

PHASING

The phasing demonstrated on the phasing plans is to demonstrate that each village and associated green infrastructure and connections could be developed separately. However it is possible that the proposed villages could be built in any order and part of more than one village or phase could be built at any one time.

5 TRANSPORT

Transport

The masterplan will seek to achieve a modal shift from away from car based transport and will embrace the following aspirations:

1. excellent cycling and walking routes to all facilities
2. cycling/pedestrian routes to key destinations to be more direct than driving routes
3. close proximity to all important facilities
4. co-location of facilities
5. well designed, green, safe relatively car free communal areas that people value and appreciate
6. the best bus service we can get
7. real time public transport information in homes
8. car club - either commercially run or community owned
9. LPG filling station
10. incentivised electric car ownership
11. community owned or commercially run taxi/minibus service, perhaps with cycle rickshaws available
12. parking located so as to encourage alternatives
13. limited parking provision
14. financial incentives for lower car ownership (either charges for parking spaces, discounts on public transport/car club for low car households - there is room for some real innovation here)

Reduce Car Use

The masterplan will seek to achieve a modal shift of at least 45% transport by non private car use by 2016 (rising to at least 50% by 2026) by providing local services and facilities (including linked trips) and encouraging use of public transport, walking and cycling. As well as modal shift, there is a complimentary aspiration to measure and reduce transport related carbon emissions. Eco town targets are in the form of modal shift because trip numbers are easier to monitor than carbon. However, 2 yearly resident interviews and vehicle mileages will produce enough data to monitor reductions in this impact area. Low emission vehicles will therefore be promoted and incentivised.

Highway modeling

Highway modeling is in progress and Hyder will report on this in a separate report.

Road Access

The highway strategy is to locate principal junctions onto the ring road for through roads into the development. Proposed junctions are located opposite existing junctions to the residential areas south of the ring road to facilitate the integration of the proposed housing and existing communities.

Two road access junctions are proposed on Banbury Road, and two on Lords lane for the northern development. Two road access junctions are proposed on Howes Lane and one on B4030 for the southern development. All junctions on the ring road have pedestrian / cycle crossings.

Through design, car parking is provided and located so as to enable people to make a conscious decision relative to which form of travel they select.

Cycle routes drawing 1046(sk)022

The strategy is to provide the most convenient access across the development and connectivity to Bicester for cyclists. Proposed routes for cyclists are shown through the development, with links across the existing ring road into Bicester shown as diamonds in drawing 1046(sk)022. In addition to these cycle routes we would propose that any new road access junctions on the Ring Road also have cycle crossings. There are proposed cycle and pedestrian crossings on the ring road at junctions with Banbury Road, Bucknell Road and the B4030. Depending on final road access option - the locations of cycle only crossing points could be adjusted.

Foot and Cycle connections

Provide safe, attractive and more convenient walking and cycling routes through the development and ensure these are linked to the town. Provide dedicated storage for bicycles within each home and appropriate street furniture to enable cycles to be safely locked when visiting the community centre and other services and facilities.

Hyder and Bioregional are assessing the foot and cycle connections for the modal shift and the masterplan can be amended to optimise benefits. a series of journeys and compare the driving experience with the cycling, walking and bus experience. We can compare distance, time and cost for all journeys within Bicester. Journeys considered include:

1. each hub to hub,
2. each hub to the town centre,
3. each hub to each train station,
4. each micro-residential neighbourhood to the appropriate primary and secondary school,
5. each residential neighbourhood to their hub,
6. each residential neighbourhood to the Bicester industrial estate
7. each residential area to Oxford and Kidlington park and ride.

Lighting and security Cycleways and footpaths

The balance of lighting footpaths and cycleways to provide security and the affect of light pollution on habitat biodiversity is an important consideration. The existing cycle / footpaths through Bure Park were originally intended for recreational use and were unlit. OCC have a proposal to upgrade the Bure Park cycleway to provide lighting which would provide an important link to the development. The masterplan will need to consider the balance of on road and off road cycleways.

Howes Lane Foot and Cycle Improvements

Along the majority length of Howes Lane the masterplan provides a strip of green infrastructure with a parallel cycle route on the north side. Therefore any proposals by the local authorities to revise the alignment of Howes Lane could be accommodated in the masterplan, including swapping the position of the cycle route to the south side.

Howes Lane and Lords Lane Foot and Cycle Improvements

The proposed new road junctions on Howes Lane and Lords Lane are shown as crossing points for cyclists and pedestrians. Hyder will provide the junction details in due course.

Proposed pedestrian crossing of the rail

The proposed additional cyclists and pedestrian crossing of the rail line is indicated on the masterplan in a position considered to provide the best connectivity in conjunction with the existing road crossing under the railway. Further work is required to test the feasibility of the cyclists and pedestrian route and bridge or tunnel over or under the rail line.

Existing pedestrian and road crossing of the rail

There is an existing road crossing under the rail. Hyder highway modelling is in progress and Hyder will report on this in due course.

