

Bradley Park Masterplan

Delivery Statement

March 2016



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Executive Summary

Land at Bradley forms a major strategic allocation for housing in the Draft Local Plan for Kirklees. The allocated land lies to the north of Bradley Road, to the north of Huddersfield and immediately south of the M62 Motorway. The allocation primarily includes Bradley Park Golf Course and an adjoining smaller area of agricultural land to the west. Two adjacent local plan allocations total 78 hectares, the majority of the overall site (the golf course) is within Council ownership (66 hectares).

Huddersfield is a key focus for development in the draft Local Plan. It is also a strategic growth centre for the Leeds City Region. The delivery of over 2,000 homes at Bradley would make a major contribution to achieving sustainable growth. This scale of development would represent more than a year's supply of the total draft Local Plan housing requirements. It is therefore of strategic significance to Huddersfield, the district of Kirklees and the Leeds City Region.

A range of technical studies have been undertaken examining physical and environmental issues and opportunities associated with the site and its surroundings. These assessments have looked at ground conditions, flood risk, drainage, landscape, ecology and transport. Evidence from a Golf Needs Assessment has been reviewed. This review sets out that an 18-hole and 9-hole golf course could close in the Kirklees area, with capacity still available locally and at courses in adjoining areas to support existing and future provision. The findings of all the technical studies have shaped the urban design analysis and the development of the masterplan options.

Key constraints on the developable area of the Bradley site are the presence of a former landfill in the eastern section of the golf course, the ecological value of the ancient woodland to the north and the electricity pylons running through the site. Shallow mineworkings, noise associated with the nearby motorway, stability of the land and future access (dependent on off-site highways improvements) also present challenges to overcome. There are, however, technical solutions to these challenges, albeit that these could result in higher than usual abnormal development costs in the parts of the site affected. There are no critical ecology, landscape, topography, flood risk or drainage constraints.

Offsite congestion at the signalized junction of Bradley Road and the A62 is a key transport constraint. This is also the location of an Air Quality Management Area. Existing access points to the allocated land, with junction improvements, would enable around 750 dwellings to come forward at Bradley. The delivery of around 2,000 homes is reliant on the implementation of the programmed Cooper Bridge Scheme (due for completion 2021) and strategic highway improvements which would facilitate the development of the Bradley site. Whilst not essential in

capacity terms, an additional site access to the west (which could form part of a new M62 junction 24a) would provide four access points, which would be recommended for a development of this size and support better internal road layouts and public transport provision.

The technical assessments and the Masterplan options demonstrate that the allocated land is deliverable and with strategic improvements to the highway network around 2,000 homes could be brought forward. Bradley presents a major opportunity to deliver a new community that sets the standard for new residential development in Huddersfield. An exemplar sustainable suburban scheme could also have wider city region and national significance. There are key opportunities for sustainable urban drainage (SUDS), integrated blue and green infrastructure and sustainable transport options at Bradley.

Through four options – North Park, Urban Fingers, Central Park and Eco-Boulevard – the master planning team has shown that the allocated level of housing can be delivered in different ways. Through realistic but creative design a sustainable suburb could be planned, drawing on best practice examples in the UK and Europe. This would retain the key qualities of a suburban environment (family housing and gardens in a green setting) and provide a walkable, mixed density and public transport focused development. There are options that achieve significant wider public benefits (such as a new park) and options that retain reconfigured or reduced golf course areas. Creating a strong sense of place and community will be vital to the success of this large housing allocation.

1.0 Introduction

- 1.1 This report draws together the multi-disciplinary work that has been carried out by the project team in the preparation of a masterplan for land allocated for housing development in the Draft Local Plan for Kirklees. The site lies to the north of Bradley Road, at the northern edge of Huddersfield and takes in Bradley Park Golf Course and an adjoining piece of agricultural land to the west.
- 1.2 The project has been undertaken for Kirklees Council, acting in its role as landowner of the golf course site. The aim of the commission is to support the inclusion of the site as a housing allocation in the Local Plan. The work is potentially the first step in a multi-stage process to bring the site forward for housing development. It involves the development of high level options for the layout and scale of development on the site.
- 1.3 Effective masterplanning can help deliver quality places where people want to live, create a coherent urban form with co-ordinated buildings, infrastructure and spaces and achieve integration with/benefits for surrounding areas and communities. Overall this helps to achieve the outcome of promoting sustainable development.
- 1.4 The flow diagram at Figure 1 sets out the various components of the project. It is important to demonstrate that any housing allocation is both developable and deliverable. This summary report is entitled 'Delivery Statement' - it considers the physical and environmental constraints of the site and presents a series of development options based on technical evidence. This addresses the need for the Local Plan to be evidenced based and to stand up to inspection at the forthcoming Examination in Public. The National Planning Policy Framework (NPPF) requires that housing sites should be suitable, available and viable.
- 1.5 The delivery statement is structured around the following sections:
- Section 2 sets out the strategic and local policy context
 - Section 3 provides a site description
 - Section 4 identifies key site constraints and opportunities, drawing on the technical reports prepared by members of the project team
 - Section 5 summarises the masterplan options and their development outputs
 - Section 6 illustrates the potential implications of planning obligations
 - Section 7 sets out conclusions and recommendations

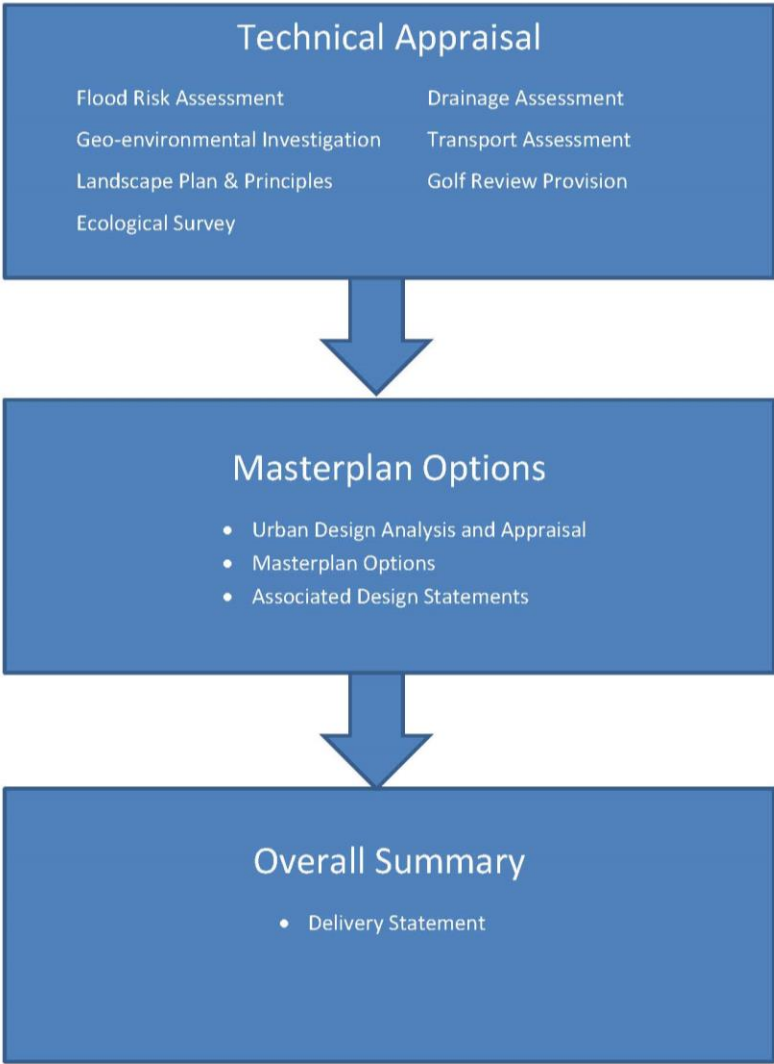


Figure 1: Flow Diagram to show the overall structure of the report

2.0 Strategic and Local Policy Context

2.1 The principal aim of the National Planning Policy Framework (NPPF) is to achieve sustainable development and the foreword explains that development means growth, which should meet the needs of current and future generations. Boosting housing supply and meeting development needs are given key emphasis within the document. Overall, development should fulfill an economic, social and environmental role in order to be considered sustainable.

