Greenspace Ecological Solutions

Mr E. Cookson
Greenplan Designer Homes
The Barn
Randolphs Farm
Bedlam Street
Hurstpierpoint
BN6 9EL

By Email:
4th October 2023

Job Ref: J21332_Update Bat Emergence

Dear Mr. Cookson,
Site – Castelmer Fuit Farm, Kingston, nr Lewes, East Sussex BN7 3JZ

In August 2023, Greenspace Ecological Solutions (GES) was commissioned to undertake bat emergence surveys at the above Site. The surveys were required in order to support the release of Condition 23 of the approved planning permission (Ref: SDNP/22.05983/FUL) which relates to ecology. In line with this, a summary of our results and conclusions are presented below.

Please note that this letter should be read in conjunction with the 2022 Ecological Assessment (Derek Finnie Associates, 2022) which was submitted and approved as part of the original planning application and is provided as Appendix A. The wording of Condition 23 is as follows:

Condition 23

"If the development hereby approved does not commence within 2 years from the original bat emergence surveys used to support the application (undertaken May/June 2020) then the need for updated surveys should be reviewed by a suitably qualified bat ecologist. Further surveys may be required to i) establish if there have been any changes in ecological conditions and ii) identify any likely new ecological impacts that might arise from any changes.

Where any survey results indicate that changes have occurred that will result in ecological impacts not previously addressed in the approved scheme, the original approved ecological measures will be revised and new or amended measures, and a timetable for their implementation, will be submitted to and approved in writing by the local planning authority prior to the commencement of development. Works will then be carried out in accordance with the proposed new approved ecological measures and timetable.

Reason: As species are mobile and habitats can change and become more or less suitable, it is important that the surveys reflect the situation at the time on any given impact occurring to ensure adequate mitigation and compensation can be put in place and to ensure no offences are committed."

Site Location

The Site is located within the settlement of Castelmer Fruit Farm, East Sussex. The Site is bound woodland to the north and east, grassland and woodland to the south and a small residential estate to the west.

Site Description

The Site occupies approximately 0.7 hectares (ha) and comprises an existing residential dwelling, workshops, derelict glass house set amongst amenity grassland, numerous semi-mature trees and a fruit orchard. The village of Kingston lies to the west, a woodland, which is designated as a SNCI, is located immediately to the north, with open countryside present to the south and east.

Ecological Baseline

Desk Study

A desk study was conducted as part of the Ecological Assessment (EA) carried out by Derek Finnie Associates in 2022 and is reported separately (see Appendix A). Given this, it was not considered necessary to request further desk study for the purposes of this report.

Field Surveys

The following surveys of the Site were carried out by Derek Finnie Associates between 2020 and 2022. The full results of the surveys are reported in the 2022 Ecological Assessment (Appendix A):

A Preliminary Ecological Appraisal (PEA) of the Site was undertaken on 24th April 2020.

A Preliminary Bat Roost Assessment (PBRA) was carried out at the same time as the PEA. Buildings and trees within the Site were assessed for their suitability to support roosting bats. No internal inspection of the building was undertaken given Coronavirus restrictions, which were in place at the time of the survey.

An Internal Bat Roost Inspection of the building was undertaken on 23rd September 2022, following the lifting of all Coronavirus restrictions. No evidence of bats was noted at that time.

Two bat emergence surveys were undertaken on the 30th May and 17th June 2020 following the PEA. No bat emergences and no bat roosts were recorded during either of the surveys.

2023 Surveys

Methods

PBRA

An update PBRA was conducted on 17th August 2023. Any potential roosting features (PRFs) or access points for bats such as raised fascia boards, missing/lifted tiles, cracks or crevices in brick/blockwork and gaps in soffit boxes were recorded and searched for evidence of use by bats (staining, droppings, scratch marks, or the bats themselves). The results of the PBRA enabled the buildings to be categorised as having 'Confirmed roosts'; or 'High', 'Moderate', 'Low' or 'Negligible' suitability to support roosting bats.

