

A landscape-led multidisciplinary residential plan for the London Green Belt

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Article

A Landscape-Led Multidisciplinary Residential Plan for the London Green Belt

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Abstract: Landscape architects have a responsibility to society, the environment, the client, and other professional organizations. Professionals that undertake landscape-led planning projects need to adopt a comprehensive approach in all the associated aspects. This article summarizes a unique experience in landscape-led planning practice in the UK where most projects are either town planning or architect-led: (1) the housing scarcity problem in towns and villages, land within the Green Belt in the UK is in strict governance by planning policies. In this article, a case study of exceptional infilling villages in East Hertfordshire is used to drive a landscape-led, multi-disciplinary planning process and to analyze all expertise assignments involved; (2) materials were sought from a variety of sources including council official online guidance, public open access materials, project team communication, and consultation results which covered local residents engagement and anonymous comments during the publicity period of the planning decision. Desktop studies, site visits, and the expertise of the multi-disciplinary team were applied throughout the case; (3) with a year of planning teamwork, the proposed development of the study site met the local sustainable growth that planning permission for high-quality residential dwellings was granted by the Local Planning Authority; (4) since known landscape-led planning examples are limited in the UK, the case study formed a good example for scholars and researchers who are interested in planning in the Green Belt.

Keywords: landscape-led; multidisciplinary; planning application; the London Green Belt



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1. Introduction

A fundamental problem in the UK housing market is a persistent shortage of housing, which is reviewed annually by the Chartered Institute of Housing [1] and has been reflected in government official reports, including Estimating housing need (2010) by the Department for Communities and Local Government [2], Supporting housing delivery through developer contributions (2018) by Ministry of Housing, Communities, and Local Government [3], and The future of the planning system in England (2021) by the Housing, Communities and Local Government Committee [4]. There is no agreed measure of exactly how much new housing needs to be supplied each year in England, however, according to one estimate by the National Housing Federation and Crisis from Heriot-Watt University, around 340,000 new homes need to be supplied in England each year, of which 145,000 should be affordable [5,6]. As shown in Figure 1, the downward trend can be seen from the 1950s with the actual annual supply continuing to remain short of target in the 21st century. The Ministry of Housing, Communities and Local Government of the UK published National Planning Policy Framework (NPPF) as the strategic guidance for planning at the

national level, setting out the government's planning policies for England and how these are expected to be applied. The NPPF states that the Green Belts serves five purposes: (a) to check the unrestricted sprawl of large built-up areas; (b) to prevent neighboring towns from merging into one another; (c) to assist in safeguarding the countryside from encroachment; (d) to preserve the setting and special character of historic towns; and (e) to assist in urban regeneration, by encouraging the recycling of derelict and other urban land [7]. London's Green Belt is known for conserving open space around the city, which successfully stopped its expansion after the second world war [8]. New housing developments are severely restricted by planning policies despite housing shortages being a long-standing problem for towns and villages [9–12].

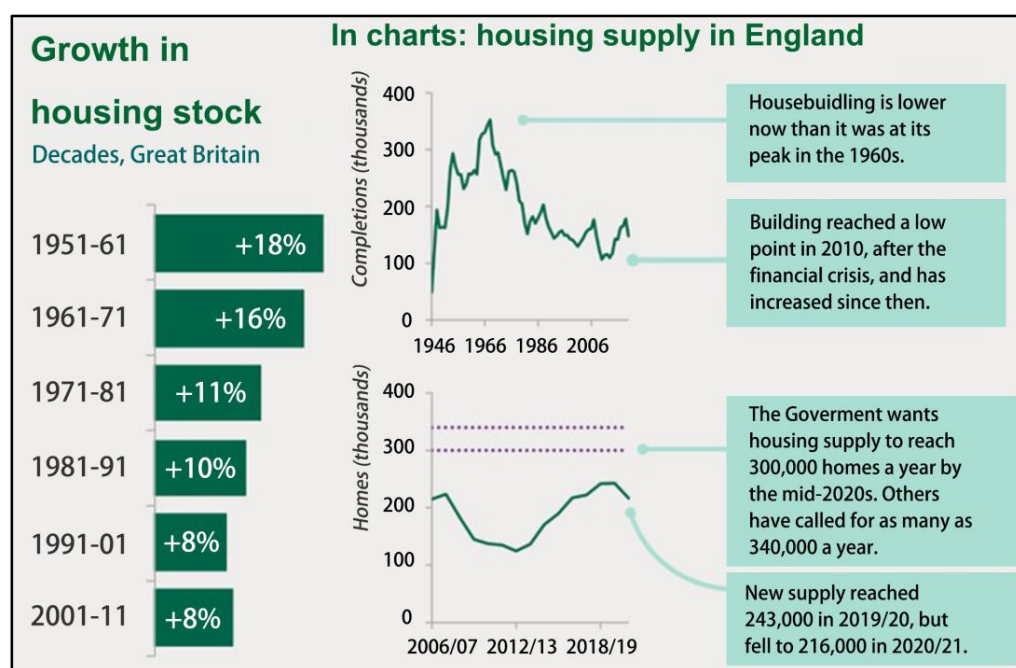


Figure 1. Charts of housing supply in England show a downward trend from the 1950s. The actual annual housing supply in the 21st century fell short of the target. Source: House of Commons Library.

Planning permissions, which are consented to by Local Planning Authorities (LPAs) prior to most developments, for example, to build new dwellings, to make major changes to existing buildings, and to change the use of land, are legal requirements under the governance of the UK planning system. If any project needs planning permission but any work is conducted without getting it, an enforcement notice will be ordered for undoing all the changes [13,14]. Through official planning sources [15–17] as well as the result of most research [18–20], no case study of new housing planning in the Green Belts has been summarized into detailed research paper overarching teamwork and time goals of granting planning permission. The obvious gap between planning theoretical research and planning practice [21–23] results in the fact that the broader public has limited access to understanding the comprehensive work of proposing housing schemes to be permitted by LPAs within the Green Belts.

Although landscape-led planning is not a new phrase, it is uncommon in the UK in practice. By talking to a few landscape professionals including those from the University of Sheffield, AECOM, and Gillespies, it was found that known landscape-led practice examples are limited at the moment: it is perhaps that the landscape practitioners in the manager roles have not communicated enough with the landscape researchers, which means that the theories summarized from any actual practice are not always available for reference. Lee Park, the executive director and landscape practice leader of AECOM, said the London Olympic Park was a good example carried in the landscape-led approach.

However, no first-hand insider vision summarized by the immediate landscape leader was discovered so far explaining the process of planning. Our research aims to drive this process by using our landscape-led, multi-disciplinary planning scheme, which has been granted planning permission for high-quality residential dwellings, and to analyze all expertise assignments involved in the case study. This research is dedicated to addressing the following questions:

- The study area has failed planning applications in history. Is it possible to propose a brand new scheme to meet local needs in development?
- What kind of proportion or mass of the development would be considered appropriate to meet the planning policy hierarchy including the Green Belt policy?
- When planning with the landscape in mind, what other types of expertise will be required in planning to serve this site?

Landscape-led planning [24,25] has been applied to the study area for achieving sustainable development while maintaining the essential characteristics of both the Green Belt openness [26,27] in situ.

