleagnus, Rhododendrons and Azaleas.
SCALE

Building heights

7.91 The building heights shown on the plan indicate the maximum heights within the development zone. For the most part building heights will be two to two and half storeys, with buildings only exceeding this at key locations to perform important townscape functions or for the provision of low rise flats.

7.92 Building heights are greatest towards the eastern edge of the site responding to the existing urban area (including the Makro store) and the to the south of Rawreth Brook where the land levels are lower. Building heights are lower along the western part of the site to provide a softer interface with this rural edge.

7.93 To maintain a strong townscape and roofscape within these areas there should be a variation in the eaves heights, roof pitch and internal storey heights. These should extend to the areas with more dramatic topography where the variations in building and roof height will be emphasised.

7.94 The health facility and non-residential elements of the scheme include buildings up to three storeys. This allows for the range of possible uses proposed and for the key corners where these uses are positioned to be anchored by a marker building.
Density

7.95 Densities are greatest adjacent to the existing built area with medium densities across the majority of the eastern part of the site, and following one side of the link road.

7.96 Lower density housing is located towards the western edge of the development, responding to the countryside setting of this boundary.

7.97 This varying of densities across zones will result with a range of total homes on the site. If the whole site is delivered at the maximum density shown, this would achieve 500 homes across the site. At minimum densities, 430 dwellings would be achieved at 28.5 dph. However, it is unlikely minimum densities will be used, or appropriate in all residential blocks, and Rochford District Council’s (emerging) policies require a density minimum of 30 dph (453 dwellings).

7.98 Providing a minimum and maximum density range allows the master plan to respond to market changes over the build out time whilst ensuring the overall principles are maintained.

Figure 7.20: Density parameter plan
MOVEMENT AND ACCESS

7.99 The layout aims to create a permeable movement framework based on walkable neighbourhood principles that encourage trips by non-car means by placing the needs of the pedestrian and cyclist above that of the car.

7.100 The movement framework strategy aims to create a place with clear and accessible links and connections, both within the scheme to the adjacent urban areas and the wider countryside.

7.101 The plan opposite is an illustrative street layout. However, the broad alignment of the link road (the corridor within which it sits) is fixed.

Pedestrian and cycle routes

7.102 A cycleway will be incorporated within the primary movement corridor, connecting London Road and Rawreth Lane, with a route also running adjacent to the proposed bus connection corridor linking to the Rawreth Lane Industrial Estate access road. The cycle routes will be in the form of a shared footpath and cyclepath on at least one side of the primary route and a minimum width of 3m.

7.103 The extensive pedestrian network will complement the street hierarchy providing clear links to facilities and a number of recreational routes, including varying length circular routes.

7.104 The main focus of these is the proposed parkland along the western edge of the site, which will have a traffic free connection from Rawreth Lane to London Road.

7.105 An additional north to south route will run along the eastern boundary of the site with several east to west connections, with the two main ones following the alignment of Rawreth Brook and the northern green corridor.

7.106 The northern green corridor footpath will connect into the industrial estate access road, where it will continue, via proposed pedestrian crossing arrangements, to the existing public right of way, offering direct links to St Nicholas Primary School and residential areas east of the site.

7.107 The footpath network will extend up to the edge of Timber Grove to allow the potential for future links into and through the wooded area.

7.108 This strategic footpath network will be further complemented by the street hierarchy, with the lower order streets designed to reduce speeds and encourage streets to be a place for social interaction.
The street hierarchy

7.109 The street hierarchy of the new neighbourhood aims to create a legible movement network. To achieve this a series of primary, secondary, mews and private drives have been incorporated. The plan shows the indicative location of these with their final positions to be determined at the detailed design stage.

7.110 Where appropriate street design will have the aim of limiting traffic speeds to 20mph. The proposed link road will be 30mph.

Public transport

7.111 It is proposed that an extended or diverted bus service will be introduced through the site, which will provide access to Rayleigh town centre and the railway station. The chosen route means that all new dwellings can be within 400m of a bus stop. Therefore, the master planning of the site has been designed so that a bus could loop through the site.

7.112 In addition, through the Residential Travel Plan residents will receive initial free travel on the bus service and travel packs with their bus times, to ensure that a culture of travel by public transport is established. Further details of this are provided in the Transport Assessment that accompanies the outline planning application.