Emergence/Re-entry Surveys

Following the PBRA, to determine the presence / likely absence of roosting bats, two dusk emergence surveys were conducted on 17th August and 4th September 2023. Two surveyors were required to adequately observe all aspects of building B1. The emergence surveys were undertaken in line with the Bat Conservation Trust (BCT) good practice survey guidelines that were extant at the time of the

surveys (Collins, 2016). The surveys were carried out in favourable weather conditions, with sunset temperatures of ≥10°C and no rain. To account for the varying times in which differing bat species emerge, evening emergence surveys commenced 15 minutes before sunset and continued for 1 hour and 30 minutes after sunset.

A summary of the weather conditions, surveyors and start and end times for the survey is provided in Table 1 below.

Table 1 – Survey Times and Conditions

Date	Sunset time	Start Time	End Time	Surveyors	Start Weather Conditions	End Weather Conditions
17.08.23	20:17hrs	20:02hrs	21:47hrs	Martin Rann Hana Ketley	19.0°C, 5% cloud cover, dry, light breeze	17.0°C, 0% cloud cover, dry, light air
04.09.23	19:39	19:20	21:09	Lauren Hook Hana Ketley	20.8°C, 0% cloud cover, dry, calm	19.1°C, 0% cloud cover, dry, calm

To aid audible detection, surveyors were equipped with Elekon Batlogger M bat detectors and EM Touch Pro bat detectors, which convert the inaudible echolocation of bats into a frequency audible to the human ear. All calls were digitally recorded, and the sonograms later analysed through the application of the computer programme Elekon BatExplorer. Infrared cameras (Canon XA10) were also used as night vision aids during the surveys, where necessary, and the footage reviewed, where required.

To aid visible detection, surveyors were equipped with infrared Canon XA10 (or similar) camcorders positioned on tripods adjacent to each surveyor location. These cameras were accompanied by Nightfox XC5 infrared L.E.D torches improving visibility during reduced levels of light. All recorded emergences were digitally recorded and confirmed using VLC media player or similar.

The surveyors experienced no difficulties observing the building. Therefore, in the professional judgment of the appointed ecologist, a pre-dawn re-entry survey was considered unnecessary in this instance.

Results

PBRA

During the external building inspection, the B1 was noted to support multiple PRFs and access points for bats; including lifted and missing roof and hanging tiles, and gaps in the fascia. No evidence of bats was identified within B1 during the internal inspection. in line with extant good practice guidance, the building was considered to have 'High' suitability to support roosting bats.

Given two emergence surveys has already been carried out in 2020, and no bats were recorded roosting within B1 at this time, it was considered reasonable and proportionate to carry out two further update emergence surveys to determine continued presence/likely absence of roosting bats within B1.

Emergence Survey 1 – 17th August 2023

No bats emerged from the building during this survey. The first bat recorded was a common pipistrelle Pipistrellus pipistrellus which was heard but not seen at 20:23hrs, 20 minutes after sunset. Common

pipistrelle Pipistrellus pipistrellus were recorded infrequently in low numbers commuting around the Site. Serotine Eptesicus serotinus, soprano pipistrelle Pipistrellus pygmaeus and noctule Nyctalus noctula were also recorded during the survey.

Emergence Survey 2 – 4th September 2023

No bats emerged from the building during this survey. The first bat recorded was a noctule which was heard but not seen at 19:48hrs, 28 minutes after sunset. Moderate common pipistrelle activity was recorded, primarily from bats heard but not seen, however, the occasional commuting bat was witnessed. Noctule soprano pipistrelle brown long eared bat Plecotus auritus and serotine were also heard during the survey.

Conclusions and Recommendations

The results of the surveys undertaken in 2020, 2022 and 2023 recorded no bats or evidence of bats within the building denoted B1. As reasonable effort to determine the presence / likely absence of roosting bats has been applied, and none have been recorded, roosting bats are therefore considered likely absent from B1.