City Region

2.2 The Leeds City Region Local Enterprise Partnership Strategic Economic Plan (LCR SEP), March 2014, identifies:

- Huddersfield as one of nine strategic growth centres of strategic significance to the whole City Region
- Sites in Kirklees, at Cooper Bridge and Chidswell, as two of five City Region strategic employment and mixed use sites, which combine easy motorway and public transport access with proximity to towns and labour markets

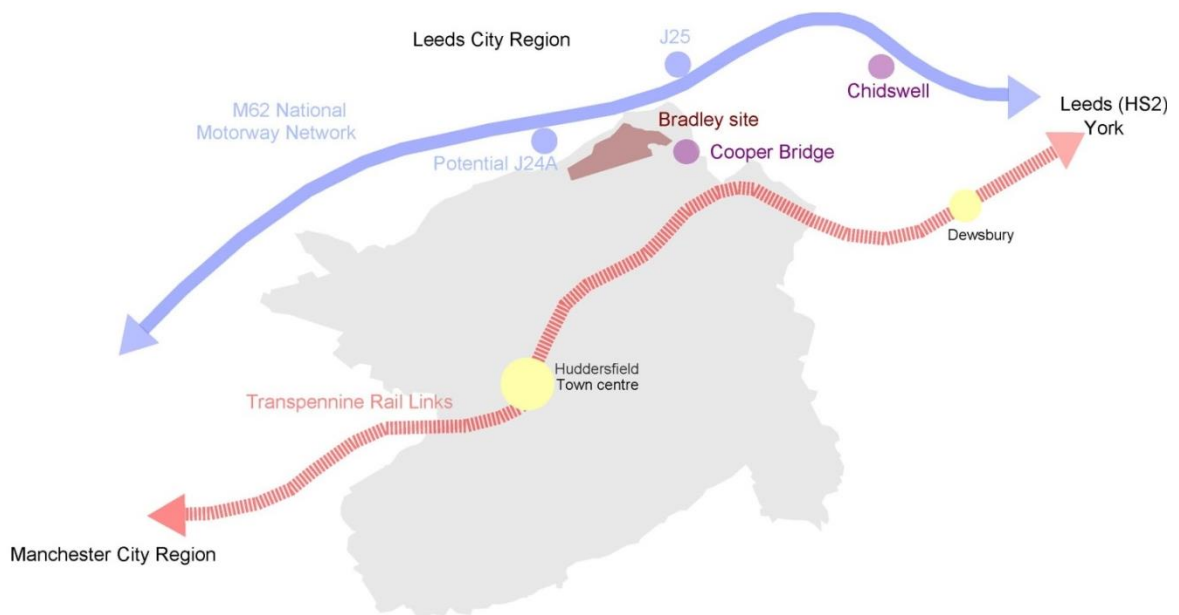


Figure 2: Strategic Context Diagram

Local Strategies & Plans

- 2.3 The inter-related Kirklees Economic and Joint Health and Wellbeing strategies have a shared commitment to combine a great quality of life with a sustainable economy to support thriving communities. A '*resource smart corridor*' approach is promoted in the Economic strategy as a focus for integrating and investing in the district's physical infrastructure, knowledge assets and development sites identified in the Local Plan. The corridor running from Huddersfield town centre along the Leeds corridor is highlighted as a key corridor opportunity.
- 2.4 The draft Local Plan, Strategy and Policies, Kirklees Council, November 2015 has a spatial development strategy that takes a sub-area approach. This responds to the size, character, role and function of the district's four settlements based on Huddersfield, Dewsbury & Mirfield, Batley & Spen and Kirklees Rural. The development strategy includes:
- the need for urban extension locations to enable housing delivery which offers an increased chance of new infrastructure being provided and masterplanned sites (to offer a better chance of quality layouts, design, green infrastructure and higher building specifications)
 - A major consideration in the location of urban extensions is the identification of strategic employment and mixed use sites in the LCR SEP and proximity to the M1 and M62.
- 2.5 For the location of new development Policy DLP 2 identifies urban areas as the focus for most new development, with the largest amount of development to be located in Huddersfield and Dewsbury, taking advantage of existing services and high levels of accessibility.
- 2.6 The Place Shaping chapter of the Local Plan highlights a range of strengths/opportunities and challenges to growth in Huddersfield. It highlights the range of services, facilities and economic opportunities in the town and strong transport links. Huddersfield is an extensive urban area surrounded by steep slopes, with the relatively flatter and lower areas prone to flooding.

Housing Requirements

- 2.7 The housing chapter of the Draft Local Plan draws on the Kirklees Strategic Housing Market Assessment. To meet objectively assessed needs the Plan seeks to deliver 29,340 homes over the period 2013 to 2031 (an annual requirement of 1,630 homes per year). Taking into account completions, existing commitments, windfalls and a flexibility allowance the draft Local Plan identifies the need to allocate new land to accommodate 19,937

dwellings. The graph below highlights the distribution of allocations between the sub areas and demonstrates the overall significance of Bradley Park in terms of housing numbers.

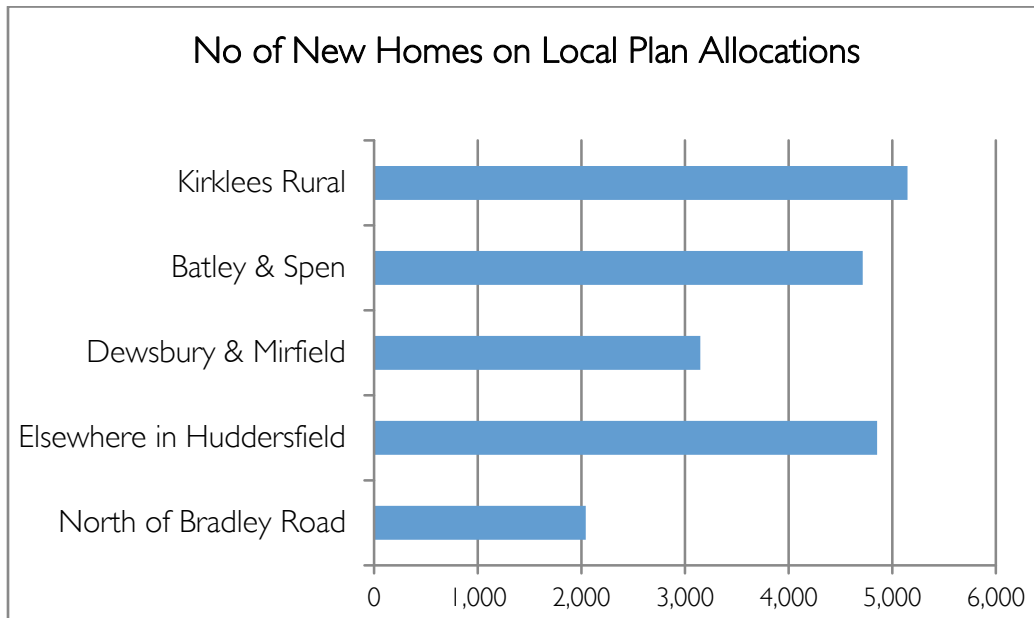


Figure 3: Kirklees Local Plan – Housing Allocations

2.8 There are eighteen sites allocated for housing in Huddersfield. Bradley Park is by the largest at 1,680 homes, with the adjoining site allocated for 362 homes. There are four other sites that each deliver between 200 and 400 homes, with the remaining sites delivering less. This highlights the strategic significance of the allocations north of Bradley Road to the local plan and growth of Huddersfield. It is the second largest allocation in the plan and one of five strategic housing allocations identified in the Kirklees Local Plan and Community Infrastructure Viability Study (Cushman & Wakefield, October 2015).

Housing Mix

2.9 The Vision of the Draft Local Plan indicates that “there will be a mix of high quality housing which offers choice and meets the needs of all our communities including affordable housing. The challenges of an ageing population will have been addressed...”. Policy DLP II, Housing Mix and Affordability, reflects the need to achieve a mix of housing in terms of size, type, and tenure to contribute to meeting local needs and promote sustainable development. The needs of different age groups need to be planned for, including a range of housing solutions which can provide support, care and other services so that people can remain in their homes. Extra care housing is particularly favoured, as this helps older people to remain in their homes and can be incorporated in larger developments to support a balanced community. Affordable housing and a mix of homes help to meet the housing aspirations of families and younger people.