Parking

7.113 A range of parking solutions including on-street, on-plot and parking courtyards will be employed across the site. The detailed design stages will determine the exact extent of each of these solutions. However, on-plot parking will be used most prominently, with on-street and courtyard parking likely to be more frequently used within the higher density areas and adjacent to the link road. Provision for cycle storage will also be made, including within the area proposed for a health facility.
The link road

7.114 The link road is a key component of the new neighbourhood. Its clearly distinguishable form will be an important character element of the overall scheme. A strong landscape structure will be the over-riding feature of this main corridor. Tree planting on either side of the carriageway and swales, along some parts, that will vary in width along the length of the route, will create a distinctive and attractive primary corridor through the new neighbourhood. The precise details and design of the route will be determined at the reserved matters application stage.

7.115 The two indicative illustrations highlight examples of how the link road could be treated. The first option indicates a tighter urban form with short front gardens/threshold space creating a greater level of enclosure. Rear parking would be used to serve dwellings in this arrangement.

7.116 The second option shows how a private drive could be incorporated providing front vehicle access to the properties overlooking the link road. The enclosure to the street would be maintained through the use of landscaping. However, tree planting arrangements will be determined at the detailed design stage and could include staggered planting within varying landscape verge resulting in a changing character along the street. The nature of the link will mean vehicles can only have direct access to it in a forward gear. This will result in no (or limited) direct drive access with dwellings fronting the street accessed via private drives and/or from within the development block.

7.117 To the south of the Rawreth Brook the link road will have a slightly different arrangement. This section of the road, including across the flood zone, will be narrower and is likely to only have a landscape verge along one side of the carriageway. This variation will help to further articulate the different character proposed for this area.

7.118 From the London Road access point to the first residential parcels the link road will have a footpath running along one side. The precise details of the link road arrangement will be determined at the detailed design stage.

Figure 7.25: Indicative link road arrangement option 1

Figure 7.26: Indicative link road arrangement option 2
Secondary street

7.119 Secondary streets provide a similar function as the primary street but are, however, delivered in a less formal way and it is likely that building lines and the level of continuous frontage would have a greater degree of variance than on the primary street.

Lane/mews/private drive

7.120 These streets represent a lower order of streets. These will have a narrower carriageway width with widening points to allow for on-street parking. Landscaping will be informal in nature and in some cases placed between on-street parking areas. The low design traffic speed and position of many of these streets, often connecting to the green corridors, lend themselves to incorporate features to encourage social interaction.

7.121 The indicative sections show scenarios that are based on information in the Essex Design Guide and are used purely to demonstrate one potential approach to the street design. Other approaches and designs will provide the same function and hierarchy within the street network but will respond to the detailed layouts and site specific attributes with the final street designs determined at the reserved matters stage in consultation with Essex County Council and Rochford District Council.
Improved pedestrian connections

7.122 In addition to the extensive pedestrian network on site, potential upgrades will be explored to the existing public right of way that is to the east of the site and connects to the boundary of St Nicholas Primary School and on to Stirling Close.

7.123 This key link provides the shortest route from the site to the closest primary school as well as a link to ASDA and Swayne Park. The plan below outlines the potential safety and amenity improvements to the route to help encourage walking to school.

Access arrangements

7.124 There are 3 access points to the site in the form of Priority Junctions. These are from London Road, Rawreth Lane and the Industrial Estate Access road.

7.125 The Priority Junctions on London Road and Rawreth Lane have been designed with Ghost Island right turns to ensure that right turning traffic into the development does not impede ahead traffic flows. Each junction has been designed in accordance with the Essex County Council design criteria consistent with the local speed limit.

7.126 Please see figure 7.23 page 59 for the location of the junctions.
Figure 7.31: Proposed Rawreth Lane access arrangement

Figure 7.32: Proposed Rawreth Industrial Estate access road arrangement
SUSTAINABILITY AND ENERGY

Sustainability and Energy

8.1 Sustainability and Energy are now at the forefront of new national policy with the introduction of the National Planning Policy Framework (the NPPF) and the recently released Planning Practice Guidance (the Guidance) which set sustainability at the heart of the planning system making it clear that the purpose of the planning system is to contribute to the achievement of sustainable development.