Proposed Bucknell Road cycle route

The proposed cyclists and pedestrian route along Bucknell Road follows the north side of the road to connect with the existing footpath to Bucknell.

Footpath and Cycle connectivity to Bicester

The footpath cyclists and pedestrian routes which are identified on the plan outside the development site are taken from the information provided by OCC. The purpose of illustrating these proposals on the masterplan is to identify how the routes on the development site link into the wider context. Any further updated information on the detail of the proposals outside the site to be provided by OCC would be welcomed to add to the context.

Parking for non residential uses

Highway modelling is in progress therefore Hyder will report on this separately.

Parking for residential

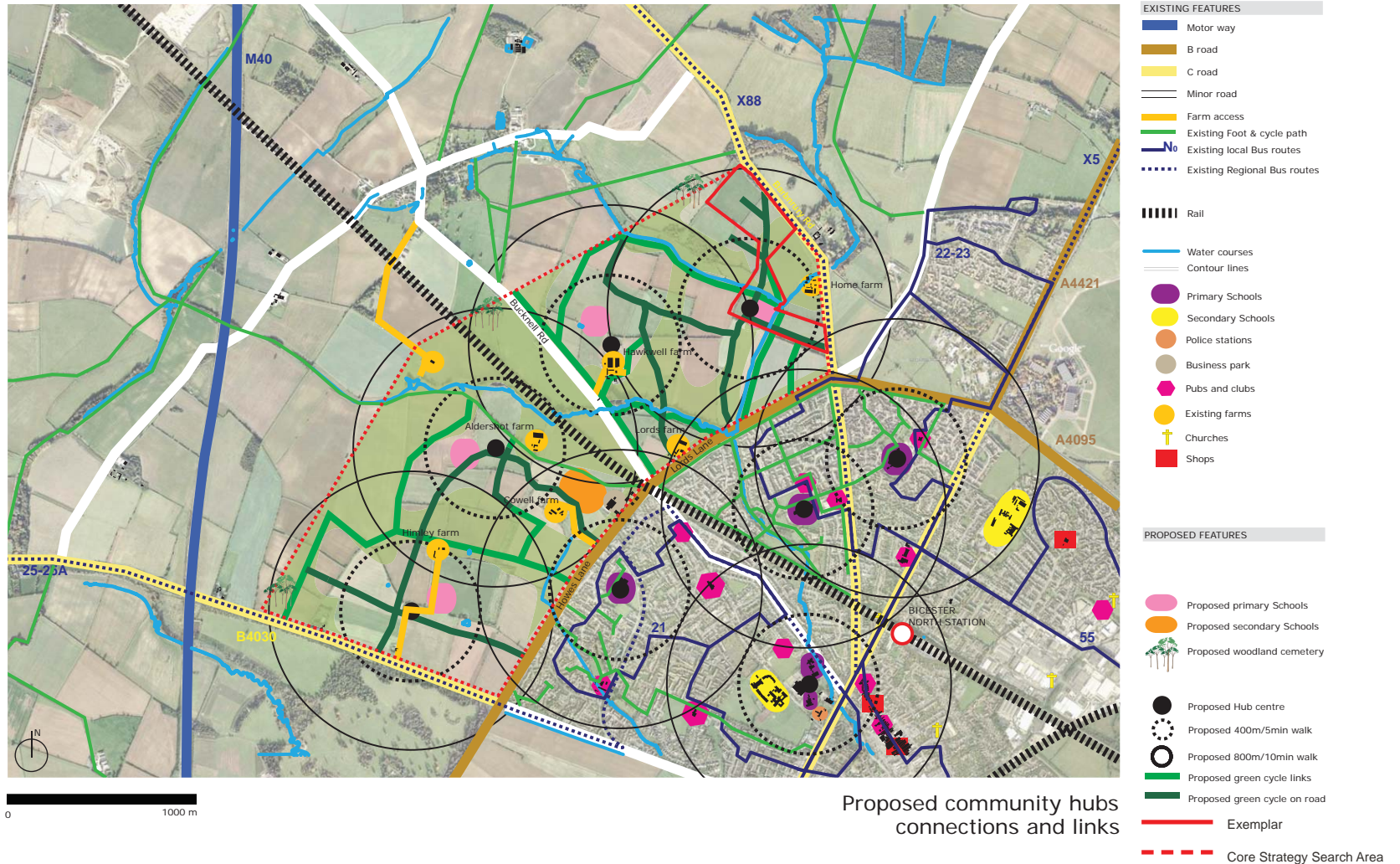
Where homes have limited parking space on plot, the residents have the option to take a further space in parking courtyards. The courtyards will be carefully designed for security etc. The masterplan supports the idea that the community could then decide in the future whether to use these spaces for parking or to convert them into other community uses such as allotments, skateboard area, play area or even build on it. This approach offers flexibility, choice and innovation.