2.10 The Kirklees 2015 Strategic Housing Market Assessment (2015 SHMA) provides a key evidence based assessment of local needs. It highlights that one third of homes are occupied by over 65's and that there is a strong demand for detached homes with 3 or more bedrooms, as well more affordable housing and homes adapted for older residents. Drawing on the 2012-based Subnational Population Projections (ONS) the 2015 SHMA highlights that between 2013 and 2031:

- The average household size is expected to decrease from 2.4 to 2.3
- The proportion of residents over the age of 65 is projected to increase by 43%
- The student population will continue to grow

Housing Densities

2.11 The draft Local Plan (Policy DLP6, efficient and effective use of land and buildings) sets out that housing developments should achieve a minimum net density of at least 30 dwellings per hectare and where appropriate higher densities will be sought in principal town centres and in areas close to public transport interchanges. Site allocations and neighbourhood plans offer the means to set out more detailed density requirements. A review of densities achieved on new build housing sites between 2006 and 2014 by the Local Plan team highlights that on sites of at least 0.4 hectares and excluding flats:

- The average dwellings per hectare (dph) across the District of Kirklees was 32
- The average dwellings per hectare (dph) for Huddersfield was 37

2.12 The recently approved residential development at Lindley Moor in Kirklees achieved a density of 32 dph. This development represents a fairly typical suburban layout for new housing. A review of other policy approaches across West Yorkshire highlights a similar policy approach of requiring a minimum of 30 dph. The recently adopted Leeds Core Strategy sets a minimum of 35 dph for 'fringe urban areas'. The London Plan includes a density of 35-55 for suburban locations with the lowest public transport accessibility. Accordia in Cambridge (see masterplan options analysis) has an overall density of 40 dph. It includes low rise terraces and clusters of houses in a mature parkland setting, with some 4-5 storey apartment buildings.

2.13 There is a growing focus on the opportunity to plan and create 'sustainable suburbs'. A research report (Sustainable Suburbia, MJP Architects, 2011) supported by the Homes and Community Agency (HCA) highlights how raised density can be achieved whilst retaining key qualities of the suburban environment with family houses and gardens in a green setting. For suburban locations:

- Detached houses can be built at 35dph, through attention to staggering the layout to increase their separate identity

- Town houses with gardens can achieve 50 dph, with a standard 6m volume housebuilding frontage
- 'L' shaped houses can achieve 50 dph, combining the compactness of terraces with the identity of semi-detached houses with parking
- Mews shaped house can achieve 95 dph, with 3 or 4 storey also offering live/work opportunities
- Five storey flats can achieve a density of 180dph, releasing more land for open space and greenery

2.14 'Create Streets: Not just multi-storey estates' (Policy Exchange and Create Streets, 2013) highlights how traditional street patterns are more space efficient than meandering roads and cul-de-sacs. This also helps to create a sense of place and community. Work by the Urban Task Force in 1999 demonstrated that terraced housing can at least match the housing densities of most high-rise housing. A creative approach to streets, layouts and densities (with 2 and 3/4/5 storey buildings) can promote walkable neighbourhoods and support behavioural change (key design requirements of the draft Local Plan).

Sustainable Suburbs

2.15 A cluster of local shops and facilities also helps to foster a 'sense of place' for new developments and support viable communities. Section 6 of this report explains the need for a primary school on the site and the transport assessment highlights the opportunity to create a bus hub. A review of the Local Plan proposals map highlights a scarce presence of local shopping centres in North Huddersfield (compared to the east, west and south of the town).

2.16 The Retail Capacity Study for Kirklees District (WYG Planning, 2014) highlights that there is a substantial need for additional convenience goods retail facilities in the short term in North Huddersfield (retail zone study zone 2). With existing stores overtrading the retail study identifies that in the longer term, to 2028:

"the identified need is very substantial and could possibly support around 2 food superstores over the short term and 3 in the longer term".

Golf Provision within the District

2.17 There are twelve golf clubs in the Kirklees Council area. Eleven are traditional members clubs and Bradley Park is the only municipal 'pay and play' facility in the Kirklees District.

- 2.18 New forms of golf are emerging which involve less time, following a similar pattern to other sports. Modern consumers are more protective of their time and people with more leisure time are spreading their time across more activities. The number of people playing golf has fallen over the last decade and is expected to continue to decrease through to the year 2020. Overall population growth could help to increase participation rates in the longer term.
- 2.19 Whilst demand for golf club membership has been in decline England Golf has a number of initiatives in place to raise golf participation levels. Golf remains the fifth largest participation sport. Fewer people are seeking to play golf in a membership golf club environment ('nomadic' golfers) and there are pressures and needs for golf clubs to provide more flexible membership/playing products, attract new players and appeal more to families, women and young people.
- 2.20 Bradley Park golf course provides a good mix of facilities, with the 18-hole golf course, footgolf and driving range (purpose built and floodlit). Bradley's facilities provide teaching and golf development opportunities.
- 2.21 The recent independent assessment by Knight Kavanagh and Page, prepared in accordance with Sport England guidance, concludes that:
- there is currently over-provision of golf to meet current demand in Kirklees
 - latent and future demand within Kirklees can be met through existing provision
 - it is not anticipated that any new golf courses will need to be provided in Kirklees up to 2037, if at all
 - there is capacity within the existing supply to potentially accommodate displaced members should a facility be forced to close
- 2.22 Existing golf clubs in Kirklees District have the capacity to accommodate over 800 new members. The Golf Needs Assessment highlights that three eighteen hole and four nine hole members courses would all benefit from the recruitment of new and the continued retention of existing members. The financial and operational strain being placed on clubs and courses is highlighted.
- 2.23 The evidence set out in the golf needs assessment supports that an 18 hole and 9 hole golf course could close in the Kirklees area with enough capacity still available locally and at courses in adjoining areas to support existing and future provision. In the context of the challenges facing golf and golf clubs, the closure and associated loss of facilities and pay and play opportunities at Bradley park could be mitigated in different ways including:
- making use of the capacity in other golf clubs in Kirklees and surrounding areas – other clubs are seeking to attract new members and/or this could involve

investment to enhance facilities and/or offer more pay and play opportunities which could serve to strengthen other clubs

- new 9-hole golf course provision being made within Kirklees – this could involve a new site or bringing the facilities at Birstall or Spenborough back in to use, which could serve as a facility to get new people playing golf
- providing a reconfigured or reduced size golf course at Bradley Park – this would maintain golf facilities at the site but would require the identification of other housing sites in order to meet the overall housing requirements of the Kirklees Local Plan

3.0 Site Description

3.1 The proposed housing allocation covers 77.89 hectares of land at the northern edge of Huddersfield, approximately 4km to the north-east of Huddersfield town centre.

- It is bounded by residential properties along Bradley Road (A6107) to the south, Park Hill to the east and Bradford Road (A641) to the west
- Bradley Wood lies immediately to the north of the site and runs to the edge of the district's boundary with Calderdale
- The woodland is dissected by the M62 motorway as it sweeps around in a north-easterly direction towards Junction 25
- It contains a series of electricity pylons, which emerge at the southern edge of the woodland and cut across the site's north-eastern corner
- There is an operational landfill site to the east of the allocated area and a former quarrying area beyond it.
- The quarry has not been backfilled but is overgrown with trees and shrubs. It will be restored in the future, creating a mixture of amenity woodland and grassland.

3.2 Of the 77.89 hectares of land allocated for housing, 65.82 hectares is currently occupied by Bradley Park Golf Club and the remainder is in agricultural use.

- The 18-hole course opened in 1977 and there are now a range of supporting facilities including a driving range, a par 3 / footgolf course, separate practice greens and short game areas, a club house, changing facilities, a golf-pro shop and a customer car park
- The majority of holes run on an east to west alignment and range between 122 – 491 yards in length
- There are varying levels of tree cover throughout the site, mainly along the fairways and at the woodland edge to the north
- The general topography of the land slopes down towards the woodland and undulates west to east across the golf course
- There are 3 man-made waterbodies at holes 2, 7 and 8

3.3 At the north-west corner of the golf course, there is a small cluster of agricultural buildings at Shepherds Thorn Farm. They include a farm house, a stone barn and a series of storage buildings, some of which are used by the golf club's grounds maintenance team. The stone barn is grade II listed but is in a state of disrepair and has recently undergone some unsympathetic alterations, including bricking up the window openings. Vehicular access to the farmstead is available via Shepherd Thorn Lane, a single lane track which separates the

golf course to the east with Bradley Villa Farm to the west. The land and buildings at Bradley Villa Farm also form part of the site allocated for housing development. They cover approximately 12.07 hectares of the wider landholding.

- 3.4 There are three principal points of access to the site, two off Bradley Road to the south and one off Bradford Road to the west. The routes are not connected internally and serve the golf course, Shepherd Thorn Farm and Bradley Villa Farm respectively. There are also several Public Rights of Way (PRoW) that traverse the site. The main one is the Kirklees Way, which runs north along Shepherds Thorn Lane, heads across the golf course towards the M62 and comes back south to connect with Park Hill and Park Lea. There is an additional PRoW along the driveway for the golf course and this intersects with the Kirklees Way towards the centre of the course.
- 3.5 Public transport provision in the vicinity of the site includes local bus services running along Alandale Road to the south and Bradford Road to the west. Whereas there are additional bus stops located along Bradley Road, these are currently used for school services only. The nearest railway stations are located in Deighton, Brighouse and Huddersfield, all of which are between 2 km – 4.8km from the boundary of the site. As the site lies at the edge of an existing residential area, there is a reasonable level of service provision in the locality. This includes recreational facilities at Bradley Park, a local secondary school and nursery on the southern side of Bradley Road and a primary school within Bradley. The main convenience shopping facility is provided by the Asda superstore at Brackenhall, off the A641. Bradley itself does not contain a local centre and the nearest identified centre is located within Deighton, approximately 1.5 km to the south.