8.2 The policies within the NPPF, when taken as a whole, constitute the Government’s view of what sustainable development in England means in practice for the planning system and take forward the five ‘guiding principles’ of sustainable development as outlined in the UK Sustainable Development Strategy, Securing the Future. These principles are: living within the planet’s environmental limits; ensuring a strong, healthy and just society; achieving a sustainable economy; promoting good governance; and using sound science responsibly.

8.3 The NPPF also identifies that there are three dimensions to sustainable development: economic, social and environmental and that the planning system’s role in relation to these should not be undertaken in isolation, because they are mutually interrelated and these three dimensions should be promoted jointly and simultaneously through the planning system.

8.4 Paragraph 56 of The NPPF states that: Good design is a key aspect of sustainable development, is indivisible from good planning, and should contribute positively to making places better for people.

8.5 The Guidance provides information to local authorities on how to implement the policies of the NPPF and approach to specific policy aims.

8.6 The Rochford District Council Core Strategy adopted in 2011 sets out seven key sustainability priorities including, ‘Promoting a Greener District’ which is a key theme running through the Core Strategy which aims to address the causes of climate change, outlining how policies aim to minimise the local contribution to climate change, identifying, location, sustainable homes and transport as key policies to address climate change.

8.7 The Core Strategy includes sustainability policies relating to: Affordable housing, Lifetime homes, Sustainable Drainage Systems, Renewable and low carbon energy generation, Sustainable buildings, Play space and Transport and identifies key local priorities including the need for water conservation in an area of water stress.

8.8 The Sustainability Appraisal of the Core Strategy identifies the following key sustainability issues for Rochford District:

• Balanced communities – to ensure delivery of sustainable communities
• Economy and employment – to achieve sustainable levels of economic growth
• Accessibility – to promote more sustainable transport
• Biodiversity – to conserve and enhance biological and geological diversity
• Climate change and energy – to reduce contributions of climate change
• Water – to improve water quality and reduce the risk of flooding
• Sustainable design and construction – to promote sustainable design and construction

8.9 The master plan development for land North of London Road has recognised these challenges and integrated a number of design features that respond directly to these issues or set the framework for a response during the detailed design and future Reserved Matters applications. These sustainability commitments are set out in a bespoke Sustainability Strategy developed for this application are summarised below under the relevant sustainability themes of the NPPF.

Building a strong and competitive economy

8.10 A study by the Confederation of British Industries (CBI) demonstrates that construction projects have a significant benefit on the local and wider economy. The report concludes that for every
£1 of construction expenditure £2.84 is injected into the economy.

8.11 The proposed development will create direct local employment opportunities as well as indirect benefits through demand for goods and services to support the construction phase, with additional council tax revenues also generated thereby proving further benefits to the local authority and economy.

8.12 The provision of space for a new primary school and non-residential floor space provides the opportunity for local employment and encourages local spending, further enhancing the local economy.

Delivering a wide choice of high quality homes

8.13 The proposed development will deliver a high proportion of family housing but also a range of house types to meet a wide range of demographic needs. There will be a varied and high quality mix of homes and typologies, including up to 35% affordable dwellings.

8.14 The public realm and new homes will be well designed and sustainable, to ensure improved wellbeing for generations of residents; will be future proofed in readiness for climate change and when operated effectively, will minimise the inevitable increase in utility bills.

8.15 Local amenity provision, including space for a new primary school and accessible green spaces will provide the infrastructure that helps underpin a vibrant integrated new community. The proximity of the open spaces will enable residents and visitors, to enjoy a range of leisure activities, be better connected to the countryside, which can contribute to a healthier lifestyle and better well-being.

Promoting Sustainable Transport

8.16 The location of this development has been established through the Core Strategy allocation process and is approximately 2km from the centre of Rayleigh and its surrounding environs, in close proximity to significant sources of employment and with access to a range of town centre facilities by public transport.

8.17 Walking and cycling through the development is strongly encouraged by a well-defined pedestrian and cycle network in the development that incorporated a cycleway and recreational pedestrian routes as well as links to local facilities, including on site allotments, local amenities and the proposed primary school area.

8.18 The development will also makes provision for a bus link and will review options for upgrading existing footpaths linking the site to the neighbouring St Nicholas Primary School.

8.19 The proposed transport strategy has been developed with a strong focus on encouraging sustainable transport options, which will be delivered through the Residential Travel Plan.