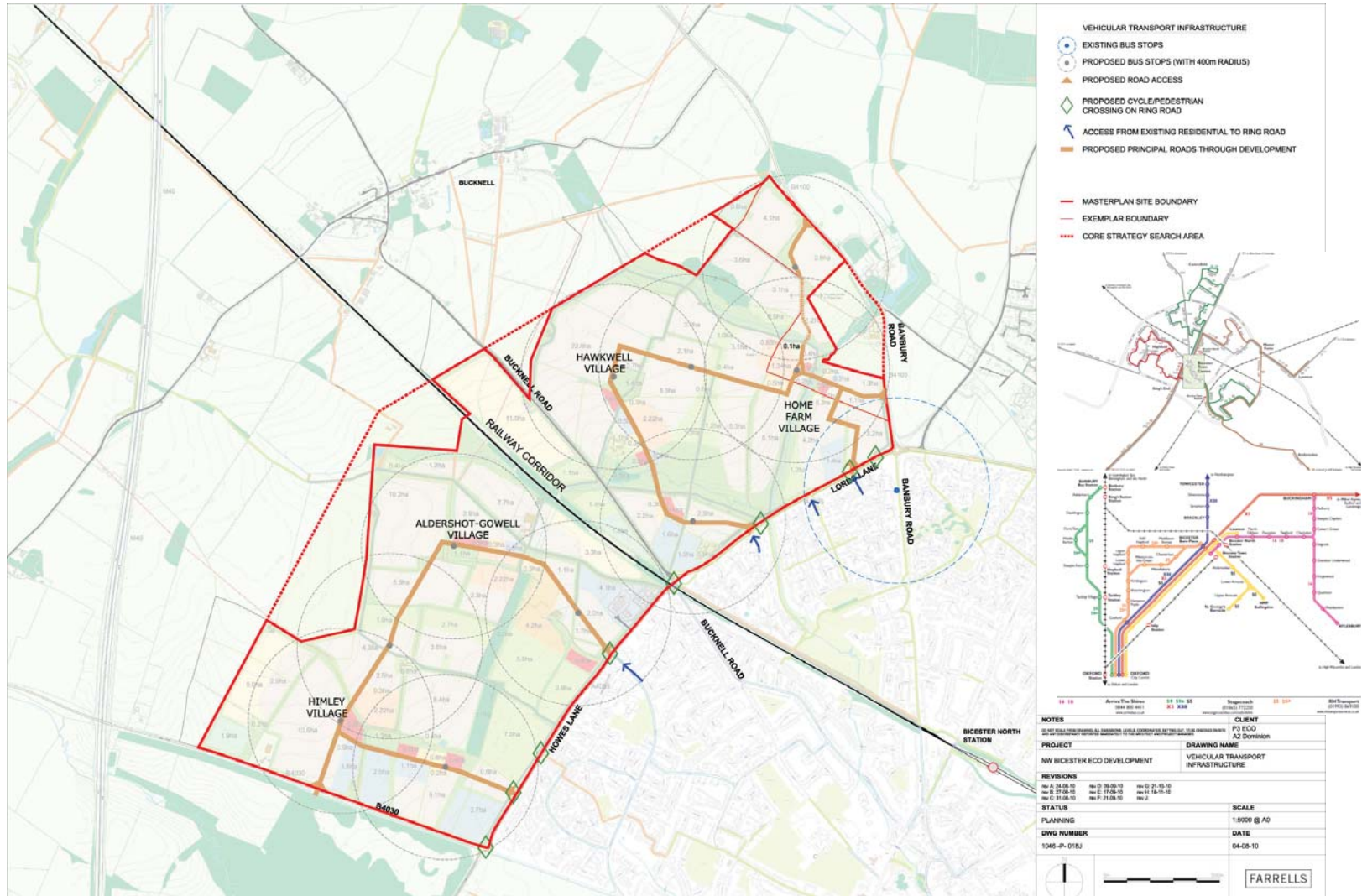
Bus

All homes are within 400m of a bus stop. A bus service that runs at least every 30mins from the site to the centre of Bicester and railway stations will be provided; real time passenger information will be provided at bus shelters as well as being accessible through the community internet site. A peak time dedicated bus service to Bicester Town station is being encouraged to take advantage of the potential fast train service to Oxford,

Proposed Community Hub Connections & Links

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6 GREEN INFRASTRUCTURE

Green Infrastructure

Green Infrastructure amounts to 40% of the development area. Including the residential private gardens the green infrastructure could be up to 45%.

Biodiversity principles

Proposed green infrastructure demonstrates positive biodiversity gains and the key biodiversity principles to be taken account of are:

1. Ensure that the most valuable features to biodiversity are retained on the site, thus the hedgerows and stream corridors are retained with appropriate buffers so that they retain their value to wildlife.
2. Minimise fragmentation of the streams and hedgerows as far as possible to ensure that they provide wildlife corridors across the site.
3. Accept that this is a foot print development and that there is therefore a loss of semi-natural habitats farmland habitat for farmland birds.
4. Accept that some species will be lost/displaced as a result of the development (e.g. ground nesting birds).
5. Create new habitats and enhance existing habitats to provide benefits to biodiversity.