4.0 Summary of Site Constraints and Opportunities

4.1 As part of the masterplanning exercise, a series of technical assessments have been undertaken in order to gain an understanding of the environmental features of the site, including its ecological value and its role in the wider landscape, existing ground conditions and the local drainage regime. The access arrangements to the site have also been considered along with the capacity of the local highway network to accommodate a development of approximately 2000 homes. The purpose of these assessments is to identify any significant constraints and opportunities that will influence the way in which development could be brought forward. A summary of the technical reports is included below.

Ground Conditions

4.2 A preliminary geo-environmental investigation of the allocated area has been undertaken in order to establish the land use history of the site and its environmental setting, existing ground conditions and the potential for contaminants. The investigation includes a mining risk assessment in accordance with Coal Authority guidance. It also considers the issues of foundation design and the engineering difficulties associated with development of the land for housing. The report makes a series of recommendations for future ground investigation at the site. A full copy of the preliminary investigation is included in Report 5 and the principal findings are summarised below.

4.3 In geo-environmental terms, the most influential factors in the future development of this site are:

- the position of a former landfill area covering around 6 hectares of land in the far-eastern section of the site and the location of an operational landfill area beyond the site boundaries;
- the presence of 4 coal seams at a shallow depth, underlying the site
- the extent of recorded and unrecorded mineworkings, with 15 mine entries being identified within the site boundary

4.4 The most significant constraint to development is the position of the former landfill site and the preliminary investigation recommends that new housing on or within 50m of this area should generally be avoided. The history of shallow mineworkings is another notable constraint and carries risks associated with mine gas, coal combustion and land collapse with consequent subsidence affecting surface stability. Further ground investigation is recommended in order to determine the general nature of soils underlying the site, the extent of contamination and the presence of hazardous gas and the possibility of voids or

broken ground associated with unrecorded mine workings. The location of known mine entries will also need to be accurately plotted.

- 4.5 Notwithstanding the above, the preliminary report outlines a series of mitigation measures that could be undertaken in order to bring forward development within areas underlain by shallow mineworkings. These include extraction of the remaining coal and consolidation via drilling and grouting. Where deep shafts are present resulting in no build zones, a shaft cap can be installed and these areas can be integrated into the development as useable amenity space. The report recommends that protective gas measures will almost certainly be required for new buildings across the site due to their proximity to an area of landfill activity. A detailed remediation strategy will also need to be implemented to deal with the presence of contaminated land.
- 4.6 The key message of the preliminary report is that other than the former landfill area to the east, the existing ground conditions are not considered to be a significant constraint on the developable area of the site. However, where development is proposed in areas underlain by shallow mineworkings or contaminated land, the abnormal costs will inevitably be higher and this needs to be factored into any future viability appraisal for the development.

Ecology

- 4.7 An extended Phase I habitat classification and associated field survey was undertaken in December 2015. The purpose of the assessment was to gain an understanding of the natural vegetation cover and local wildlife habitats on the site, along with their potential importance for nature conservation.
- 4.8 Within the allocated area, the habitats include amenity grassland interspersed and bounded with shrub, scattered trees, plantation woodland, semi-natural woodland, buildings, watercourses and ponds. There are no statutory or non-statutory sites within the site boundary. Along its northern edge, the semi-natural woodland at Bradley Wood is considered to be of significant wildlife value. However, the majority of the woodland on the golf course is younger than 60 years old. It is considered to be in good health, with limited deadwood and a relatively open understorey with no definitive shrub layer. In general terms, the tree-lined fairways are of less ecological value than the mature woodland to the north but they do provide nesting opportunities for a variety of bird species and offer potential habitat corridors for small passerines, bats, amphibians and invertebrates. The course is dominated by amenity grassland, which is cut short and lush with relatively poor species composition. There are 3 ponds at holes 2, 7 and 8 and the first of these is a known site for white clawed crayfish.

4.9 Following the initial classification of the site and an assessment of its key physical features, the following species were targeted by the extended Phase I habitat survey:

- Bats – the survey focussed on the identification of key foraging habitat and flight corridors, roost sites, and evidence of bat use. There was no evidence of bats observed during the time of the survey although there are several buildings on the site with the potential to support bats, including the club house and several of the storage buildings at Shepherds Thorn Farm. There is a single ash tree (Target Note 2) with the potential for roosting bats and a number of other trees could support either individual or significant numbers of bats. It is recommended that activity surveys should be carried out in spring / summer, focussing on the ash tree and the identified buildings. In addition, boundary features, woodlands, watercourses and rough grassland all provide suitable foraging and commuting habitat for bats and it is recommended that transect surveys be undertaken to identify the optimum habitats.
- Great Crested Newts – there have been no previous records of Great Crested Newts within 2 km of the site although the 3 existing ponds are considered to provide either good or excellent suitability for the species. The terrestrial habitat is also excellent as it provides daytime refugia, foraging areas, hibernation areas and dispersal paths. These conditions increase the likelihood of a newt population on the site although their presence can only be established by further survey work, which should include all watercourses within 500m of the boundary. The site is considered to be unsuitable for other reptiles due to the open nature of the golf course and the level of disturbance during the busy summer months.
- Badgers – there were no badger setts, annexe setts, subsidiary setts or outlier setts recorded within 50m of the allocated area. When dealing with badgers, it is important to avoid temporary severance or disturbance of regularly used paths and associated habitat. As there is no evidence of badger setts on the site, the only impact of development is the risk of severing a well-used dispersal route although none of these were observed during the survey and further assessment is considered to be unnecessary in this case.
- Birds – a wide diversity of species was recorded on the site although the timing of the survey meant that it was not possible to identify breeding bird assemblages and further survey work will be required to establish this. There was little evidence of wintering birds on the site. It is important that any tree or vegetation removal takes place outside of the bird nesting season

- Hedgehog – no active or unused hedgehog nests were found on the site although consideration should be given to the possibility of finding nests during any future site clearance works.
- Watervoles – all aquatic habitats on the site were assessed for the presence of watervoles and American mink although none of these were considered to provide a suitable habitat. There were no signs of either species recorded during the survey. Whereas it is not the optimum time of year to conduct a detailed search, desk-based research shows that there has been no record of watervoles within 2km of the site and therefore, no further survey work is required here.
- Otters – there is no evidence to suggest that otters are present within the locality and the high level of disturbance associated with the golf course makes it less likely that they would breed in this location. No further survey work is required.
- White Clawed Crayfish – during the colder winter months, crayfish tend to be largely inactive, lying dormant in deeper parts of their aquatic habitat. As a result, a hand search was not conducted at the time of the survey and this will need to be carried out during the optimum period of July to October. Of the 3 ponds on the site, pond 1 (next to hole 2) is a known site with crayfish added to it in 2011. At this point, it is not known whether the population still exist or whether there is a presence in the other ponds although the likelihood has increased with the previous intervention.
- Invertebrates – an invertebrate survey is recommended in order to establish which species and communities are present and to inform future mitigation strategies.
- Invasive species – Japanese knotweed, Himalayan Balsam, Cotoneaster sp, Rhododendrum sp and Canadian pondweed were all recorded within the boundaries of the allocated area. The report recommends that a specialist contractor is appointed to remove the invasive species.

4.10 In summary, the Phase I habitat survey provides a useful assessment of the site's ecological profile although it is clear that further survey work will be required to establish the presence and population of certain species (bats, birds, great crested newts, white clawed crayfish and invertebrates). Importantly, the value of existing flora and fauna is not at a level that would prevent the future development of the land. Instead, the masterplan offers an opportunity for future ecological enhancements, improving wildlife habitats and connectivity. The concluding section of the report recommends that an Ecological

Enhancement Management Plan should be prepared at a later stage of the process by which time the additional survey work will have been undertaken. For the purposes of the current masterplanning exercise, it offers the following guiding principles:

- All watercourses should be retained and enhanced, including the creation of adjacent buffer zones
- Existing ponds should be retained with further link ponds added. A buffer zone of 10m should be created adjacent to each pond
- Woodland corridors should be created in a north to south direction to enhance habitat connectivity
- Surrounding semi-natural woodland should be retained and existing woodland should be planted to create scalloped and structurally diverse edges
- Consideration should be given to the planting of fruit bearing trees, along with native and local provenance broadleaf species
- Where possible, meadows and wildflower areas should be created to benefit bees, butterflies, small mammals and insects
- Grassland habitats should be created adjacent to watercourses, ponds and woodland
- Bat and birds boxes should be provided in the retained woodland

4.11 Taking account of these recommendations and the likelihood of protected species being present on the site, it is proposed that certain parts of the allocated area be reserved for nature conservation, specifically, the areas around existing waterbodies and the woodland edge at the northern end of the site.