8.20 In particular, the Residential Travel Plan, will set targets in terms of the amount of vehicle trips from the development not to be exceeded and would seek to ensure travel by means other than the private car, through:

• Provision of travel packs which contain information on local public transport, cycle and pedestrian routes available to all residents.

• Initial free bus travel to all residents up to a limit of four tickets per household for the period of one year.

• Provision for safe pedestrian and cycle routes, including homes with suitable safe and secure cycle parking

8.21 The success of such measures has been highlighted in the Transport Assessment, which supports the planning application.

Requiring Good Design

8.22 The master plan has been developed to create a connected and inclusive community that mitigates the impacts of, and can adapt to the future challenges of, climate change.

8.23 A key concept of the design is provision of green infrastructure and central green space which acts as a focal point for the development. These green spaces provide local, formal and informal play spaces, diverse habitats and a range of other local services helping create a well-designed, welcoming development.

8.24 The masterplan sets out a range of walking and cycling routes linked to extensive areas of open space, recreational circular routes, local amenities which include potential health services, allotments and the proposed new primary school.

8.25 The green spaces will encourage recreational activity and therefore facilitate interaction between residents which will help foster a new community.

8.26 The inclusion of allotments also provides the opportunity for the new community to grow local, sustainable sources of food and to improve social capital and the richness of the local biodiversity.

8.27 The proposed tree lined streets, public space and soft boundary treatments will be combined with locally distinctive materials and reflect key townscape features appropriate to its edge of town location.
Promoting Healthy Communities

8.28 Creating a high quality development that promotes health and wellbeing for residents and local people is a key aim of the proposals and the design must adapt.

- Safe and secure accessibility links over looked by the development with strong connections to and from the development encouraging walking and cycling via links extended into the development.
- Provision of green public open space and equipped play areas providing amenity opportunities.
- Homes orientated towards green spaces, mature trees and landscape receptors beyond the site boundary to settle the development in the local area.
- New homes with comfortable living environments that have natural day-lighting and thermal comfort prioritised through good design.
- Where possible internal layouts are adaptable to reflect changing needs and where appropriate, homes designed to meet the requirements of Lifetime Homes.

Meeting the challenge of climate change, flooding and coastal change

8.29 Designing new development to minimise carbon emissions is a key aim of mitigating climate change. It is recognised however that some form of climate change is inevitable and this presents a number of challenges to which the built environment must adapt.

8.30 Some of the adaptation challenges faced by development are;
- Flooding – Winters will become wetter with greater and more intense periods of rainfall creating pressure on surface and flood water drainage systems
- Droughts – Hotter, drier summers are predicted and so a challenge will be to capture and store water when it is available and use water more efficiently.
- Overheating/ Urban Heat Island – As external temperatures increases, the built environment will absorb more solar energy during the day to release during the evening. New developments must therefore consider how to adapt to this potential impact.

8.31 The masterplan has been designed to mitigate and adapt to climate change through a range of measures which include both; climate change mitigation and adaptation measures.

Climate change mitigation measures
- All new homes will be constructed in accordance with the 2013 Building regulations, in line with the latest national policy guidance and, by comparison, are likely to be at least 50% more energy efficient than the existing residential dwellings in Rochford. This will be achieved through a dwelling centric, fabric first principal which ‘locks in’ carbon savings for the life of the building.
- Where possible the principles of Passive Solar Design will be incorporated and new homes will be orientated to efficiently capture solar energy without compromising the urban form and layout of the masterplan or risking summer overheating.
- Natural ventilation will be preferred where possible with mechanical ventilation only used if necessary.
- Water efficiency is a key local priority and all homes will be designed to reduce water consumption by including water efficient taps, WCs and showers to minimise water use.
- Dwelling centric, renewable energy technologies will be reviewed during the detailed design process for potential inclusion in the buildings.
- As an alternative to carbon compliance solutions, Countryside Properties are happy to discuss the potential use of the Allowable Solutions mechanism (possibly through a community energy fund) to mitigate significant quantities of carbon off-site (e.g. energy efficiency improvements in existing homes).