Habitat enhancements include:

1. Sensitive management of the hedgerow network to enable trees and shrubs to flower, set seed and produce fruit.
2. Create/maintain a tall grass margin next to the hedgerows that should be cut annually, twice yearly or less frequently dependent on the setting of the hedgerow.
3. New planting within the retained woodlands to enhance plant species diversity. Sensitive management of the woodland to enhance its value in the longer term.

Habitat creation

The masterplan will create habitats of benefit to biodiversity within the green infrastructure. There is potential to create Conservation Target Areas with significant areas of rough grassland for farmland birds or wetland habitats. The ongoing development of the masterplan will be in the context of the full ecological surveys and a biodiversity strategy that defines from the beginning how net biodiversity gain will be achieved. Such habitats could have more than one purpose. For example, any above ground SuDS features (reed beds, ponds, swales) can be designed so that they provide benefits to wildlife. If allotments are created close to hedgerows they provide a semi-natural buffer, ensure that dark corridors are created (allotments are rarely lit) which benefits bats. Native wildflower seed could be used to create areas of species-rich grassland either damp grassland as part of SuDS or dry calcareous grassland. Orchards could be planted. Many of these new habitats are BAP habitats

Proximity of green areas to housing -

The masterplan will seek to provide the Natural England Greenspace and Woodland Trust Standards. (Pg.13 TCPA guidance on GI) and other CDC requirements:

Local Nature Reserve

local nature reserve - 1ha of per 1,000 residents

Woodland

Homes to be 500m from 2ha of woodland including mixed patchwork mosaic of dense scrub, some trees, wet features and some more open areas

Green space

2ha accessible green space within 300m
20ha requirement within 2km

Open space in North

The open space network in the north part of the site with the larger open area and the network of wider water course corridors connecting with the Bure Park area will satisfy the 20ha requirement within 2km. It will be easily readable as one big connected space for everyone with maps on routes and a name.

Open Space sport provision in south

The masterplan will seek to provide the open space provision for recreation and amenity space required by CDC in the following briefing papers

- Draft Core Strategy strategic sites – Open space and sports provision requirements - 06-07-10.
- NW Bicester - Sports Provision Key Principles - 19-08-10

The green infrastructure corridors

There are approximately 28 km of hedgerows on the site and the development would seek to retain as much as possible. It was noted that some hedgerow loss in specific areas would be necessary for the development, and this would take into account the Habitat survey assessment of the quality of the existing hedgerow along with the potential biodiversity gains from proposed green infrastructure. The species rich hedgerows are retained throughout the masterplan within corridors of green infrastructure which vary in width depending on the quality and location. The retained hedgerows are provided with green corridors approximately 20- 30m wide and in several locations they are linked to larger green areas such as proposed village greens, water courses and other amenity space. The masterplan landscape strategy will develop a scheme for increasing biodiversity adjacent hedgerows (as already detailed in the exemplar scheme). The green infrastructure will provide Wide strips of rough grassland next to the hedgerows as foraging areas for the barn owls, yellowhammers, dunlocks and kestrels on the site. The matrix or mesh of hedgerows could provide long walking routes "hedgerow safaris" – as community events where people go out and learn about/enjoy the wildlife in the hedgerows.

Perimeter buffer

Planting will be developed in the masterplan landscape strategy to reflect the varied context and topography. The masterplan landscape strategy will develop a scheme for maximising the landscape potential of perimeter landscape, for example for increasing biodiversity and providing allotments adjacent to perimeters. Also the perimeter landscape at the elevated points will be treated differently from the general perimeters where vantage points are identified and marked by a landscape widening or possible mounding to create a viewpoint. Edible landscaping will be designed in to provide informal food growing with fruit trees, berry bushes, food bearing climbers, nut trees

The private landscape

Areas of green infrastructure dividing housing is intended for allotments (shown on the green infrastructure plan).

Allotments

Bicester Town Council have identified that there are 200 people on the waiting list for allotments and there would be new demand from the new development. A range of allotments sizes from ¼, ½ and full size are needed. The masterplan will seek to provide in the green infrastructure area an allotment learning facility for the encouragement of market gardening.

Management of green infrastructure

Management of green infrastructure is an area for further discussion and will help to determine choices whether the landscape natural areas or the recreation areas should be designated private or public. Proposed green infrastructure amenity spaces would require careful consideration of public access to landscape, balanced with habitat conservation. For example dog walking areas would require limitation in specific areas in order to protect identified potential bird breeding habitats.