Landscaping

4.12 The allocated area falls within National Character Area 37 'Yorkshire Southern Pennine Fringe' which is described as a transitional landscape. Here, travellers crossing from west to east experience a change from pastoral treeless hill tops, where dry stone walls are the predominant field boundary, to wooded valleys where large urban settlements such as Huddersfield are focussed.

4.13 At a local level, the 2015 Landscape Character Assessment for Kirklees places the site within character area E2: Barkisland – Hollywell Green. This is an urban fringe landscape located on the doorstep of Huddersfield. The M62 motorway forms a definitive boundary to the north. There is frequent tree and woodland cover throughout, particularly on slopes, and the role of the character area is to provide a rural backdrop rising above the northern edge of the town. Bradley Park golf course is one of three courses located within the character area, the others being Huddersfield and Outlane. The Kirklees Way passes along

the western boundary of the course and allows access to and enjoyment of the landscape. It enters Bradley Wood to the north before exiting to the north east of the golf course along the southern boundary of Bradley Park. The park is a historical feature of the landscape and although the deciduous woodland protecting its northern edge remains in tact, the park itself has been quarried, which has had a detrimental impact on the quality of the landscape. The future restoration of the quarry has the potential to enhance the green corridor of land surrounding the M62, at the boundary of Kirklees and Calderdale.

- 4.14 The 18-hole golf course contains a structured, man-made landscape with open greens and fairways separated by thin bands of deciduous woodland running west to east. Whereas this provides a ready-made setting for residential development, it is recommended that woodland connectivity be enhanced on a north-south axis, which will involve the loss of existing trees and the provision of compensatory planting elsewhere.
- 4.15 The highest point of the allocated area is at the south west corner, where the agricultural fields adjoin Shepherds Thorn Lane. From here, the landform undulates eastwards, creating gentle dips and slopes as part of the golf course with a general downward slope towards Bradley Wood. In general terms, the topography of the land is not considered to be a significant constraint to development and the views into and out of the site are mostly screened by woodland planting. An initial assessment of the zone of visual impact has been undertaken. The general conclusion is that the site is relatively well contained and the retention of existing woodland along with the creation of new structure planting belts on the site boundaries would significantly reduce the impact of development on local views.
- 4.16 For each masterplan option, a set of landscape principles have been applied and these are covered within Section 7 of the landscape report and the associated plans at Figures 12-15. The opportunities for creating a high quality landscape framework for the development include:
- Where possible, retain existing structure planting associated with the golf course
 - Retain existing woodland belts and create new additional deciduous woodland
 - Provide new woodland structure planting along the western edge of the site and at the rear of properties facing onto Bradley Road
 - Integrate the Kirklees Way into an emerging green corridor running through the site and create an enhanced network of public footpaths
 - Increase wildlife connectivity within the site and to surrounding woodland at Screamer Wood, Bradley Wood, Dyson Wood and Bradley Gate Wood
 - Utilise green spaces for formal and informal play, the creation of wildlife networks and SUDS features

Drainage

- 4.17 The site falls within Flood Zone 1, where the annual probability of river or sea flooding is less than 1 in 1,000. It does not have a history of flooding with only two isolated incidents occurring over the last 6 years, both of which were attributed to groundwater flows across the golf course.
- 4.18 There are three functioning watercourses across the site. The two at the northern end combine before running into culvert under the M62 and onwards towards Deep Dike and ultimately, the River Calder. The third is at the southern end and leaves the site via a culverted section which runs beneath Bradley Road before opening out again in Screamer Wood. A review of the Environment Agency's surface water flood maps shows the risk of surface water flooding from these watercourses to be very low. It is not located within a groundwater emergence zone and flood proofing or resilience techniques are not required.
- 4.19 Generally, there are no constraints to development in terms of flood risk. The most important consideration is to demonstrate that future development of the site will not result in a net loss of flood plain storage, impede floodwater flows or increase the risk of flooding elsewhere. At the moment, the majority of the allocated area is made up of permeable land and the system for dealing with surface water run-off should focus on mimicking the existing regime. Priority should be given first to the provision of soakaways / infiltration, then to discharge to a watercourse and as a last resort, connection to public sewer.
- 4.20 Before the Sustainable Urban Drainage System (SUDS) for the site can be developed, ground investigation and soakaway testing is required to determine whether the ground is suitable for infiltration. Whilst the geo-environmental study suggests that the ground may not lend itself to discrete soakaways, it may have the capacity to absorb surface water run off over a wider area. This could include providing a network of 'above ground' SUDS where swales, ponds and detention basins will be used to store and convey water before discharging to a watercourse or infiltrating to the ground at a rate equivalent to greenfield run off (1.4 l/s/ha). The development of a SUDS strategy for the site also carries the potential to deliver a range of ecological enhancements and to improve the overall quality of the environment. The main impact will be the overall land take of drainage features and it will be important to incorporate these into the areas of the site that are already reserved for amenity open space and nature conservation.
- 4.21 A positive green infrastructure strategy for the site offers a key opportunity to focus on the integration and function of 'blue' and 'green' spaces. This includes open spaces, retained and enhanced tree coverage, wetlands, swales, ponds and flood storage areas. A multi-

functional green infrastructure approach serves to enhance sustainable drainage, recreation opportunities, biodiversity and carbon management. An increase in urban green space helps to reduce run-off and increase natural infiltration.

Transport and Accessibility

- 4.22 Much of the site is bounded by the A6107 Bradley Road running east-west to the south of the site and from which access is currently provided to the golf course. It links the A641 and the A62 Leeds Road, and the majority of the road is subject to a 40mph speed limit. There are mandatory cycle lanes on either side of the carriageway between the 7.30am and 9am and 4.30pm and 6.00pm. Footways are provided along either side of the carriageway and street lighting is present along the entire length of the link. There is no evidence from recent accident data to suggest that road layout, inadequate or masked signs were contributory factors in any of the accidents recorded.
- 4.23 The A641 Bradford Road runs along the western boundary of the site and connects Huddersfield town centre with Brighouse within the district of Calderdale. In the vicinity of the site the road is a dual carriageway with a speed limit of 40mph. There are footways either side of the carriageway.
- 4.24 Bus stops in the vicinity of the site are located on the A641 Bradford Road and Alandale Road, with Bradford, Huddersfield and Leeds as the primary destinations. There are additional bus stops located on Bradley Road that are for school services only.
- 4.25 There are several Public Rights of Way that traverse the site, the main one being the Kirklees Way. There are some cycle routes in the vicinity of the site and also some that traverse the site.
- 4.26 An analysis of the existing conditions allowed a number of constraints and opportunities to be identified for transport associated with bringing forward the site. The principal constraint is considered to be the congestion at the signalised junction where Bradley Road intersects with the A62, at which there is a designated Air Quality Management Area (AQMA). However, future opportunities are provided by two highway improvement schemes (Cooper Bridge and M62 Junction 24a) currently being examined by Kirklees Council.
- 4.27 A review of possible site access options produced three that are seen as suitable for further analysis, for the reasons described below.
- An access to the western portion of the site and would allow the frequent bus services along the A641 to divert into the site with minimum diversion. It could also provide a link (either direct or indirect) to the M62 Junction 24a proposal.

- One of two locations on Bradley Road. The first would utilise the existing access to the Golf Club and be fairly central in relation to the development site. The second would provide direct access to the site and would be an extension of an existing estate road.
- An access to the east onto the new link road being developed as part of the Cooper Bridge scheme.

4.28 Having undertaken some initial estimates of trip generation and distribution, some preliminary junction modelling was also undertaken. The results indicate that:

- For a single lane entry, traffic signal-controlled site access at either access location on Bradley Road, it would be possible to deliver up to around 250 dwellings.
- A traffic signal junction at Lamb Cote Road with a connection through to Tithe House Way could allow an additional 50 dwellings to come forward.
- Providing signal-controlled junctions at both Lamb Cote Road and Tithe House Way could deliver around 500 dwellings.
- It would be feasible to widen the Tithe House Way access to 2 exit lanes, in which case, a signal-controlled junction would provide access to up to around 250 additional houses, giving 750 in total.
- However, the A62/Bradley Road junction is the main constraint on the existing local highway network, and current capacity constraints at the junction are likely to limit the extent of development deliverable on the site more than the site access junctions described in the preceding points. Each of the four scenarios would add to the existing queues at the junction, with the 300 dwelling scenario increasing the queue in the AM peak by around 13 pcus.
- Implementation of the Cooper Bridge scheme would provide some relief at the A62/Bradley Road junction and could allow the 750 dwellings scenario to be acceptable, depending on the actual capacity relief at the A62/Bradley Road junction. The Cooper Bridge scheme is due for completion by 2021.
- Beyond this, strategic improvements to the highway network, including the Cooper Bridge scheme would reduce the impact of development traffic at the A62/Bradley Road junction and relieve the flows on Bradley Road, allowing most, if not all, of the 2,000 dwellings to be delivered in highway capacity terms.