For clarity, a summary of the proposed mitigation and enhancements from the 2022 EA are as follows:

> New roosting opportunities for bats will be created through the installation of a minimum of 4 integrated/externally mounted boxes located within retained trees and the elevations of the proposed development. The structural fabric of the proposed development is confirmed to be appropriate for the integrated bat box suggested below. Additional bat boxes to be installed are as follows:
>
> 3 x Tree mounted Schwegler 2FN, Schwegler 1FF or Miramare bat boxes (or similar)
>
> 1 x Integrated Habibat 001 bat boxes (Integrated into structure)
>
> Recommendations for the positioning of bat boxes are given as follows:
>
> Boxes should be located close to suitable bat foraging habitat, e.g., the vegetated boundaries, preferably near to hedgerows or tree lines that can be used as commuting routes.
>
> The flight path leading from each box should be kept clear (i.e., cut away branches).
>
> Boxes should be sited to provide shelter from wind, rain and strong sunlight, with an orientation from south-west through south to south-east.
>
> Boxes should be placed over 3m from the ground to limit disturbance (some species such as noctules prefer boxes around 5m in height).
>
> Boxes on structures should be placed high up under the eaves of buildings.

As lighting can be detrimental to a site's use by bats, the Site's lighting strategy both during and post development should be sensitive to the requirements of bats. During construction and operation, there will be no additional spill onto retained or proposed potential roost entrance/exits, tree mounted bat boxes and/or boundary features such as trees, woodland and hedgerows.

The lighting scheme will be in accordance with the current Bat Conservation Trust and the Institute of Lighting Professionals (BCT & ILP) 2018 guidance, which is available at the following link: https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting.

In conclusion, the conclusions and recommendations, including enhancements for bats set out within the previous EA report (Derek Finnie Associates, 2022) remain current and valid. Therefore, the requirements of Condition 23 have been met, and this condition can be discharged.

I trust the above is satisfactory. However, should you have any queries, please do not hesitate to get in touch.

Yours sincerely

Lorna Roberts BSc (Hons) MSc ACIEEM
Principal Ecologist
J21332_AW_LR

References

Collins, J., (ed.) (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). Bat Conservation Trust, London.

Derek Finnie Associates (2022). Catelmer, Kingston, Ecological Assessment _DFA22070. December 2022. Unpublished

Appendix A – 2022 Ecological Assessment

Derek Finnie Associates®
CONSULTANT ECOLOGISTS

Castelmer, Kingston

Ecological Assessment

December 2022

CIEEM REGISTERED PRACTICE 2022-2023

TQ 39264 08548 T: 0118 989 10 86
E: info@derekfinnie.com
W: www.derekfinnie.com

20 Soames Place, Mulberry Grove
Wokingham, Berkshire RG40 5AT

COMMISSIONED BY
Greenplan Designer Homes
The Barn
Randolphs Farm
Bedlam Street
Hurstpierpoint
West Sussex

Castelmer, Kingston

Ecological Assessment

December 2022

Report Ref: DFA22070

Derek Finnie Associates Ltd
20 Soames Place
Wokingham
Berkshire
RG40 5AT

info@derekfinnie.com

CONTENTS

TABLES

FIGURES

APPENDICES

1 INTRODUCTION

1.1 Background

1.1.1 Derek Finnie Associates was commission by Greenplan Designer Homes to undertake an ecological assessment of an area of land known as Castelmer, Kingston, Lewes herein referred to as the 'Site'. This is a proposal to construct up to 10 new dwellings within the Site. Therefore, in line with current legislation and policy, the ecological value of the Site and the potential presence of protected species, needs to be assessed as it is a material consideration in the planning process.