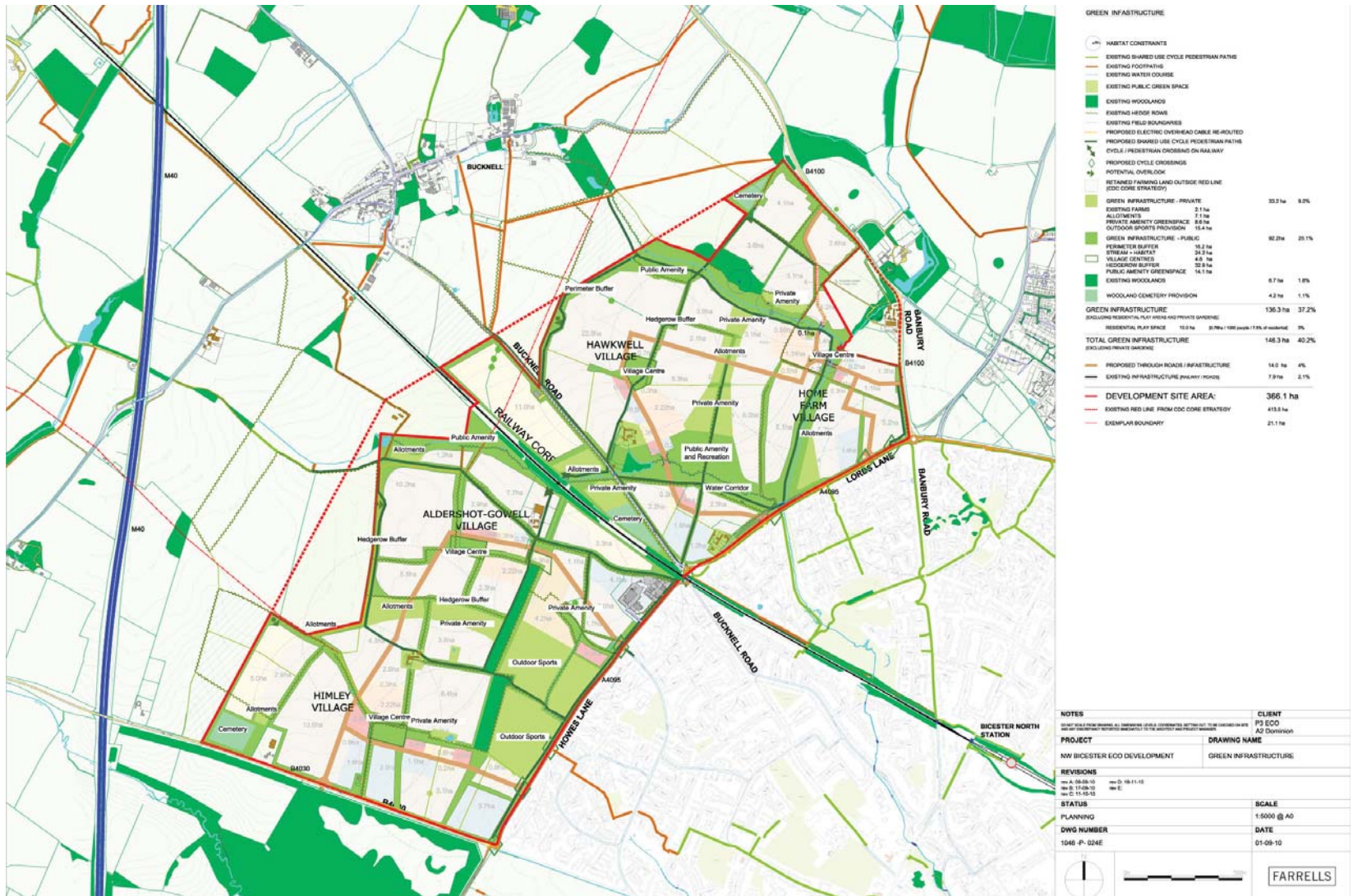
Habitat management

The habitats will be managed to ensure that they reach their full potential and to ensure that they maintain their value. It is therefore important to ensure that space for management is factored into the design e.g. if a pond needs to be dredged on an irregular basis is it accessible to a digger. Will a mower get to the grassland?

Habitat proposals

- Enhance and maintain hedgerows and field margins with additional planting (specifically honey suckle and hazel to encourage door mice). We should maintain connectivity wherever possible, due to such being valuable nesting space for birds and small mammals.
- Nesting boxes to be considered within the built environment from an early stage for barn owls, spotted flycatchers, marsh tits, tawny owls, little owls and kestrels specifically
- Enhance broad leaved woodland planting as and when possible, which also provides an opportunity when screening the site
- Create a mosaic of habitats: grassland, scrub, ruderal vegetation, hedgerows, and woodland edge. In this provide hibernacula (place for hibernation) and basking sites (log piles/ rubble). This is to encourage a matrix of grass snakes, newts and other such reptiles.
- Butterflies habitats in winch elm, thistles, bramble and grassland (field margins) to be maintained and enhanced where possible.
- Re establish stable watercourses by replanting watercourse fringes with native vegetation and providing undisturbed otter holts and water mole nesting sites.