2. Materials and Methods

Materials were sought from a variety of sources including council official online guidance [28,29], public open access materials, project team communication [30–40], and border consultations which covered local residents’ engagement organized by the planning team and anonymous comments during the publicity period of the planning decision. Methodologies were conducted through desktop studies and site visits. The approach incorporates the expertise of a multi-disciplinary team, including topography survey, planning, landscape, architecture, archaeology, contamination, flooding, arboriculture, ecology, noise assessment, etc. A diagram that outlines all the steps involved in conducting the practice is summarized in Figure 2.

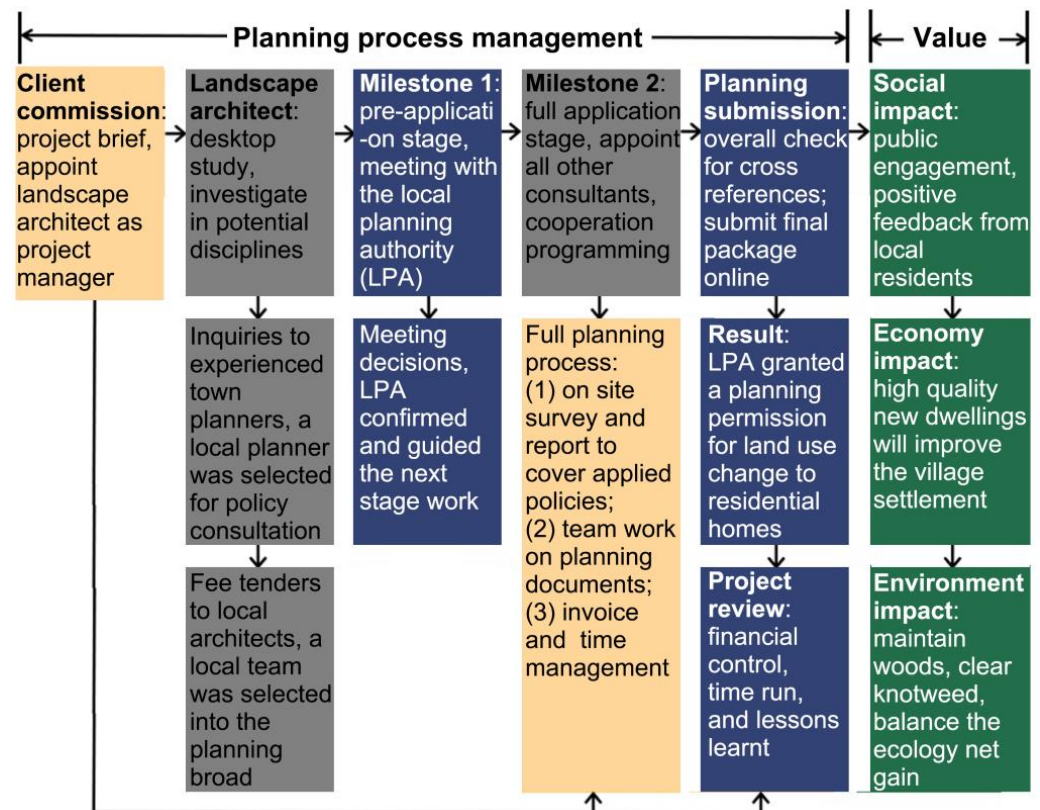


Figure 2. A diagram outlining all of the steps involved in conducting the practice.

2.1. Desktop Studies

Information on the study area (use “the site” in the following text) was collected mainly by desktop studies at the first stage. Located north-northeast of the London Green Belt (Figure 3), the site occupies approximately 1.18 ha in the village of Spellbrook, Bishop’s Stortford, within the local authority area of East Hertfordshire District Council.

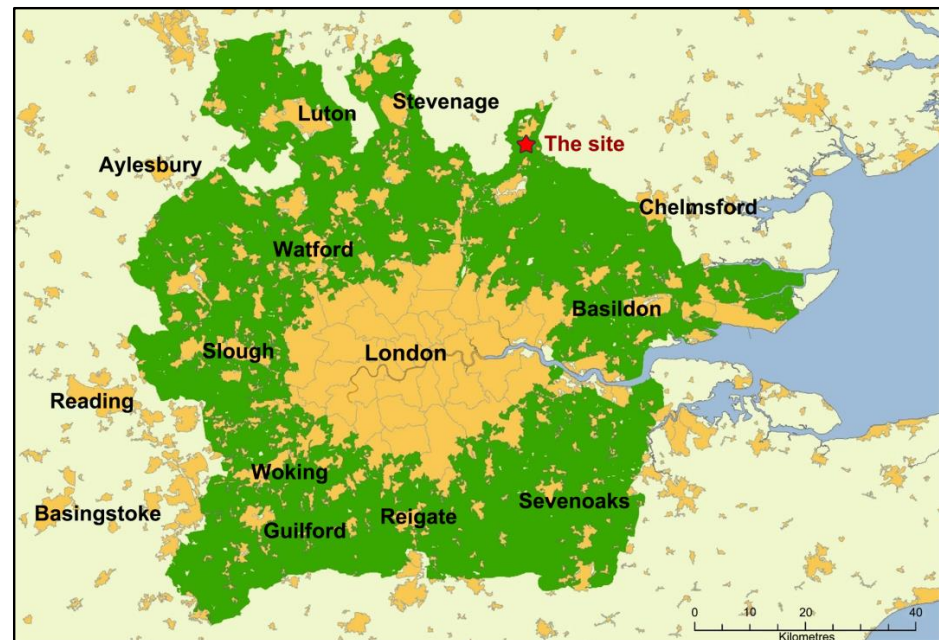


Figure 3. The London Green Belt map [8]. The site, marked in a red star on the map, lies north-northeast toward central London in the Green Belt.

Spellbrook is a small hamlet of rural and semi-rural properties located to the west of the River Stort. It has a number of facilities including a popular primary school, a large Public House, traditional rural businesses such as the Hayter factory, and small local businesses that serve the wider community such as the car showroom, car washing, and health and fitness center all accessed from London Road. The town of Bishop’s Stortford lies to the north of Spellbrook, with the town of Sawbridgeworth due south, and these settlements are linked via the A1184 which runs through Spellbrook. The village of Little Hallingbury lies to the east of Spellbrook but is located in the adjoining local authority area, Uttlesford.

The land is currently undeveloped, with the site to the immediate north in commercial use (a car showroom) and residential to the south. The West Anglia Mainline lies to the east of the site. Historical maps (Figure 4) dating back to 1879 show the site has remained undeveloped.

2.2. Site Visits

Site visits were carried out separately by the project manager with a landscape professional background, architect, topography surveyor, ecologist, arboriculturist, and other relevant team members. Using landscape site visits as an example (photo samples are shown in Figure 5), existing vegetation, landform, and water conditions had been recorded to form a working database. The situation of land boundaries had been checked: the east boundary of the site is defined by the A1184, London Road; the western edge is bounded by the railway line running between Bishops Stortford and Sawbridgeworth; to the north of the site are a large commercial vehicle showroom and a series of larger detached properties within wide plots; to the south of the site facing London Road is a line of semi-detached properties of medium size on long deep plots.