Climate change adaptation measures
- A strong focus on sustainable travel to minimise carbon emissions through private car use
- A strong green infrastructure strategy incorporating existing mature trees has been developed which includes blue infrastructure in the form of swales and attenuation basins. Green and blue infrastructure provides excellent cooling benefits to the microclimate in the form of shading and evaporative transportation.
- A flood risk and drainage strategy that maximise the use of SuDS to capture and attenuate rainfall that allows for a 30% increase in peak rainfall intensity.
- The inclusion of water efficient appliances within the dwellings and the provision of water butts in the residential gardens and allotments.

Conserving and enhancing the natural environment

8.32 The development masterplan contains a range of green spaces, including a green corridor running down the western edge of the development, community allotments, private gardens, tree lined streets and soft boundary treatments. The site will provide a range of new ecological habitats across incorporating the sustainable drainage system, swales and attenuation ponds.

8.33 The landscape strategy retains and incorporates the existing hedgerows within the development, strengthening the existing hedgerows and boundaries as well as planting new native species to create soft boundaries to the site, increasing site habitat and helping to mitigate the visual impact of the development.
8.34 The development of the site and the green infrastructure and new habitats aims to provide an overall improvement in site biodiversity, making a positive impact on the local environment.

8.35 During construction a Code of Construction Practice will be developed to manage the construction of the development and limit its impact on existing site habitats and species.

8.36 The Green Guide to specification will be utilised to select materials that have a lower whole life environmental impact. The Construction contractors will also be required to source materials responsibly which will include the use of certified timber.

8.37 Prior to construction a Resource Management Plan prior will be developed which will include measures to reduce waste generation during construction and minimise disposal to landfill. The considerate contractor’s scheme will also be implemented to promote responsible construction activities.

8.38 The development will aim to reflect the local character and historic environment of Rayleigh.

8.39 A green buffer and strategic planting will be implemented to protect the setting of Rawreth Hall, a Grade II Listed Building, located to the west of the site.

Conserving and enhancing the historic environment.

Summary

8.40 The proposed masterplan for residential led development at Land North of London Road, Rayleigh will result in the creation of a well-designed, integrated and sustainable new community by meeting a wide range of housing needs through the provision of affordable, accessible, energy efficient buildings. The dwelling-centric, fabric first proposal offers excellent climate change mitigation benefits that meet some of the key local priorities of Rochford District Council.

8.41 A strong green infrastructure strategy provides strong climate change adaptation benefits as well as facilities for sports and recreation. New community facilities such as a potential new primary school, local amenity and health provision, allotments and recreational areas will foster a healthy, sustainable lifestyle for future occupants.
9.1 The new neighbourhood will be developed over a number of years and the phasing and implementation strategy aims to ensure the delivery of a rich and coherent built environment from the start of the project to its completion.

**IMPLEMENTATION STRATEGY**

9.2 The new neighbourhood will be developed over a number of years. The implementation strategy opposite provides an indication of the current anticipated sequential delivery of the new neighbourhood.

9.3 Development of the residential parcels is likely to commence in the north of the Application Site (once the northern part of the link road is built) and progress southwards. Similarly, once the southern part of the link road is built, development of residential parcels to the south of the Application Site will commence, and progress northwards. It is proposed that the open access land will be delivered in stages with the development areas.

9.4 It is anticipated, depending on obtaining the appropriate consents, that construction of strategic infrastructure will start in the Spring of 2015 with the first housing starting in Autumn 2015, with all works completed by around 2019.

9.5 Construction of the link road will take place within the early years of the construction programme. Commencing initially from the north, off Rawreth Lane, and soon after or simultaneously from the south off London Road, with the central section of the road and bridge crossing provided last. The timing of the opening of the whole link road will need to be agreed with Rochford District Council and Essex County Council, but will be relatively early on in the development programme.

9.6 The timing of provision of landscaping within the parkland areas will be affected by the timing of the provision of a surface water drainage strategy for the site (including the attenuation basins), the construction management strategy, and linked to the delivery of housing/the development over time.

9.7 The precise timing of the provision of all strategic landscaping (and timing and extent of initial structural or strategic planting) will be agreed with the local planning authority via any grant of planning permission and a Section 106 agreement.

9.8 Other strategic infrastructure, including drainage, attenuation basins, utilities and a bus service will also be provided early in the development process with triggers for providing these agreed with the local planning authority and county council.

9.9 The non-residential elements will be marketed for sale and will be developed when there is market demand.

9.10 It is not known at this stage when Essex County Council would construct the primary school if required on the site.