1.1.2 To this end, an Extended Phase 1 Habitat survey of the Site was undertaken in April 2020, followed by badger surveys, reptile surveys and bat surveys throughout the spring and summer 2020. Due to a slight hiatus in the application process due to the Covid pandemic, follow up surveys were undertaken in summer 2022 to ensure the ecological characteristics of the Site had not changed; the opportunity was also taken to collect some additional survey data. The following report describes the methodologies employed, the current ecological conditions within the Site, evaluates the ecological receptors identified and assesses the potential impact of the proposal based on information gathered to date.

1.1.3 The Site is allocated in the South Downs Local Plan, under Policy SD74: Land at Castelmer Fruit Farm, for the development of up to 12 residential units.

2 LEGISLATIVE FRAMEWORK

2.1 National policy and Guidance

Legal Framework

2.1.1 The legislative framework applicable to this assessment is summarised below and outlined in Appendix 1.

International Conventions and Directives

Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (EC Habitats Directive);
Council Directive 2009/147/EC on the Conservation of Wild Birds (Birds Directive);
The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) 1979;
The Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) 1983; and
Convention on Biological Diversity 1992.

National Legislation

The Wildlife and Countryside Act 1981 (WCA);
The Conservation of Habitats and Species Regulations 2017;
The Countryside and Rights of Way Act 2000 (CRoW);
Natural Environment and Rural Communities Act 2006 (NERC);
The Protection of Badgers Act 1992; and
The Hedgerow Regulations 1997.

Statutorily Protected Sites

2.1.2 Local Nature Reserves (LNRs); National Nature Reserves (NNRs); Sites of Special Scientific Interest (SSSIs); Special Areas of Conservation (SAC); and Special Protection Areas (SPAs) contain examples of some of the most important natural and semi-natural ecosystems in Europe and receive strict protection under United Kingdom (UK) legislation. Although not strictly protected under legislation, Ramsar sites are given the same level of protection through policy.

Non-Statutory Sites

2.1.3 Non-statutory sites of county conservation value are designated by Local Planning Authorities (LPAs). Such sites are afforded a measure of protection in local development plans.

Protected Species

2.1.4 Under UK legislation, a number of species, including bats Chiroptera sp. and great crested newts Triturus cristatus are strictly protected from death, injury or harm; whilst places used

for their shelter or rest are protected from damage, disturbance and destruction. Certain species such as some reptiles and birds only receive partial protection under UK legislation, e.g. protection from killing / injuring only or protection at certain times of the year only.

Invasive Weeds

2.1.5 The WCA 1981 makes it an offence to plant or otherwise cause to grow in the wild numerous species including Japanese knotweed Fallopia japonica and giant hogweed Heracleum mantegazzianum.

Non-Statutory Policies

2.1.6 The UK Biodiversity Action Plan (UK BAP) was established in response to the global Convention on Biological Diversity, 1992. Individual Action Plans define actions and measures to meet the conservation objectives defined in the strategy and specify measurable targets. They determine the broad habitats and species that are of value to the natural environment of the UK and identify actions and projects that could be undertaken to help protect or enhance the national biodiversity.

2.1.7 Local Biodiversity Action Plans (LBAPs) are implemented through planning policy, identifying habitats and species in need of conservation action at the local or regional level. BAPs in the UK have no statutory status but provide a framework for implementing conservation requirements.

Planning Policy
National Planning Policy

National Planning Policy Framework

2.1.8 The following objectives relating to biodiversity conservation are considered relevant to this assessment. The National Planning Policy Framework (NPPF) seeks to:

Protect and enhance valued landscapes, geological conservation interests and soils;
Recognise the wider benefits of ecosystem services;
Minimise impacts on biodiversity and provide net gains in biodiversity, where possible, contribute to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
Prevent both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability;
Remediate and mitigate despoiled, degraded, derelict, contaminated and unstable land, where appropriate; and
Prevent the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss.

Local Planning Policy

2.1.9 The Site lies within the South Downs National Park, hence the following policies from the South Downs Local Plan are relevant to the proposal.