- An additional access point to the west (which could be as part of a new M62 Junction 24a) would be desirable but not essential in capacity terms. Such an access is desirable in design terms as it is usually recommended that at least four access points to/from the adjacent highway network are provided for a development of this size. It would also allow for a better internal road layout, provide greater opportunity for penetration by public transport vehicles and would reduce internal vehicle trip lengths by allowing those residents at the western end of the site with a destination in Huddersfield to use a western access rather than heading through the site.

4.29 It should be noted that the social infrastructure requirements of the site will also need to be met through provision of facilities and services in a phased and planned manner to avoid periods of time where residents would have to leave the site, potentially by car, to access facilities and services.

4.30 Existing public transport connections could be extended through the site and will need to be explored in more detail in future work regarding the site. The site offers the long-term prospect of supporting commercial services at a reasonable frequency, as well as potentially enhancing the existing public transport provision for neighbouring communities. This could include commercial bus services running along Bradley Road as well as through the site itself.

4.31 High quality walking and cycling infrastructure will be provided within the site and beyond the site boundary new links will need to be made with existing infrastructure, potentially including new crossings and environmental improvements on Bradley Road. In this way, the site has a role to play in enhancing the wider walking and cycling networks and encouraging greater use of these modes of transport.

4.32 Finally, effective management and promotion of sustainable travel options through a comprehensive, well-funded travel plan will be required to increase the sustainability of the site.

Other Potential Constraints

4.33 In identifying the potential constraints to development, consideration has also been given to the potential impacts of:

- Noise – the site lies within close proximity of the M62 motorway, which is the dominant noise source within the area. The electricity pylons running throughout Bradley Wood and across the north-east corner of the gold course also impact on the local noise climate. Further technical assessment is required in order to model

their impact, which will inform the level of mitigation required to achieve an appropriate standard of residential amenity. For traffic noise, there is an opportunity to create a buffer zone at the edge of Bradley Wood, enhancing the natural acoustic barrier that is already provided by the woodland. There is also an opportunity to ground the high voltage electricity cabling to free up land for development. The cost of these works would need to be balanced against the development value of the released land.

- The Historic Environment – as previously explained, the stone barn at Shepherd Thorn Farm is Grade II listed and it is important for any development in this area of the site to respect the setting of the building and its relationship to the farm house.

4.34 Using the information provided within the technical reports, the urban design analysis report maps the potential constraints that exist across and surrounding the site. **To summarise, the main physical and environmental constraints that will have an impact on the developable area of the site are:**

- The presence of a former landfill area, covering approximately 6 ha in the western section of the site
- the presence of 4 coal seams at a shallow depth, underlying the site and the extent of recorded and unrecorded mineworkings
- the essential requirement for off-site highway improvements at Cooper Bridge and associated strategic improvements to the highway network to relieve the pressure on Bradley Road, reduce congestion at the Cooper Bridge AQMA and facilitate the development of 2,000 homes (and the desirability of establishing a fourth western access point for the site)
- the position of electricity pylons running through the site both as a physical constraint and a source of noise pollution
- the need to maintain an appropriate buffer between the M62 and residential development in order to create an acceptable noise climate
- the retention of existing waterbodies and the potential need to provide compensatory habitat for existing wildlife in designated parts of the site.

5.0 Development Options

5.1 The project brief requires the preparation of four masterplan options for the site. In developing each option, the team has taken a different approach to the layout, scale and density of development. using strong urban design principles and best practice examples elsewhere (see the urban design analysis). The potential for compensatory golf provision has also been considered. The four options include either no golf course or reduced 9-hole and 18-holes courses. They demonstrate the impact of maintaining a level of provision on the overall density of development. Each option has the potential to deliver up to 2,000 new homes on the site which is amongst the principal requirements of the brief. They are entitled:

- North Park
- Urban Fingers
- Central Park
- Eco-Boulevard

5.2 In addition, a fifth option has been prepared based on a more conventional approach to the development of the site (the baseline option). This is really for comparative purposes at this stage. It shows that a typical suburban layout at 35 dwellings to the hectare can be accommodated on the land and lead to the delivery of around 2,000 homes. The design concept for each option is summarised below. A more detailed description and diagrams for each option are set out in the Masterplan Options and Design Statement report.

Baseline Option

5.3 The Base Option seeks to maximise the developable site area to create a low density of suburban development across the site. Most planning references e.g. Sustainable Suburbia place this at around 35 homes per hectare. The option proposes a carpet of suburban dwellings, mostly two-storey detached and semi-detached with some terraces and all with private gardens. Vehicular access to suburban groupings is from an estate road network accessed potentially from three points. To the west an access point from the A641 will be created, centrally the present golf club access point will be utilised and from the east, improvements will be made as part of strategic highway improvements planned around the Cooper Bridge area. The northern tree belt is retained to provide a woodland buffer with the motorway and the flatter landscaped area above the landfill site will be utilised for community open space, play areas and sports pitches. The option requires the removal of the present golf course.

North Park

- 5.4 The second option will lead to the creation of a new settlement running along the southern part of the site with a new parkland area 'North Park' running in parallel along the northern edge. This creates the potential to accommodate a reshaped 18 hole golf course within the park integrating with the woodland edge to the motorway and the existing landscape spaces.
- 5.5 The new settlement along the south is created as five clusters or neighbourhoods interlinked by a new east to west pedestrian, cycle and shared bus route. Vehicles are routed along the northern edge in a new 'Park Drive'. This is accessed at the west end from the A641, at the point of the present golf club entrance, and at the east end by the proposed Cooper Bridge connection.
- 5.6 Each neighbourhood has a four minute walking time across and therefore two minutes from its own centre. This cognitive sequence creates a walkable neighbourhood, and a walkable district overall with a maximum eight minute walking time from the centre to the edge. The central neighbourhood is intended to accommodate a mix of uses, housing, employment, local centre shops and facilities, which integrates with the mixed uses across Bradley Road to form a new local centre for the Bradley area. This centre will also accommodate a mixture of housing types to relate to the emerging needs of the population such as apartments for older people, single person households and first time buyers.
- 5.7 The overall design tapers the densities of the neighbourhoods down to the east and west to create more two storey suburban housing at the each end, helping to integrate it with the surrounding suburban context.

Urban Fingers

- 5.8 The 'Urban Fingers' option involves the creation of central, eastern and western neighbourhoods interspersed with two landscape fingers of open space running north to south from the northern edge of woodland and public open space. The neighbourhoods are tiered in density and scale from low rise/density at the east and west ends to a mid scale/density in the central neighbourhood. It is envisaged that the centre will function as a mixed use area to link southwards to the employment park on the other side of Bradley Road.
- 5.9 The green fingers provide openness and green amenity right up to the north side of the existing housing fronting on to Bradley Road. It is envisaged that play areas, sports fields and recreational facilities will be incorporated within the open spaces. They will connect the 3

new neighbourhoods and the existing residential areas to the south. Two higher points of housing, 'Romeo' and 'Juliet' are located at the top of each green finger to enjoy the sunny aspect and 360 degree aspect of the wider surroundings. Specialist housing could also be located at the southern end of the two greens. A pedestrian, cycle and shared bus route is set midway through the 3 neighbourhoods. The vehicular route is labelled as a 'green' route, with access from the A641 in the west, centrally at the present golf course entrance and to the east from the proposed Cooper Bridge connection. Although a large area of landscape open space is retained on the northwest of the site, it is not envisaged that this will be large enough for a golf course and will be dedicated to other forms of community landscaped amenity. However, should the quarry area be regenerated in the future it is possible that a combination of these two areas could provide a meaningful golf facility.