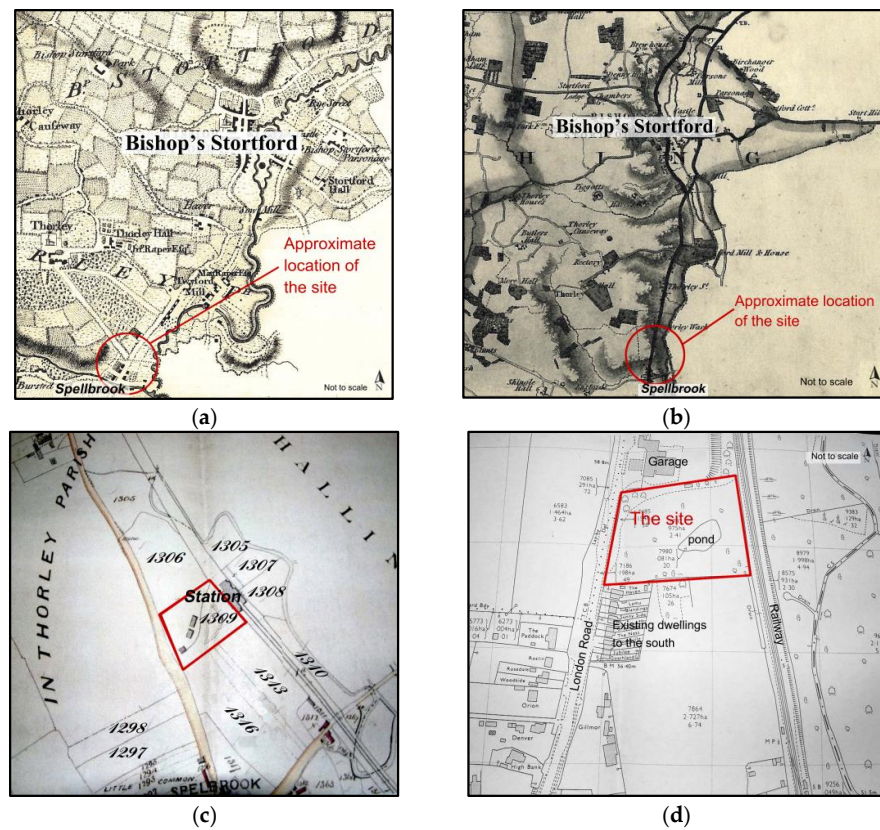


Figure 4. Historic maps show the context of the study site: (a) Map of Dury and Andrews of Hertfordshire with the approximate location of the site, 1766, not to scale; (b) Bryant map of Hertfordshire with the approximate location of the site, 1822, not to scale; (c) Tithe map with the redline boundary of the site, 1839, not to scale; (d) OS map with the redline boundary of the site, 1975, not to scale. Source: Archaeological Desk-based Assessment, Archaeological Solutions Ltd.



Figure 5. Site visit photos show the local character: (a) A view looking toward the site at the north boundary; (b) A view within the site toward the south boundary; (c) A view standing east within the site looking toward the railway; (d) A view showing local houses, south to the site.

2.3. Multidisciplinary Team Consultations

The multidisciplinary research team had undertaken an extensive range of studies and investigations to ensure that the residential development of the site was appreciated and had due regard to the environment and other factors, along with being wholly consistent with national planning policies and the provisions of the Development Plan.

2.3.1. Landscape-Led Planning

The landscape-led concept formed a well-balanced combination for on-site landscape protection, promotion, and enhancement, of which the planner's work was carried out by DLP Planning Ltd., London, UK, while the landscape solutions were carried out by Indigo Landscape Architects.

2.3.2. Topographic Survey

Measure survey package of the site was prepared by Alan Rhodes Associates Ltd., London, UK.

2.3.3. Architecture

KCA Architects delivered architectural schemes as well as the design and access statement from the pre-application stage to the full planning submission. Site context, opportunities and constraints, and design approach were covered, giving sufficient depth to meet planning requirements.

2.3.4. Contamination

Geological data indicated that the site is underlain by the gravel, sand, and clay superficial deposits, followed by a bedrock of the Lewes Nodular Chalk Formation and Seaford Chalk Formation. Although no known contaminative industrial uses have been identified on the site, it is considered that there is always a possibility for made ground to be present. Phase 1 Desk Top Land Contamination Assessment was delivered by STM Environmental Engineers.

2.3.5. Archaeology

The site is located within an Area of Archaeological Significance, which is associated with the Wallbury Iron Age hill fort. Based on the known archaeological evidence, the site has a generally limited potential for archaeological remains, but a moderate potential for prehistoric finds. A Phase 1 desktop study was prepared by Archaeological Solutions.

2.3.6. Transportation

Transport research for the site was delivered by SCP Transport. The local highway network, highway safety, and opportunities to access the site by non-car modes of transport outline the planning policy which were relevant to the site and new development proposals, estimated traffic generation which could arise from the new proposals, and other associated transport considerations were covered.

2.3.7. Flooding

The site is not within a flood risk zone however to the east of the site is identified as an area that has low risk of flooding from surface water. The pond shown on plans is a significant area and is fed by a land drain that runs parallel to the railway line. There is a large area of floodplain from the River Stour to the east of the railway line.

2.3.8. Noise

A noise survey was carried out at the site to assess the level of noise from external sources and thus determine whether internal noise levels to be suitably controlled. A noise assessment report, including noise units, acoustic terminology, environmental noise

criteria, and design of the building envelope against environmental noise, was delivered by Anderson Acoustics.

2.4. Project Management

The project was started on 15 January 2016. The project schedule (Figure 6) was targeted to submit a full planning package at a comparatively high working force that aimed to receive final feedback in the same year. As such, the targets of each team were carefully divided at an early stage for the ease of co-work among specialized teams.

	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Landscape architect + Planner												
Architect												
Pre-application feedback												
Appraise feedback												
Aboriculturist												
Ecology												
Marketing analysis												
Archeology												
Transport												
Flood												
Acoustic												
Contamination												
Feasibility design	Pre-application											
Detailed design						Full application preparation						
Resident engagement												
Sustianability strategy												
Planning statement												
Planning submission												Submit

Figure 6. A project schedule shows the workforce arrangements of the multidisciplinary team for the study site.

3. Results

Planning policies related to the site were checked accordingly by the consulting team. The planning scheme for the site was revised in an “LPA–consultants–public” communication manner. A pre-application meeting was arranged in March for supervision, and with the whole team’s efforts, the full planning package was submitted in October while the targeted planning permission was granted in December 2016.

3.1. Constraints and Opportunities

3.1.1. Overarching Policies and Standards

The legislative starting point in the determination of planning applications remained as set out in Section 38(6) of the Planning and Compulsory Purchase Act 2004 (as amended). The National Planning Policy Framework (NPPF) was a key material consideration that provides a fundamental backdrop to the statutory Development Plan. It was in this context that the presumption in favor of sustainable development encapsulated in NPPF paragraph 14 and running as a golden thread throughout that document must be taken into account. Annex 1 of the NPPF deals with implementation and advises how decision-takers should deal with Development Plan policies. The Government expects the planning system to deliver the homes, businesses, infrastructure, and thriving local places that the country needs while protecting and enhancing the natural and historic environment. Section 7 of

the NPPF relates to design and states the Government attaches great importance to the design of the built environment. Good design was a key aspect of sustainable development, was indivisible from good planning, and was expected to contribute positively to making places better for people.