Voluntary schemes for community involvement in wildlife habitat management can offer great opportunities for learning about local wildlife and looking after natural surroundings.



7 LANDSCAPE & CHARACTER

Landscape & Character

The extent of the development has been informed by an assessment of the landscape character. Key issues are visual screening of development from higher ground and the footpaths and bridleway adjacent to the village of Bucknell and Bucknell Road and from the heritage landscape character and setting of St Lawrence Church and Caversfield House on Banbury Road

To respect and enhance the historic environment within the design there is a need to:

- Retain all listed buildings
- Have no significant adverse effect on the setting of cultural heritage features
- Retain historic landscape features

Visual impacts

Ensure that the green infrastructure provides attractive amenity spaces and links to promote active lifestyles to provide both physical and mental well-being benefits.

The existing good quality farm buildings will be retained to provide a diversity of uses and character and the setting of Home Farm listed building will be achieved through appropriate buffering and sensitive design.

Village Character

The village character has been informed by an analysis of Oxfordshire settlements of a similar scale as the proposed development for example Bloxham, Deddington, Hook Norton and Burford.

Bucknell Ridge / Hawkwell Village

Development in this raised area has the potential to form an obtrusive element within the landscape. However, if new built form responds to the local pattern of clustered settlement, buffered by tree planting and separated by open land, development could occur without undue urbanising effects in the landscape.

- Ridgelines will be defined by subtly raised landform, with land falling away to local watercourses and the Bicester urban edge.
- Large, rectilinear fields, predominantly in arable use.
- Established hedgerows with hedgerow trees.
- Settlement limited to scattered farmsteads of clustered farm buildings.
- Open, expansive views framed by established hedgerow vegetation.

Himley Farm/ Himley Village

- Gently sloping farmland, predominantly in arable use, interspersed with woodland shelter belts.
- Medium to large-scale fields bounded by established hedgerows with hedgerow trees.
- Settlement limited to isolated farmsteads, including the historic Himley Farm buildings (the barns are Listed Buildings), connected by hedgerow lined tracks.
- A number of overhead powerlines, which form urbanising elements, traverse the area.

Caversfield Valleys/ Home Farm Village

The setting of St Lawrence's Church and Home Farm are key considerations for any future development within this character area. This setting is currently defined in large part by undeveloped agricultural land with associated rural qualities, in turn allowing views from these areas to the church tower, such that built development without adequate open buffers would be incongruous. Development edges made up of soft landscape proposals and sensitively designed built form have the potential to conserve and enhance the current setting of historic features and would respond to the existing tree and woodland cover, described above.

The strong landscape structure and general sense of enclosure across the landscape are such that with careful consideration for retention and enhancement of local features development could be accommodated without resulting in disruption to the local landscape pattern.

- Distinctive valley and ridge landform.
- Valleys defined by tree lined watercourses, woodland blocks and relatively steep fields predominantly laid to pasture.
- Mixed farmland on ridges, with fields bounded by established hedgerows and woodland blocks.
- Settlement comprising the historic, stone built village of Caversfield, including Home Farm and the Anglo-Saxon St Lawrence's Church (Listed Buildings), with the church tower forming a visible element in the local landscape.
- Generally strong sense of enclosure due to characteristic landform, vegetation and settlement edges.

Bucknell Valley Corridor /Aldershot-Gowell Village

This landscape offers limited views across the area and with careful consideration for existing vegetation, development could be accommodated without resulting in significant disruption to the local landscape. There is considerable scope to enhance communications/drainage corridors through landscape proposals that improve amenity value, particularly where there is currently/could be public access – potentially by providing linear park systems.

- Shallow valley depression, falling between local ridgelines.
- Landscape pattern heavily influenced by linear communications and drainage features, with generally narrow, elongated fields separated by communications and drainage corridors.
- Farmland comprising mixture of fields in arable and pastoral use, bounded by established hedgerows and copses.
- Settlement defined by a mixture of scattered farmsteads and, nearer the urban edge, modern offices /depots.
- Strong sense of enclosure due to vegetation cover, railway embankment and settlement edges.



The existing streams, buildings, road and rail routes create an underlying natural and human landscape framework



The existing farms, hedgerows and woods add a rich layer of landscape, habitat and heritage to the underlying framework



The proposed settlements are integrated carefully with the underlying framework of natural and human landscape



The proposed green infrastructure creates varied open spaces for nature, recreation, and eco-energy adjacent the railway



The existing hedgerows and woods create green infrastructure corridors for habitat and routes for pedestrians and cyclists



The proposed green infrastructure integrates the town with the development creating rural and urban routes and spaces



Early sketch of Oxfordshire villages of a similar scale compared to proposed villages in the emerging masterplan



Early sketch of the village centres on the emerging masterplan

Early sketch of the village greens overlaid with landscape and topography



The emerging masterplan landscape framework



Early sketch studies of the character of village centres with references to urban and rural landscape and topography in Oxfordshire

8 DESIGN

Design and Sustainable Construction

All of the homes to be built on this site will achieve Sustainable Homes Code 5 and Zero Carbon. This goes beyond the PPS1 which asks for Code 4. They will also all achieve Building For Life Silver, and will all be built to Lifetimes Homes space standards. This means they will be designed to reduce energy levels beyond the PPS1 guideline. The buildings will be designed to be highly insulated, and achieve high air-tightness, will have internal heat recovery systems for re-circulation of warm air, and will have low energy equipment throughout.