Central Park

- 5.10 The fourth option creates a new public landscape park running linearly through the centre of the site - Central Park. Three low rise and lower density neighbourhoods are placed along the southern side of the site interlinked by a pedestrian, cycle shared bus route east to west through a trio of neighbourhoods. Along the north edge of the park, linear groups of higher density housing create a backdrop and enjoy the sunlight, open space and views of the landscaped park, as well as protecting it from the cold winds from the north. The homes in this part also enjoy the amenity of the open woodland edge to the north. Three high buildings form identity points to the north edge, gaining the 360 degree panoramic views that are available above the tree line. This mixture of densities and housing forms create a variety of homes to relate to the need from different groups within the community.
- 5.11 A 'Park Drive' forms the major vehicle connection from east to west. This route is created as a serpentine edge to the park to calm traffic speeds and ensure that it acts as a connector within the settlement rather than a through route. The central district to the southern neighbourhoods will contain a mix of uses and a higher density of housing to create the feeling of being a new centre and destination space. This will be the new parkland with the mixed use areas on the south side of Bradley Road creating an integrated centre and north/south connection to the wider district.

Eco-Boulevard

- 5.12 In the final option, a new east/west landscaped spine integrates public amenity space with the major pedestrian, cycle and shared bus route as the central feature to the new district. This 'Eco- Boulevard' creates a sequence of water spaces to form an inventive sustainable concept for rainwater and flood management. The water spaces act as solar collectors to provide energy to the homes. They also provide amenity areas with shallow water and fountain play areas for children in Summer, possibly even skating rinks during the cold

weather of Winter. The housing on the south side of the Boulevard is formed into 4 walkable neighbourhood groups each centred around a landscaped square. These spaces provide landscaped public amenity to each neighbourhood and to the corresponding parcels of housing along Bradley Road.

- 5.13 The north side of the Eco-Boulevard is lined with denser housing with some higher points to provide for a variety of scales and protect the Boulevard from the cold northerly winds. Vehicles access to the new district from the proposed Cooper Bridge connection in the east, from the A641 at the west end and at the Central Avenue at the present golf club entrance. A vehicular through route runs on the north side of the garden squares giving traffic calmed access to the individual neighbourhoods as well as the north side of the pedestrian boulevard. The Central Avenue and Eco-Boulevard crossing point is envisaged as a mixed use area linking southwards to the mix of uses south of Bradley Road. The tree belt to the north of the boulevard wraps around the east end landscape (to the land fill site) providing openness and greening with the potential for community play areas and sports pitches in larger and less sloping east portion.

Housing Density

- 5.14 For each option, the concept masterplan is supported by a separate drawing which identifies the developable area of the site and the housing densities that have been applied to the smaller development parcels. These drawings are included within the suite of plans included with the masterplan options. A written summary is provided in the table overleaf:

Development Option	Developable Area	Density assumptions / No. of homes
Baseline Option	61 hectares	25 dph = 1525 homes 35 dph = 2135 homes 45 dph = 2745 homes 55 dph = 3355 homes *No golf course
North Park <ul style="list-style-type: none"> • West • West Central • Central • East Central • East 	45.4 hectares <ul style="list-style-type: none"> • 12 hectares • 11 hectares • 3.5 hectares • 13 hectares • 5.8 hectares 	44 dph = 2000 homes <ul style="list-style-type: none"> • 30 dph = 360 • 50 dph = 550 • 80 dph = 280 • 50 dph = 650 • 30 dph = 174 *Reduced 9 hole course or 18 holes taking in extra land
Urban Fingers <ul style="list-style-type: none"> • West • West Central • Central • East Central • East 	37 hectares <ul style="list-style-type: none"> • 13 hectares • 0.9 hectares • 11.8 hectares • 1.5 hectares • 8.3 hectares 	54 dph = 2000 homes <ul style="list-style-type: none"> • 32 dph = 416 • 80 dph = 72 • 80 dph = 944 • 80 dph = 120 • 32 dph = 266 *Reduced 9-hole course
Central Park <ul style="list-style-type: none"> • West • West Point • Central • Central Point • East • East Point 	37 hectares <ul style="list-style-type: none"> • 8.2 hectares • 2 hectares • 10.8 hectares • 2.3 hectares • 10 hectares • 3.7 hectares 	54 dph = 2000 homes <ul style="list-style-type: none"> • 36 dph = 295 • 100 dph = 200 • 50 dph = 540 • 100 dph = 230 • 36 dph = 360 • 100 dph = 370 *Reduced 9-hole course
Eco Boulevard <ul style="list-style-type: none"> • West • West Central • Central • East Central • East 	56.4 hectares <ul style="list-style-type: none"> • 12.2 hectares • 13.8 hectares • 6 hectares • 7.6 hectares • 16.7 hectares 	35.4 dph = 2000 homes <ul style="list-style-type: none"> • 30 dph = 350 • 40 dph = 550 • 50 dph = 300 • 40 dph = 300 • 30 dph = 500 *No golf course

Table 1: Density assumptions for the 5 development options

6.0 Planning Obligations

- 6.1 The future development of the site for up to 2,000 homes will trigger the requirement for contributions to be made towards the provision of affordable housing, public open space, education and potentially, highway improvement works. These requirements are likely to be met through a combination of on-site provision and financial payments in lieu of on-site provision. The Council has also recently published a draft charging schedule for the implementation of the Community Infrastructure Levy, which is likely to be in place by the time of the first application for housing development. These planning obligations will need to be accounted for in undertaking further work on the viability of any proposed scheme. The current and emerging policy position on each of them is summarised below.

Affordable Housing

The Draft Local Plan sets out the requirement for at least 20% of the total number of units to be provided as affordable housing, with the caveat that the proportion may be less where it can be demonstrated that there are development costs which would otherwise prejudice the viability of the scheme. For a development of 2,000 homes, the requirement would be for 400 of these homes to be classified as affordable. The size and tenure split of these units would be subject to further discussion with the Council's housing team.

Open Space

- 6.2 Saved UDP policy H18 sets the requirement for the provision of public open space to be provided as part of new development at a ratio of 30 sqm per dwelling. Applied to a scheme of 2,000 homes, this would equate to an area of around 6 ha. However, the emerging Local Plan takes a more flexible approach to the provision of public open space. It states that the level of provision will be determined with regard to the type of housing and the availability, quality and accessibility of existing open space in the area.
- 6.3 In November 2015, the Council published an Open Space Assessment which identifies the main open space deficiencies within the Huddersfield area. In the Ashbrow Ward (within which the site sits) the main deficiency is in parks and recreational grounds typology. The Playing Pitch Strategy for Kirklees has also recently been updated and identifies a general need for additional playing pitches across Huddersfield, particularly artificial grass surfaces and football pitches which cater for the 9 v 9 version of game. Within the local area, there are unused playing pitches at Bradley Park recreational ground and there is also the possibility of opening up the existing pitches at All Saints College for community use.
- 6.4 Although the development of the site will increase the pressure on existing facilities, it provides an opportunity to either meet some of the shortfalls in open space provision or to

generate finance for investment in the current facilities. The masterplan options all include areas of open space as part of the land use mix and the function of these spaces will be subject to further discussions with officers. At the moment, their focus is on the co-location of recreational uses and the creation of destination play areas as oppose to scattered, isolated provision. In the future, it is the Council's intention to prepare a Supplementary Planning Document, which will provide detailed guidance on how the policies for open space provision will be applied. The masterplan for the site will evolve in accordance with this guidance.

Education

- 6.5 The UDP for Kirklees identifies an area in the south-east corner of the site for the development of new school facilities although this has not been brought forward during the plan period. The Council has recently undertaken a review of existing infrastructure and they have prepared a report on School Planning and Organisation for the period 2015-2018. The basic message is that primary schools with Huddersfield North are already over-subscribed. In 2014 and 2015 there were insufficient places to meet demand in the area and parents were required to secure places in neighbouring zones. The strategic housing allocation will exacerbate the need for additional primary school places and it is likely to result in a requirement for additional primary school provision on the site.
- 6.6 At the moment, the level of secondary school provision in the area is sufficient to meet demand over the medium term although within 3-5 years, it is anticipated that further places will be required given the increasing population of primary school pupils and future housing development. The Council's infrastructure study recommends that a strategic approach to sufficiency planning should be taken across a wider geographical area. The site's proximity to the district boundary with Calderdale is an important consideration here as there is also a large housing allocation being promoted towards the southern edge of Brighouse. However, discussions with the local education authority have established that the need for additional secondary school places could be met in other locations. This updates the suggestion in the infrastructure report that based on existing capacity and trends, the site will be needed for either a 2-form or 4-form entry school.
- 6.7 Finally, the development of up to 2,000 homes on the site will result in the need for additional early learning and childcare places in the area. Whereas there are already facilities in the Ashbrow ward, they are currently operating at capacity and either a nursery class in a new school or a private early learning facility will be required to cater for the new resident population.