In the case of this site, the Development Plan, associated with this application (i.e., excluding the Hertfordshire Minerals Plan, the latter of which was not relevant as this application was not for a minerals or waste-related development) comprises the saved policies of the East Hertfordshire Local Plan Second Review (2007) covering the period up to 2011. However, from 18 April 2010, some of the adopted policies ceased to have effect following a Direction by the Secretary of State. The life of saved policies was extended until such time that they were to be replaced by the emerging District Plan. The Local Plan was not however a development plan document prepared in accordance with the Planning and Compulsory Purchase 2004 Act (as amended), but was allowed to continue through to adoption. Detailed policies in the planning hierarchy were picked up in a Planning Statement; the multidisciplinary team responded to the policies accordingly in separate documents, for example, the Archaeological Desk-Based Assessment reviewed the parts of the historic environment that have significance because of their historic, archaeological, architectural or artistic interest are heritage assets of the NPPF. The NPPF aimed to deliver sustainable development by ensuring that policies and decisions that concern the historic environment recognize that heritage assets are a non-renewable resource, taking account of the wider social, cultural, economic, and environmental benefits of heritage conservation. The NPPF required applications to describe the significance of any heritage asset, including its setting that may be affected in proportion to the asset's importance and the potential impact of the proposal. Preliminary Ecological Appraisal undertaken with reference to relevant wildlife legislation and planning policy of which relevant legislation considered included the following: The Wildlife and Countryside Act 1981 (as amended); The Conservation of Habitats and Species Regulations 2010 (as amended); Natural Environment and Rural Communities (NERC) Act 2006; The Countryside and Rights of Way (CROW) Act 2000; Protection of Badgers Act 1992; and Wild Mammals (Protection) Act 1996. The noise assessment team reviewed British Standard BS 8233: 2014: Sound Insulation and Noise Reduction for Buildings, and World Health Organization Guidelines for Community Noise.

3.1.2. Site Constraints and Opportunities

Site constraints from policy guidance to existing site conditions were summarized as follows: The site is located within the Metropolitan Green Belt. The site is within an area identified to be of Archaeological Significance. There may be palaeo-environmental deposits because of its proximity to Walbury Hill. The site is 2–3 m lower than the road level with steeply banked sides. The site is partially covered (about 50%) by an area of self-seeded trees and undergrowth. The trees have not been managed and so some are of poor quality. There is no existing vehicular access to the site. The site fronts a busy road—serving local traffic between Bishop Stortford and Sawbridgeworth and so consideration of the noise and air quality this generates must be considered. The site backs onto a railway line. The site to the east of the railway line is subject to flooding however, the railway line in this particular area is not generally affected by flood damage but consideration through sustainable measures should be applied to surface water flooding. There may be some contamination due to previous use within the site and from adjacent sites where commercial operations may have taken place that have leached contaminants. The site is to the north of a residential area and so care is to be taken to minimize any potential loss of privacy and outlook from these existing properties. To the north of the site are a number of commercial premises and so consideration is required to ensure these will not have an unacceptable impact on any proposed residential development in terms of noise, air quality, outlook, and privacy. The site is approximately 10 miles from Stanstead Airport and so subject to intermittent noise from overhead aircraft. During the day the road provides a direct link for local traffic between Sawbridgeworth and Bishops Stortford however the

M11 lies parallel approximately 5 miles to the east and so London Road (A1184) has limited traffic. The railway on the eastern boundary connects Sawbridgeworth to Bishops Stortford and provides services from London to Stanstead Airport. The site is not within a planning flood risk zone however, the wood area to the east of the site is identified as an area that has a low risk of flooding for surface water. This area will not form part of the development but potential impact should be considered.

On the other hand, site opportunities were summarized as follows: There is an opportunity to provide a small-scale provision of needed good quality, medium-sized family houses with a sustainable vision. This would contribute to local facilities and support the future sustainability of Spellbrook. Development of the site is within the village envelope on an infill site between two ribbons of development. A modest discreet development would minimize any impact on the openness of the Green Belt. Spellbrook is a small village well served by facilities locally including a school, public house, and local businesses and so can benefit from small-scale development sustainably. There is an opportunity to provide enhancement to the ecology and biodiversity within the immediate and wider local area by managing the existing biodiversity on the site. The site is brownfield in that there were established buildings on the site in the mid 19C when the railway line providing access to and from London was extended as far as Spellbrook. The site is well-screened by trees from the road and also the site level changes that fall by approximately 2.5 m would ensure that a discreet development of residential housing would not impact the visual appearance of the site from the road (Figure 7). Some development of the site would provide the opportunity for improvements to the public realm and streetscape of London Road. The site has good accessibility with a regular bus route between Bishops Stortford and Sawbridgeworth passing by the site and a bus stop on the opposite side of the road. Wider links by car to Sawbridgeworth and Bishops Stortford stations provide regular links to London and the east of the country and beyond via the M11 and M25 both approximately 5 miles away. In addition, the site is conveniently located at Stanstead Airport. The limited residential properties immediately adjacent to the site development would not impact the amenity and privacy of others. The commercial uses to the north are principally vehicular driven, car showroom, car wash, and access platform hire, so there is a limited environmental impact from these premises that would be unacceptable to adjacent occupants. As well, the site is approximately 5 m lower than these premises so there is no perception of intrusion.

3.1.3. Key Considerations on the Design Approach

Potential harm or loss of openness in the Green Belt was a prior consideration. The approach was to minimize domestication of the landscape by using a 'naturalistic' shared landscape on the west side of the site with native species, natural materials, and unobtrusive lighting, similarly using hedges and changes in level to landscape the gardens behind, to provide a unique barrier. The design approach was to create an appropriate and sustainable form of development that will not adversely impact the London Green Belt. The approach aims were to provide a high-quality standard of accommodation arranged as a series of detached buildings with private amenity space facing towards the east and south of the site. To reflect a similar pattern of development of the residential properties to the south.

The approach was to visually create a similar mass and height set back from the road and slightly lower than the street using the changes in level within the site to allow the houses to be stepped. To retain or replace trees and other vegetation for screening on the road line.

Subsequently, the approach was to maintain the biodiversity and ecology of the site with opportunities for enhancement based on the ecologist's recommendations. Limited access from the road was to be created by retaining or replacing screening and limiting the necessity for dropped curbs to two, one towards each end of the site. In creating a secondary access road this was to set the houses slightly further back from the road. The

rationale was to make reference to the traditional local building character and materials such as brick and timber cladding but presented in a contemporary form.