STRATEGIC POLICY SD9: BIODIVERSITY AND GEODIVERSITY

1. Development proposals will be permitted where they conserve and enhance biodiversity and geodiversity, giving particular regard to ecological networks and areas with high potential for priority habitat restoration or creation. Prior to determination, up-to-date ecological information should be provided which demonstrates that development proposals:

a) Retain, protect and enhance features of biodiversity and geological interest (including supporting habitat and commuting routes through the site and taking due account of any use by migratory species) and ensure appropriate and long-term management of those features;

b) Identify and incorporate opportunities for net gains in biodiversity;

c) Contribute to the restoration and enhancement of existing habitats, the creation of wildlife habitats and the creation of linkages between sites to create and enhance local and regional ecological networks;

d) Protect and support recovery of rare, notable and priority species;

e) Seek to eradicate or control any invasive non-native species present on site;

f) Contribute to the protection, management and enhancement of biodiversity and geodiversity, for example by supporting the delivery of GI and Biodiversity Action Plan targets and enhance Biodiversity Opportunity Areas (BOA); and

g) Comply with the mitigation hierarchy as set out in national policy.

2. The following hierarchy of site designation will apply in the consideration of development proposals:

a) Internationally Protected Sites, as shown on the Policies Map (SPAs, SACs and Ramsar Sites, or candidate and formally proposed versions of these designations):

i. Development proposals with the potential to impact on one or more international sites(s) will be subject to a HRA to determine the potential for likely significant effects. Where likely significant effects may occur, development proposals will be subject to Appropriate Assessment

ii. Development proposals that will result in any adverse effect on the integrity of any international site will be refused unless it can be demonstrated that: there are no alternatives to the proposal; there are imperative reasons of overriding public

interest why the proposal should nonetheless proceed; and adequate compensatory provision is secured

b) Nationally Protected Sites SSSI, NNRs, MCZ as shown on the Policies Map:

i. Development proposals considered likely to have a significant effect on nationally protected sites will be required to assess the impact by means of an EIA

ii. Development proposals should avoid impacts on these nationally protected sites. Development proposals where any adverse effect on the site's notified special interest features is likely and which cannot be either avoided or adequately mitigated will be refused, unless the benefits of the development, at this site clearly outweigh the likely impact to the notified features of the site and any broader impacts on the network of nationally protected site

c) Irreplaceable Habitats (including ancient woodland as shown on the Policies Map, and veteran trees): Development proposals which result in the loss or deterioration of irreplaceable habitats, including ancient woodland and veteran trees will be refused unless there are wholly exceptional reasons and a suitable compensation strategy exists

d) Locally Protected Sites (Sites of Nature Conservation Importance (SNCI)/Local Wildlife Sites (LWS)/Sites of Importance for Nature Conservation (SINC), Local Nature Reserves (LNR and Local Geodiversity Sites (LGS)) as shown on the Policies Map:

i. Development proposals considered likely to have a significant effect on local sites will be required to assess the impact by means of an Ecological Impact Assessment (EcIA)

ii. Development proposals that will result in any adverse effect on the integrity of any local site which cannot be either avoided or adequately mitigated will be refused, unless exceptional circumstances outweighing the adverse effects are clearly demonstrated

e) Outside of designated sites

i. Development proposals should identify and incorporate opportunities to conserve, restore and recreate priority habitats and ecological networks. Development proposals should take opportunities to contribute and deliver on the aims and objectives of the relevant biodiversity strategies where possible.