There will be an energy system on the site which combines the use of Photo-voltaic (PV) roof tiles for all homes, with a gas combined heat and power plant, district heating system.

The PV roof tiles will generate large amounts of electricity for the occupiers, which will be connected to the grid, so excess electricity (generated in the warmer and lighter months) can be sold back to the grid.

There will be a rainwater harvesting system in place, so rainwater can be collected in swales and lined ponds on the site to be re-used in the dwellings.

The Bicester Eco Development Masterplan design will be approached in a holistic way which will ensure that the benefits of the latest construction and design techniques are applied to all parts of the development in both private and public areas. Sustainable construction practice encourages the use of local supplies to reduce carbon footprint, to benefit the local community and through local origin create an infrastructure for the future. Within NW Bicester, the design of buildings will aim to exceed current national minimum standards to achieve the highest level of sustainability where possible. P3Eco is aware of ever-changing technological advances and will incorporate them as they come on board and retrospectively if deemed appropriate.

- Achieve Building for Life Silver Standard and Level 5 of the Code for Sustainable Homes as a minimum
 - Meet Lifetime homes standards and space standards
 - Have up-to-date communications capability (e.g. high-speed broadband)
 - Have high levels of energy efficiency
 - Achieve carbon reductions of at least 70 per cent relative to current Building Regulations
 - Designed and planned to support healthy and sustainable environments and enable residents to make healthy choices easily.
 - Construction should use local people, materials and businesses
- The latest technologies should be used as the development progresses
- Incorporating **sustainable drainage systems (SUDS)**
 - homes will be equipped to meet the **water consumption requirement** of Level 5 of the Code for Sustainable Homes
 - provide waste storage arrangements

- Consider individual waste solutions (e.g. house recycling collection) and communal (e.g. central recycling points)
- Consider that waste can be used for energy creation, producing new products or being repaired / re-used
- Consider wider local area, other energy and waste developments and the need not to impact on existing infrastructure

Eco lifestyle changes

Clear visual statement of eco design, who moves in, what eco-businesses we can attract, the all round excitement of the place, and most importantly, we need this buzz and eco-atmosphere to help with the success of any behaviour change initiatives.

Designed to help its residents reduce their ecological footprint and create a community that will help anyone to appreciate how we can live using the resources provided by our one planet.

The estates management opportunity extends well beyond building maintenance, grounds maintenance and waste collection to embrace a host of lifestyle services including:

- Providing transport services such as car clubs, cycle clubs, travel information
- Promoting local food links and receiving deliveries of local food
- Supplying renewable energy
- Advising residents on energy saving and green choices
- Promoting community spirit and community events
- Providing on site composting and food growing facilities
- Managing leisure facilities such as gyms and office space
- Managing a community centre
- Green insurance
- Employing a "Green Caretaker" who's job description includes delivery of all these services
- Eco cleaning services and grounds maintenance

Woodland cemetery

Three areas have been identified because they are all potentially accessible from the existing infrastructure roads. We are awaiting the feasibility assessment to determine whether the suggested sites are appropriate, therefore it is decided to leave three sites as options. We understood from the discussion with Town Council that it was preferred to have a single site but multiple sites were possible. Subject to the above it would be possible to increase the area of either of the sites and/or replace with other green infrastructure uses.

Water

The masterplan will mitigate the effects of flood risk, in line with PPS25; Hyder are developing strategies which will be subject of a separate report including but not limited to:

- Not developing in flood risk areas
- Achieving (or improving) upon Greenfield run off rates
- Managing the ephemeral nature of catchment
- Seeking opportunity to reduce flood risk elsewhere



Examples buildings with green roofs

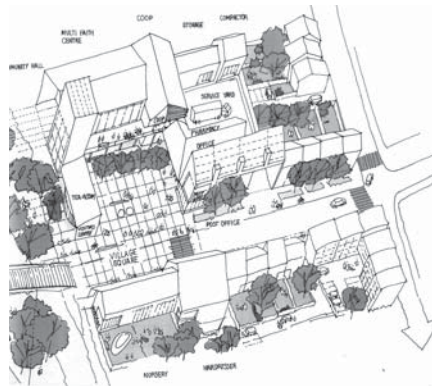


Examples Timber-frame Construction



Sketch of High Street

Elevation of High Street



Sketch of Market Square

Examples of possible designs of non - residential buildings with green roofs, timber construction and local vernacular materials



Examples of possible designs for residential buildings with traditional and local vernacular proportions and materials



Examples of possible designs for residential buildings with PV solar and green roofs

9 EXEMPLAR

Exemplar

The Exemplar scheme has been designed with landscape as the key driver for the layout of the site. Care has been taken to preserve and enhance hedges and water courses within the development and for the natural landscape to be accessible for residents to enjoy.