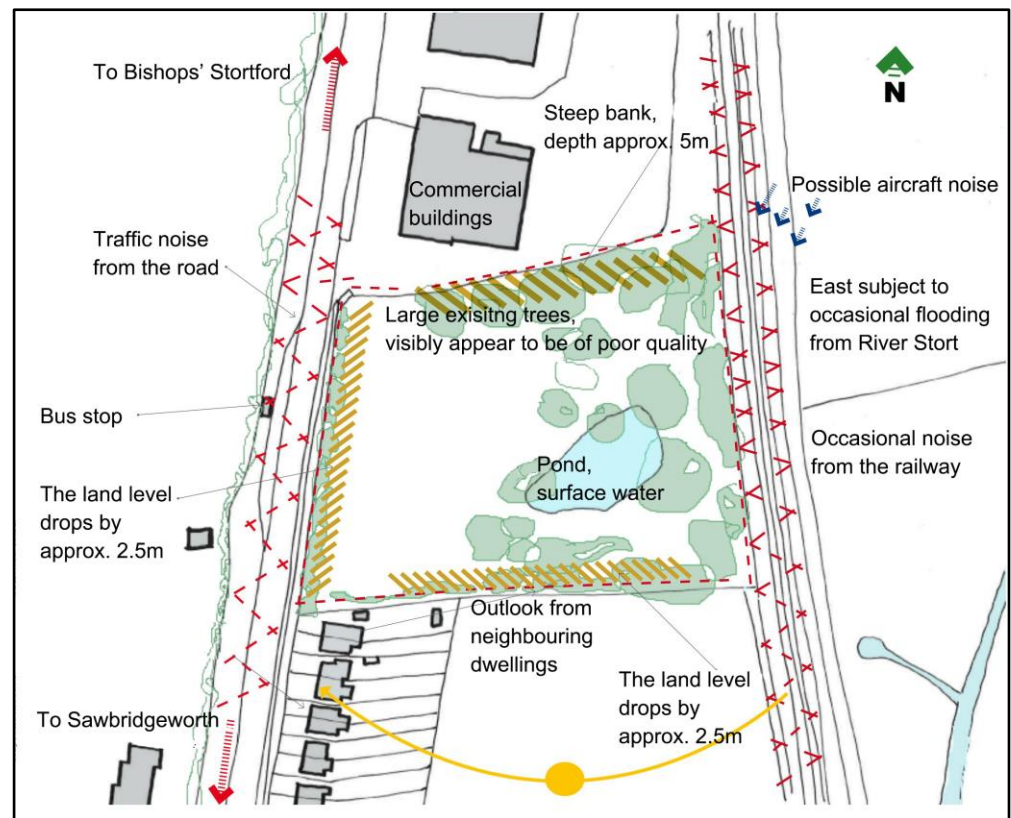


Figure 7. Site plan presented to LPA analyzing site constraints and opportunities, not to scale. Source: Pre-application Drawings and Feasibility Report, KCA Architects.

3.2. Planning Feedback

3.2.1. Pre-Application

As was best practice, a draft scheme was prepared for Council comments as part of a formal pre-application inquiry. The pre-application inquiry was submitted to the Council on 15 March 2016, a meeting was held on 21 April, and a written response was provided on 17 May.

The pre-application inquiry to the Council consisted of the request for a pre-application advice form, a pre-application report which provided a planning assessment of the development of the site, along with a draft scheme in the form of a package of drawings (Figures 8 and 9). These indicated potential approaches to the development of the site. A concept of seven detached family-sized dwellings located on the western part of the site, to front onto London Road, related to the existing buildings that surround the application site to the north. In particular, the south was focused on under review. In response to the pre-application inquiry, the Council confirmed the following: The principle of the residential development of the site was acceptable and in particular that a development of seven residential dwellings would meet the exception tests as set out in the National Planning Policy Framework with respects to the Green Belt policy. The provision of the developing proportion was an appropriate amount in terms of the size of the plot when compared to other plot sizes within the village. The proposed development reflected the local build form and patterns. The change in levels of the setback of the dwellings behind the established building line to the south will also be appropriate, subject to the elevational treatment being acceptable. The relationship with the residential properties to the south will be acceptable in planning terms with no material harm occurring.



Figure 8. Two initial sketch options (not to scale) presented in pre-application: (a) A series of semi-detached properties (three and four bedrooms) follow a line of existing building frontage from the garage to the north. Additional private access is provided at the north and south ends of the site for a further row of larger detached properties that sit within larger gardens incorporating the large pond area to the rear. Trees on the road frontage are retained and further can be planted to provide screening from the road traffic. The bulk of the dense area of trees to the east is retained to provide screening from the railway line; (b) A series of detached four-bedroom properties provide a strong line of the built form set back from the road by approximately 10 m. The individual properties have their own driveways and garage. The hedgerow and trees on the road frontage are retained and further hedges are added to provide natural screening. Private gardens are about 25–45 m to the rear and lead onto a shared woodland and wetland space. Source: Pre-application Drawings and Feasibility Report, KCA Architects.



Figure 9. The main scheme (not to scale) presented in pre-application: seven detached properties set back from the road were proposed. The ground level will be dropped from that on the highway thereby minimizing any perceived impact on the openness of the Green Belt. The properties will be two stories with a low-pitched roof. Not dissimilar in mass and height to the properties to the south of the site. The properties will be raised above the existing ground level to minimize the risk of flooding through surface water by effectively piling the site and sitting on the ground floor of the houses above the existing ground level. Any area of the hard landscape will be designed in accordance with the principles of sustainable urban drainage. Source: Pre-application Drawings and Feasibility Report, KCA Architects.

In terms of potential issues raised in the Council’s pre-application response, suggestions for consideration of alternative approaches where further information was sought, the following was noted: A suggestion that semi-detached dwellings may fit in better with the existing village dwellings to the south and so a request that consideration be given to the provision of this as part of the design consideration. The design of the dwellings should seek to reduce their mass and height with single-story elements on the front. Further information is sought on how the land to the east, outside of the proposed building area, within the land owners’ site will be maintained and managed. Preference for a single point of access but caveated this by advising that the Highway Authority will need to provide their view on this. A noise survey and land contamination assessment will be required.

3.2.2. Full Planning Application

For the formal planning process, the consultation team which had initially only consisted of a landscape architect, an architect, and a planner at the pre-application stage, expanded to include an ecologist, a highway engineer, and an archaeologist. Additionally, noise assessment, flood measures, and other related matters to meet the local authority’s requirements were included. The teamwork package can be seen in Table 1. The development proposal for planning was registered on 17 October 2016, and the planning permission granted subject to conditions was announced by 9 December 2016.

Table 1. The main planning documents for the full planning application of the site.

Subject	Document	Consultancy
Planning	Planning statement	DLP Planning Ltd., London, UK
Architecture	Design and access statement	Kiran Curtis Associates, London, UK
Landscape	Landscape strategy Overall landscape proposal	Indigo Landscape Architects, Salisbury, UK
Ecology	Preliminary ecological appraisal Reptile survey Badger Survey Great Crested Newt survey Bat inspection survey	MKA Ecology Ltd., Shepreth, UK
Archaeology	Archaeological desk-based assessment	Archaeological Solutions Ltd., Bury St Edmunds, UK
Arboriculture	Arboricultural impact assessment	Tree Ventures Ltd., Rochester, UK
Topography	Topography survey	Alan Rhodes Associates., London, UK
Transport	Transport statement	SCP Transport Planning Ltd., London, UK
Noise	Planning noise assessment	Anderson Acoustics Ltd., London, UK
Contamination	Preliminary contaminated land risk assessment report	STM Environmental Consultants., Hertford, UK

As shown in Figure 10, the seven residential dwellings which were carefully calculated in mass have been mitigated in a high-quality landscape proposal to ensure appropriate planting species to be used within the site and on the boundaries. Hard and soft materials across the site are counted in the existing ecology and landscape elements for providing treatment of the external envelope. Most on-site existing trees, woodland, and a pond on the east of the site were retained and to be managed (Figure 11). The landscape proposal remodeled the levels within the site, to allow the access road to be formed and create a mix of car parking spaces, terracing and gentle banks to the houses. Appendix A summarizes more detailed landscape information for the site.