STRATEGIC POLICY SD10: INTERNATIONAL SITES

The Mens SAC, Ebernoe Common SAC and Singleton & Cocking Tunnels SAC

1. Development proposals on greenfield sites and sites that support or are in close proximity to suitable commuting and foraging habitat (including mature vegetative linear features

such as woodlands, hedgerows riverine and wetland habitats) within the following ranges as shown on the Policies Map, should have due regard to the possibility that Barbastelle and Bechstein's Bats will be utilising the site. Such proposals will be required to incorporate necessary surveys and ensure that key features (foraging habitat and commuting routes) are retained, in addition to a suitable buffer to safeguard against disturbance.

a) 6.5km: Key conservation area – all impacts to bats must be considered given that habitats within this zone are considered critical for sustaining the populations of bats within the SACs; and

b) 12km: Wider conservation area – significant impacts or severance to flightlines to be considered.

2. Proposed use or development of the tunnels comprising the Singleton & Cocking Tunnels SAC will be required to demonstrate that there is no adverse effect on the interest features, including hibernation habitat for Barbastelle and Bechstein's Bats, or on the integrity of the site.

Arun Valley SPA

3. Development proposals on greenfield sites within 5km of the Arun Valley SPA, as shown on the Policies Map, will undertake an appraisal as to whether the land is suitable for wintering Bewick Swan. If it is suitable then surveys will be undertaken to determine whether the fields are of importance to the swan population. If so, appropriate alternative habitat would be required before development could proceed.

Wealden Heaths Phase II SPA

4. Development proposals resulting in a net increase in residential units within 400m of the boundary of the Wealden Heaths Phase II SPA, as shown on the Policies Map, will be required to demonstrate that the need for development cannot be solely met outside of the 400m zone, and undertake a project specific HRA.

5. Development proposals resulting in a net increase in residential units within 5km of the boundary of the Wealden Heaths Phase II SPA will be required to submit a screening opinion to the Authority for a project-specific HRA which, in consultation with Natural England, will determine whether a likely significant effect on the integrity of the site will result. Likely significant effects will be assessed through the HRA and any requirement for mitigation identified.

6. To help protect the Wealden Heaths Phase II SPA, the National Park Authority will work with relevant authorities and Natural England as part of a working group with regard to monitoring, assessment and measures which may be required. Planning permission will only be granted for development that responds to the emerging evidence from the working group, the published recommendations, and future related research.

Solent Coast SPAs

7. Development proposals resulting in a net increase in residential units, within the Solent Coast SPAs (Chichester & Langstone Harbours SPA, Portsmouth Harbour SPA and Solent & Southampton Water SPA) zone of influence shown on the Policies Map, defined as 5.6km from the boundary of these sites, may be permitted where 'in combination' effects of recreation on the Solent Coastal SPAs are satisfactorily mitigated through the provision of an appropriate financial contribution to the delivery of strategic mitigation. In the absence of a financial contribution toward mitigation, an appropriate assessment may be required to demonstrate that any 'in combination' impacts which are likely to have a significant adverse effect can be avoided or can be satisfactorily mitigated through a developer-provided package of measures.

DEVELOPMENT MANAGEMENT POLICY SD11: TREES, WOODLAND AND HEDGEROWS

1. Development proposals will be permitted where they conserve and enhance trees, hedgerows and woodlands.

2. Development proposals that affect trees, hedgerows and woodland must demonstrate that they have been informed by a full site survey, including an Ecological Survey, Arboricultural Method Statement and associated Tree Protection Plan, and include a management plan.

3. The removal of protected trees, groups of trees woodland or hedgerows will only be permitted in exceptional circumstances and in accordance with the relevant legislation, policy and good practice recommendations. Where protected trees are subject to felling, a replacement of an appropriate number, species and size in an appropriate location will be required.

4. Development proposals must provide adequate protection zones and buffers around hedgerows and other woodland and trees to prevent damage to root systems and taking account of future growth. A minimum buffer of 15 metres will be required between the development and ancient woodland or veteran trees.

5. A proposed loss or damage of non-protected trees, woodland or hedgerows should be avoided, and if demonstrated as being unavoidable, appropriate replacement or compensation will be required.

6. Development proposals must demonstrate that appropriate protection measures are in place prior to any work on site throughout the development process as part of a comprehensive landscaping plan, and that suitable opportunities for the restoration, enhancement or planting of trees, woodland, and hedgerows are identified and incorporated.