Community Infrastructure Levy

- 6.8 The Community Infrastructure Levy is a tariff based charge on new development which the Council can set by adopting a charging schedule. The charge will support the provision of local infrastructure across the district such as schools, open spaces and roads. The Council has already produced a draft charging schedule and it is anticipated that the CIL will be adopted in late 2017.
- 6.9 In accordance with the schedule, the allocated area is split between zones 2 and 4 where the levy imposed on developments of 10 units or more is:
- Zone 2: £60 per sqm
 - Zone 4: £5 per sqm
- 6.10 The golf course falls primarily within zone 4 whereas approximately 75% of the agricultural fields to the east are within zone 2. Given the significant variation between the neighboring zones, it is difficult to quantify the level of CIL contributions that will be generated by the proposal at this stage. However, working through an example: a scheme of 2,000 homes at average unit size of 90 sqm and a split of 20% / 80% (zone 2 to zone 4) would equate to:
- A CIL charge of £2,160,000 for the 400 homes within zone 2
 - A CIL charge of £720,000 for the 1,600 homes within zone 4
 - A total CIL charge across the development of £2,880,000

7.0 Conclusions & Recommendations

- 7.1 The site is located to the North of Huddersfield off the A6107 Bradley Road, south of the M62 motorway. It is 77.9 hectares in size and is predominantly in use as a golf course, with some agricultural use on the western fields. The majority of the site is within Council ownership, comprising 65.82 hectares of land within draft housing allocation H1747. The agricultural land to the west is in private ownership and makes up the rest of the allocated area. It is identified in the plan as draft allocation H351 covering 12.07 hectares.
- 7.2 In policy terms, Huddersfield is a key focus for development in the draft Local Plan and the delivery of over 2,000 homes to north of Bradley Road would make a major contribution to achieving sustainable growth. The site is:
- well related to the Leeds City Region priority areas/sites at Huddersfield centre and Cooper Bridge and Chidswell
 - a key opportunity to deliver a sustainable and strategic urban extension, with over 2,000 homes this is of city region and district wide significance
 - over a year's worth of the total local plan housing supply
- 7.3 The main physical and environmental constraints of the site have been identified as part of a technical exercise to test whether there are any 'showstoppers' which would prevent the future development of the land. In this regard, the presence of a former landfill in the eastern section of the golf course, the ecological value of the ancient woodland to the north and the presence of electricity pylons are the major influences on the developable area of the land. Shallow mineworkings, noise associated with the nearby motorway, stability of the land and future access (dependent on off-site highways improvements) also present significant challenges to overcome and could result in abnormal development costs, which are higher than usual.
- 7.4 Nevertheless, the site and its largely single ownership provides a major opportunity to deliver a new community that sets the standard for new residential development in Huddersfield. An exemplar sustainable suburban scheme could also have wider city region and national significance. **The high level masterplan options have demonstrated that the local plan allocation can be delivered**, in different ways. The approach to housing density and layouts varies throughout the development options but using best practice examples, the team has shown that the necessary level of housing can be delivered through realistic but creative design. There are options that achieve significant wider public benefits (such as a new park) and options that retain reconfigured or reduced golf course areas.
- 7.5 A SWOT analysis is included in the Masterplan Options report for each option. Set out below is a 'CORB' analysis (Challenges, Opportunities, Risks & Benefits) for the delivery of the overall site for housing:

<p style="text-align: center;">Challenges</p> <ul style="list-style-type: none"> ● On site landfill & woodland/M62 buffer areas reduce the developable area ● Road/junction capacity constraints at Bradley Road ● Loss of local golf facilities ● Large number of local objectors ● Greenfield site with brownfield characteristics and constraints ● Securing access to deliver the whole site ● Managing a complex set of different constraints & opportunities ● Phasing – to address abnormal costs & support new services ● 	<p style="text-align: center;">Opportunities</p> <ul style="list-style-type: none"> ● Utilising the Council's landownership to co-ordinate the development ● Creating an exemplar sustainable urban suburb ● Providing a hub/centre for communities in North Huddersfield ● Utilise capacity at other golf clubs in the district and beyond ● Proposed Cooper Bridge and possible J24A improvements provide access ● Extending public transport services in North Huddersfield ● Utilising adjoining land
<p style="text-align: center;">Risks</p> <ul style="list-style-type: none"> ● Non delivery of the Cooper Bridge scheme and wider strategic highway improvements ● Increase in air quality problems at Bradley Road/A62 junction ● Unknown site development costs for contamination and ground conditions ● Lack of market confidence ● Insufficient project management resource to drive the site forward ● Benefits not sold to the local community 	<p style="text-align: center;">Benefits</p> <ul style="list-style-type: none"> ● Provides over 2000 homes ● Very significant contribution to meeting objectively assessed housing needs ● Creating a park/open space areas for use by all residents ● Providing a new primary school ● Enhancing local bus services and local walking & cycling routes ● Generating significant council tax and new homes bonus receipts ● Generating direct and indirect employment over a long period

Table 2: CORB Analysis

7.6 The principal output of this commission has been the presentation of a series of high level masterplan options, informed by a technical analysis of the key physical and environmental features of the site. Using these findings, the team has given consideration to the next steps of the project and has produced a set of strategic and technical recommendations. These are set out in the tables below:

No	Strategic Recommendations
1	To have the ambition to seize the opportunity provided by this site and the Council's ownership to achieve a nationally and regionally renowned sustainable development
2	To gain wider corporate and political 'buy-in' to the vision and ambition for Bradley Park, (including seeing things on the ground such as at Accordia in Cambridge)
3	To promote the site as a housing site of City Region significance, with a view to leveraging future growth funding and investment
4	As a landowner to proactively promote the site through the Local Plan process and its Examination
5	To secure access to the site through the West Yorkshire Transport Fund (WYTF) scheme for Cooper Bridge and associated improvements to the highway network in order to be able to deliver this allocation
6	To track and influence the potential J24A improvement scheme on the basis of the implications and opportunities for a western access point for this site.
7	To progress further work on site viability, particularly through examining site development costs
8	To consider the scope for establishing a M62 based 'resource smart corridor' including Bradley Park, Cooper Bridge and Chidswell (overlapping with corridors linking the centres of Huddersfield and Dewsbury)
9	To plan an ongoing community engagement programme, using the masterplan 'ideagrams' as a basis for community and elected members engagement and participation
10	To consider future project management arrangements (such as project champion, manager, board) to provide adequate resource and harness corporate commitment

Table 3: Strategic Recommendations

Technical Report	Recommendations and Next Steps
Transport	<p>Carry out an assessment of the impact of the site to establish the wider impacts on the highway network, using the wider strategic traffic model owned by the Council (given that Kirklees Council is developing proposals for the Cooper Bridge scheme to be taken forward via the WY+TF and Highways England is currently considering the feasibility of a new M62 Junction 24a). This should be undertaken when the configuration of the two schemes has been progressed to a sufficient stage of development. Undertaking this additional work using the strategic transport model will ensure a consistent approach has been taken in assessing the impact of the new infrastructure as well other large development site proposals in relation to the site.</p>
Ground Conditions	<p>Undertake a further intrusive investigation to include:</p> <ul style="list-style-type: none"> • Machine-excavated trial pits to determine near surface ground conditions including depth to bedrock, the presence of obstructions, groundwater and stability • Soakaway tests • Geotechnical soils analysis to enable foundation recommendations • Chemical testing on soil, and if necessary groundwater, samples to assess the significance of contamination as a result of former land use • Rotary probeholes to confirm depths to coal and seam thicknesses in order to assess risks associated with possible old mineworkings and surface stability • If mineworkings pose a significant risk to surface stability it will need to be determined whether to extract or consolidate the remaining coal • Gas monitoring and risk assessment <p>The details of the ground investigation strategy is provided in Section 7.3 of the geo-environmental report</p>
Flood Risk and Drainage Strategy	<ul style="list-style-type: none"> • SUDS strategy to be developed alongside the evolution of the masterplan preferred option • Percolation tests to be undertaken to be determine which parts of the site are suitable for the provision of soakaways • Liaison to take place with Yorkshire Water in order to determine the capacity of the existing sewer network and the approach to foul water drainage • Finish floor levels of the housing to be set at 150mm above the adjacent road level

<p>Ecology</p>	<p>Further detailed surveys to be undertaken in order to establish the presence of:</p> <ul style="list-style-type: none"> • Bats (May to August) • Great Crested Newts (mid-March to mid-June) • White Clawed Crayfish (July to October) • Invertebrates • Breeding birds (with any site clearance to be carried out between mid-September and early February) <p>Specialist contractor to be appointed in order to facilitate the removal of invasive plant species</p> <p>Ecological enhancement and mitigation strategy to be developed alongside the evolution of the masterplan</p>
<p>Landscape</p>	<p>In depth zone of theoretical visibility / zone of visual influence exercises to be undertaken once the proposals have reached a more advanced stage</p>

Table 4: Key recommendations from Technical Reports