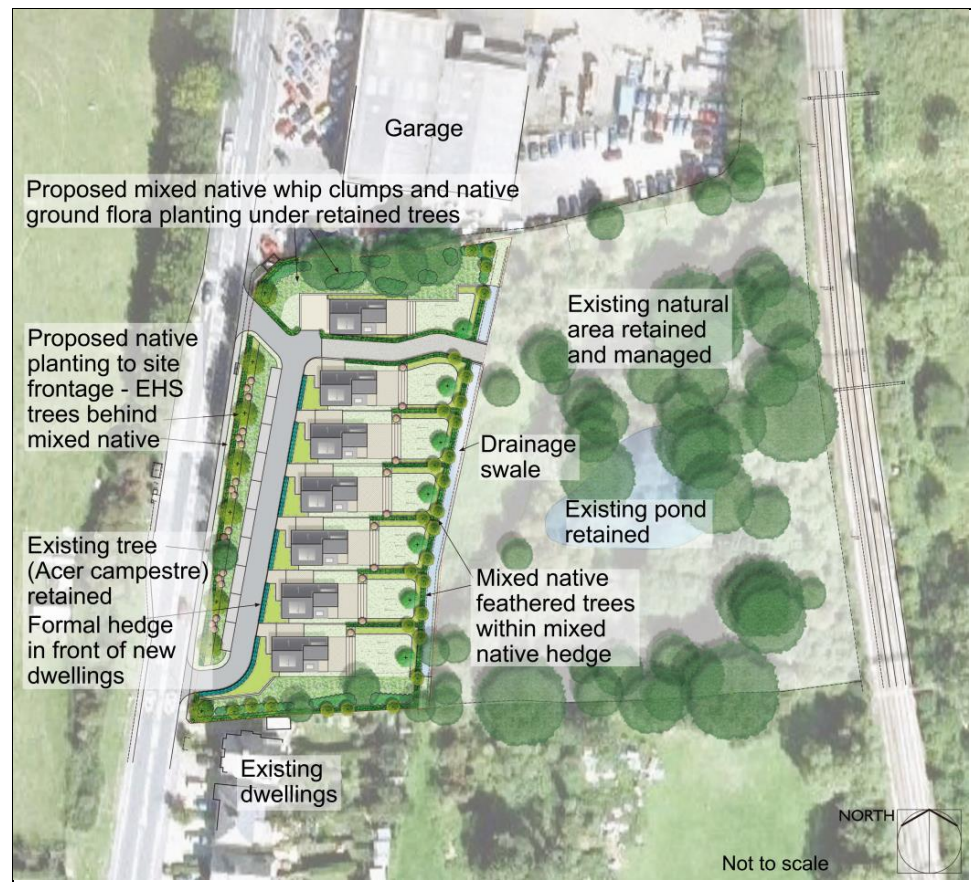


Figure 10. The proposed site masterplan which indicates the development proportion within the existing neighboring context, original 1:500@A2, is not to scale in this article. Source: Overall landscape proposals, Indigo Landscape Architect.

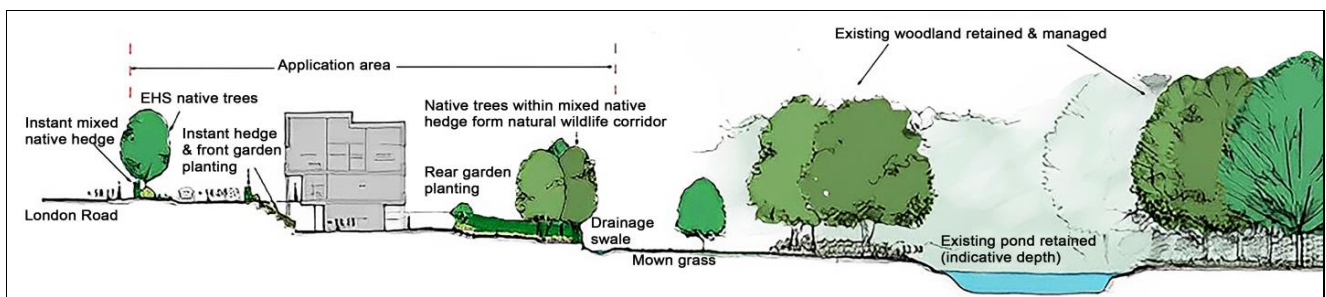


Figure 11. A west-east crossing site elevation, indicating the proposed balance between green infrastructure, blue infrastructure, and gray infrastructure. Source: Overall landscape proposals, Indigo Landscape Architect.

A series of studies were carried out within the context of London Road to assess the impact of the form. The width of individual buildings has been restrained to ensure the appearance of the development does not harm or have an impact on the openness of the Metropolitan green belt, see Figures 12–14. The proposed accessway was set out as a shared surface using permeable paving and SUDS principles. An additional access route within the site was designed to allow maintenance of the rear site. The impact of garages was minimized by reducing their built form. The seven dwellings were three-to-four-bedroom houses each approximately 140 m² set over three split levels: Lower ground, upper ground, and first floor. The dwellings were designed to meet DCLG Technical Housing standards in terms of floor area and spatial quality and to be highly energy efficient exceeding building

regulation requirements through a Fabric-First approach to energy use, and making use of sustainable measures such as site topography, solar gain, water attenuation and photo voltaic panels on the south facing roof. The contemporary appearance of the houses was using traditional materials of timber clapboard and brickwork using local buildings for reference.

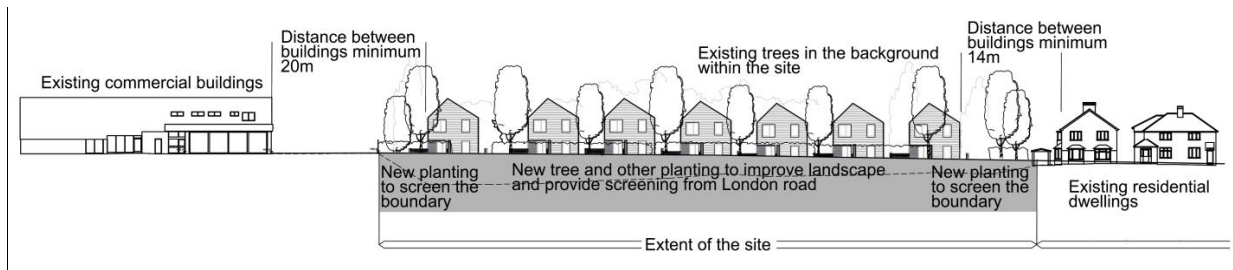


Figure 12. West elevation of the proposed dwellings, looking from London Road. Source: Design and Access Statement, KCA Architects.