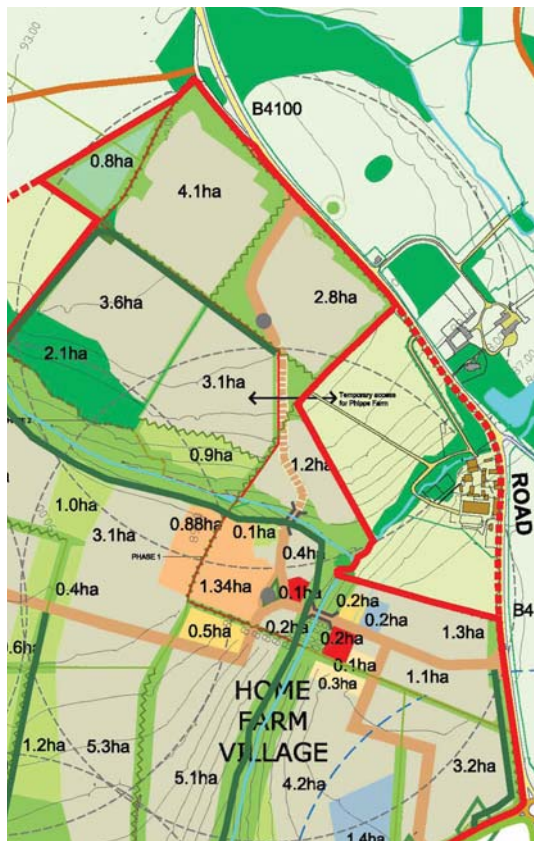
The proposed red line will link the two fields to the north with the southern fields with the triangular area between which comprises approx 20.1 hectares. The advantages of this site are:

1. Links between the north and south to achieve the PPS 1 eco town objectives and for the planning application site to be in land controlled by the client.
2. The proposed links between north and south in the final phases of the masterplan would be for both pedestrians / cycles and vehicles including bus routes.
3. The proposed connections between the north and south sites will be through the proposed hub which will help achieve sustainability green infrastructure and objectives secure by design.
4. Farm access can be provided by a temporary connection across the narrowest part of the proposed site to link their remaining fields.

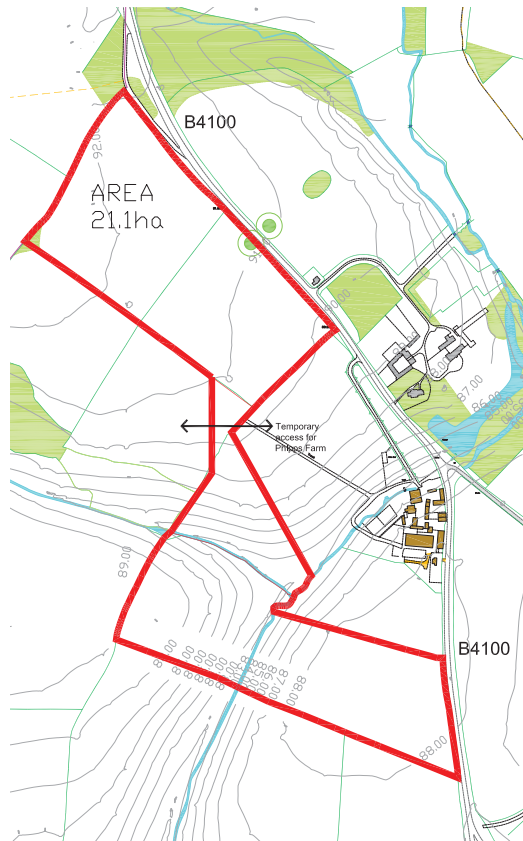
The Exemplar scheme seeks to incorporate approximately 40% green infrastructure space and more will be provided through private gardens.

The strategy for the landscape in the Exemplar will seek to:

- Retain and enhance existing green infrastructure, improving green links and contextual connectivity
- Improve biodiversity through better management and habitat creation
- Integrate SUDS, green corridors, cycleways and community routes
- Create open spaces and public amenity space including a new village green
- Create a new village square maximising views over the existing river corridor
- Maximise retention of species-rich hedgerows, woodland planting and specimen trees
- Improve water course corridor and create areas of new bio-diverse wetland
- Provide natural play areas to cater for all age groups
- Provide a lighting strategy that is mindful of secured by design and public safety while remaining sensitive to wildlife (e.g. bat feeding corridors) and light pollution
- Provide productive, edible landscape through allotment and community gardens and natural foraging areas



Exemplar In Context of Masterplan



Red Line Drawing



Exemplar Design