Figure 13. East elevation of the proposed dwellings, looking from the east within the site. Source: Design and Access Statement, KCA Architects.

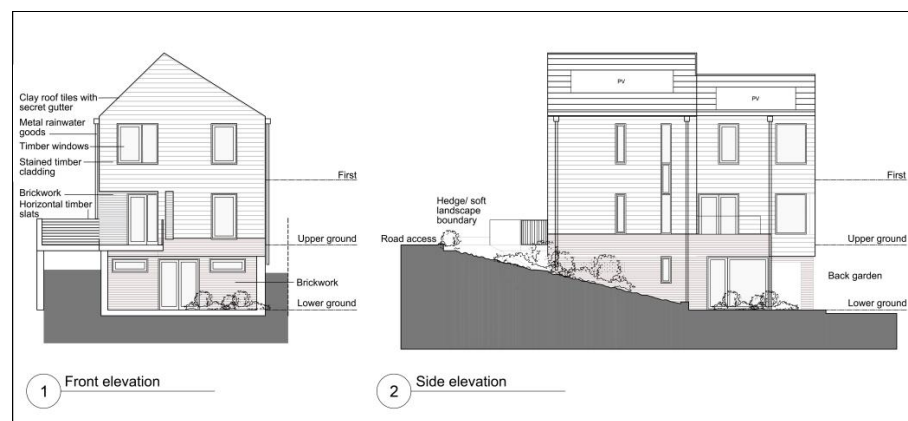


Figure 14. House elevation drawings show the concept of the new proposed homes. Source: Design and Access Statement, KCA Architects.

The official planning permission conditions listed detailed requirements and guidance for the development that can be summarized in the following: The development has three years of validation to comply with the approved plans, drawings, and specifications with the requirements of Section 91 of the Town and Country Planning Act 1990. Prior to any building works being commenced on site, a program of archaeological work, a scheme to deal with contamination of land and/or groundwater, the external materials of construction, all materials to be used for hard surfaced areas, full details of both hard and soft landscape proposals, a construction method statement, a revised noise impact assessment in accordance with BS4142 shall be submitted to the planning authority and approved in writing in accordance with the local plan. In the interest of highway safety,

the northern access to the site shall be used for ingress only and the southern access for egress only. Details of signage to this effect shall be submitted, and agreed upon in writing, by the Local Planning Authority. To prevent the increased risk of flooding, both on and off-site, no building works shall take place until a surface water drainage scheme for the site. To safeguard the privacy of occupiers of the adjoining property in accordance with the local plan, the proposed window openings in the north-facing elevation of each dwelling and the glass screen serving the roof terrace of each dwelling shall be fitted with obscure glazing and shall be permanently retained in that condition. To ensure the provision of amenities afforded by the proper maintenance of existing and/or new landscape features in accordance with the local plan, a schedule of landscape maintenance for a minimum period of five years shall be submitted to and approved by the Local Planning Authority. To provide visibility for drivers of vehicles entering and leaving the site, in the interests of pedestrian safety, the interests of highway safety, and to ensure adequate parking provision. Informative guidance, such as where to consult the naming of new streets and groundwater management, is stated to guide the next stage of work.

4. Discussion

This study revealed a comprehensive landscape-led planning process using a residential practice case located within the London Green Belt that washes over an extensive swathe of land in all directions. The success in gaining planning permission in the case not only answered questions raised at the beginning of the work, but also resulted in multi-benefits: for the local development, to build new high-quality dwellings that meet the local growth needs, the approved land use changes allow multi-disciplinary balancing to be managed on-site, and the land owner's investment has been secured.

Although the study site only occupies 1.18 ha while the proposed new dwellings only have seven in total, the landscape-led project management and the multi-disciplinary team worked as a highly professional force that the best practice of cooperation was performed through. Time control of the consultants was in an advanced and efficient manner that the case study formed a good example for scholars and researchers who are interested in planning the Green Belt in the UK. Since failures in gaining planning applications are common in the UK, and no consultant team takes responsibility for the results of planning, it is the landowner's risk that carries a project into the planning process with fee assignment to consultant teamwork. As such, time management was tight when spreading to sub-consultant, for example, Figures 6–8 which were the original drawings presented to the LPA were noticeably not richly illustrated regarding the costing control.

Further to the lessons, landscape-led planning was a pioneering topic worldwide against the backdrop of serious climate problems [41–44]. The Landscape Institute (LI) indicated that "Landscape architects have a responsibility to society, the environment, the client, the landscape profession, their own organization and their colleagues, and contracting and other professional organizations" [45]. In 2019, once the updated NPPF was available online to the public for guiding more sustainable development in the UK, the LI held an Oxford Landscape-led Planning Day calling LPAs, national park managers, and environmental lawyers to respond to the frontier changes in the planning policies. The landscape-led planning approach brings landscape architects to sit at the table at the very start a recognition that the outdoor spaces are equally as important as the spaces inside buildings. We write this article to summarize our unique experience in landscape-led planning practice in the UK where most projects are planner-led or architect-led. Fortunately, this work successfully gained planning permission which made the value of the project entirely a different level. To summarize the process is in fact a huge challenge, there are massive amounts of information on how to compare and select local teams, and how to assign fees meanwhile satisfying the landowner, however, this information hides behind the article especially the negotiation of going through planning process is much heavier than we can tell in the article (not because it was landscape-led). As landscape architects, reaching out to the complicated UK planning system with an ambition to lead a multidisciplinary

team is not only a new proposition for us but has also been encouraged by landscape professionals internationally. For landscape architects, undertaking landscape-led planning projects, managing teamwork, and going through the planning process, is a comprehensive practice in all aspects of the responsibilities. Although the Green Belt has a multi-functional role as part of a UK-wide green infrastructure framework, the Green Belt policies had created chaotic landscapes at the urban-rural interfaces in the UK. After 2016, as we are aware, the LI brief considered opportunities to transform the landscape of the Green Belt, to reposition it to deliver widely-valued social and environmental objectives. This has enabled the objective to meet the government's imperative to create strong, resilient communities and sustainable places [46–48]. Recently, the author team participated in the 2023 Landscape Industry Development Forum and Landscape Architecture Practice Methods and Thinking in Nanjing, China. Through communications with leading practitioners, it was found a multi-disciplinary team leading the landscape profession is still rare which surely needs to change worldwide [49,50]. Landscape architects are uniquely positioned to bring about positive systemic change, and support advocacy for the reversal of biodiversity loss and protection and restoration of habitats, ecological corridors, and ecosystems [51]. As mentioned at the beginning of the article, although landscape-led projects are limited, the London Olympic Park was a good example carried in the landscape-led approach. The author team will continue focusing on landscape-led multi-disciplinary planning practice and make further studies in the future.

5. Conclusions

Land within the Green Belt in the UK is under strict governance by planning policies. In this article, a case study of exceptional infilling villages is performed in East Hertfordshire. This study reveals that landscape architects have a responsibility to society, the environment, the client, and other professional organizations. Individuals undertaking landscape-led planning projects require comprehensive practice in all aspects of the process including desktop studies, site visits, and an ability to embrace multi-disciplinary teamwork. The range of associated elements includes topography survey, planning, landscape, architectural practice, and archaeology. In addition, these are extended to cover contamination, flooding, arboriculture, ecology, and noise assessment. During a year of planning, the proposed development of the study site met the local sustainable growth to enable planning permission to be granted by the Local Planning Authority. Landscape-led planning was a pioneering topic worldwide against the backdrop of serious climate problems. This case study formed a good example for scholars and researchers who are interested in planning the Green Belt in the UK.

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Appendix A Landscape Strategy

The landscape proposals have been designed as a response to the unique site characteristics and the proposed use of the site. The overall intent is to create a design that

blends both visually and ecologically into its surroundings. Native plants and species which support wildlife, therefore, feature strongly within the overall proposals. The scheme comprises various elements:

- London Road frontage. The existing road frontage is characterized by a poor hedgerow, primarily composed of Elm of typically low quality. It is proposed to replace this hedge with a new mixed native hedgerow, to provide a vigorous new, long-term, robust hedgerow. One better quality Field Maple tree would be retained and supplemented with additional Field Maple tree planting to create a strong and improved frontage to the London Road boundary. The trees would be planted at extra heavy standard size. The hedgerow would be planted using mature 'instant hedging' material, to create an immediate and significant impact. To the eastern side of the hedge, a mix of semi-native and semi-ornamental plants with a margin of wildflower meadow would create an attractive outlook for the new properties.
- Rear garden boundaries. Respecting the natural environment of the site, the rear garden boundaries of the properties (together with divisions between the plots) would be defined by mixed native hedgerow planting, further supplemented with native trees. The hedges would form natural wildlife corridors and create a natural transition to the area of managed native vegetation to the east.
- Northern and southern boundaries (plots 1 and 7). These plots about the adjacent sites and their gardens are wider. In landscape terms, the wider gardens provide an opportunity for further transition. These areas would be planted with a mix of native hedging (southern boundary), clumps of native shrubs, wildflower meadows, and native ground flora species.
- Eastern site area. The existing area of trees and native vegetation to the east is to be retained and managed. This area appears to have had no maintenance or management for many years; it is recognized that the development of the seven housing units represents an opportunity to undertake long-overdue management. Existing healthy trees would be retained, other than for thinning according to good management practice, ie; where their removal would be advantageous in terms of long-term benefit to selected, better quality trees, or increasing light availability to ground flora and the pond. Retained trees would also be managed according to good arboricultural practice. The existing pond would also be dredged and restored by the removal of excess silt deposits to increase the depth and volume of water and encourage native marginal flora. In addition, the tall herbaceous and ruderal species that form a significant part of the ground flora would be managed to create a mix of taller and closer mown areas, to maximize biodiversity. Invasive and undesirable species, such as nettle, willowherb, and thistle would be controlled by a combination of limited herbicide control and mowing.
- Front gardens. Typically, it is proposed that the front garden boundaries will be defined by an instant, mature Yew hedgerow, providing strong containment and definition to the plots. The sloping ground between the hedge and properties is to be terraced and planted with a mix of ground cover and low-level ornamental shrub planting.

Appendix A.1 Tree Planting

Table A1. Tree Planting List.

Species	Height—m	Girth—cm	Form	Root Form/Staking
London Road frontage <i>Acer campestre</i>	4.2–5.0	14–16	Extra Heavy Standard	Rootballed/double staked
Native tree structure planting <i>Acer campestre</i>	2.5–3.0	10–12	Feathered	Bare root/single staked
<i>Malus sylvestris</i>	2.5–3.0	10–12	Feathered	Bare root/single staked
<i>Prunus avium</i>	2.5–3.0	10–12	Feathered	Bare root/single staked
<i>Prunus padus</i>	2.5–3.0	10–12	Feathered	Bare root/single staked

Appendix A.2 Mixed Native Hedge Planting

Table A2. Mixed Native Hedge List.

Mature hedging to create immediate impact along the road frontage. 1.2 m high, 0.7 m wide, dense bushy "instant hedging" Container/trough grown in 1 m lengths, typically 4–6 plants per linear meter

Species	
<i>Acer campestre</i>	10%
<i>Cornus sanguinea</i>	5%
<i>Corylus avellana</i>	15%
<i>Crataegus monogyna</i>	45%
<i>Ilex aquifolium</i>	10%
<i>Prunus spinosa</i>	15%

Appendix A.3 Mixed Native Clump Planting

Table A3. Mixed Native Clumping Planting List.

Plants at 1 m ccs (1 Plant/m ²) Species	Size—cm	Root Form	Mix Percentage
<i>Cornus sanguinea</i>	60–80	Bare rooted	20%
<i>Corylus avellana</i>	60–80	Bare rooted	20%
<i>Euonymus europaeus</i>	60–80	Bare rooted	20%
<i>Ilex aquifolium</i>	60–80	3 L pot	20%
<i>Viburnum opulus</i>	40–60	Bare rooted	20%

Appendix A.4 Shrub/Ground Cover & Climber Planting

Table A4. Shrub/Ground Cover & Climber Planting List.

Species	Size—cm	Pot Size	Density—No/m ²
<i>Amelanchier lamarckii</i>	120–150	15 L	Counted
<i>Bergenia</i> spp.	-	2 L	6
<i>Choisya ternata</i>	40–60	5 L	2.5
<i>Clematis montana</i> 'Mayleen'	60–80	3 L	Counted
<i>Cornus alba</i> 'Elegantissima'	40–60	5 L	2.5
<i>Euonymus</i> 'Darts Blanket'	20–30	3 L	6
<i>Euonymus</i> 'Silver Queen'	20–30	3 L	6
<i>Fargesia nitida</i>	100–125	10 L	2
<i>Fatsyhedera</i> × <i>lizei</i>	60–80	5 L	3
<i>Ferns-mixed</i> spp.	30–40	3 L	4–5
<i>Hebe</i> spp.	-	3 L	5
<i>Hedera</i> 'Hibernica'	40–60	2 L	6
<i>Lavandula angustifolia</i> 'Hidcote'		3 L	4
<i>Lamium</i> spp.		2 L	6
<i>Liriope muscari</i>	30–40	3 L	4
<i>Lonicera</i> Maygreen	30–40	3 L	4
<i>Mahonia</i> 'Winter Sun'	80–100	15 L	Counted
<i>Phyllostachys nigra</i>	125–150	15 L	Counted
<i>Pulmonaria</i> spp.	-	2 L	6
<i>Rosmarinus officinalis</i>	30–40	3 L	4
<i>Rubus</i> 'Betty Ashburner'	40–60	3 L	5
<i>Sasa veitchii</i>	30–40	3 L	4
<i>Spirea</i> spp.	30–40	3 L	4
<i>Stephandra incisa</i> 'Crispa'	30–40	3 L	4
<i>Stipa arundinacea</i>	30–40	3 L	5
<i>Stipa gigantea</i>	30–40	3 L	4
<i>Trachelopsernum jasminoides</i>	60–80	3 L	Counted
<i>Vinca minor</i>	30–40	3 L	6

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