7. Opportunities should be identified and incorporated for planting of new trees, woodlands and hedgerows. New planting should be suitable for the site conditions, use native species

and be informed by and contribute to local character, and enhance or create new habitat linkages.

3 SURVEY METHODOLOGY

3.1 Data Search

3.1.1 A review of the Government's MAGIC website was undertaken for the location and extent of statutory protected sites within 2km of the Site, extending to 5km in the case of Natura 2000 sites.

3.1.2 Sussex Biological Records Centre (SBRC) were contacted for information they may hold on non-statutory designated sites and protected species for a 2km radius of the Site.

3.2 Habitat Survey

3.2.1 An 'extended' Phase 1 Habitat Survey was carried out in April 2020 with a second survey undertaken in September 2022; this followed the methodology presented by the JNCC (2010). The Phase 1 technique aims to classify each habitat into categories based on the assemblage of plant species present, with the dominant plant species for each habitat being noted. In some cases, sub-divisions or modifications of the standard categories can be made where this is useful in providing further detail.

3.2.2 An 'extended' form of the basic methodology was employed to determine whether any notable or protected species of fauna utilise the study area, in particular badgers, bats, amphibians, reptiles and birds. In the absence of direct evidence of these species, an assessment was made on the potential for the site to support such species.

3.3 Badger Survey

3.3.1 [redacted]

3.3.2

3.3.3

[redacted]

3.4 Preliminary Bat Roost Assessment

3.4.1 An external inspection of the building was undertaken on the 24th April 2020 during good weather, with access being available to all aspects of the buildings. Leica 10 x 32 BGA binoculars, a CluLite 1 million candlepower torch and a 4m telescopic ladder were used to assist in the search as necessary. The external features of the building, particularly the roof and ridge lines were inspected for potential ingress/egress points.

3.4.2 As the preliminary bat roost assessment was conducted during the Coronavirus lockdown, an internal inspection of the building was not feasible. Hence, in line with sectoral guidance at the time, emergence surveys of the building were undertaken instead. Two surveyors were positioned at opposite corners of the building to allow maximum surveillance of the structure. The emergence survey began 20 minutes before sunset and continued for 2 hours after sunset with any bats emerging from the building being noted. Surveys were undertaken on 30th May and 17th June 2020.

3.4.3 The potential of the trees to support bat was assessed against the criteria in Table 1 (after BCT 2016).

Table 1. Assessment criteria for bat roost evaluation.

Potential	Features
High	A structure or trees with one or more potential roost sites that are obviously suitable for use by large numbers of bats on a more regular basis
Moderate	A structure or trees with one or more potential roost sites that could be used by bats but unlikely to support a roost of high conservation status.
Low	A structure or trees with one or more potential roost sites that could be used by individual bats opportunistically; OR trees with no obvious potential, but of a size and age that indicates a full climbing survey could result in cracks or crevices not visible from the ground being found.
Negligible	Trees with no potential to support roosting bats.

3.4.4 However, due to the slight hiatus of the planning process, the opportunity was taken in autumn 2022 to undertake an internal inspection of the building. A detailed inspection of the internal void space of the building was undertaken on 23rd September 2022. Evidence of droppings, scratch marks, staining, feeding remains, urine stains and bats themselves were sought throughout the void space. Particular attention was paid to the areas underneath the ridge and joists, especially where the two meet. Evidence of gaps in the roof, indicating access to the outside, was sought, as well as gaps into any cavities that may be present. A CluLite 1 million candlepower torch and extending mirror were used to assist in the search as necessary.

3.5 Reptile Survey

3.5.1 A total of 25 refugia, consisting of heavy-duty roofing felt approximately 0.5m^2, were placed across the Site in line with best practice survey guidance. To maximise the efficiency of the survey the refugia were concentrated in areas which appeared to be more likely to support reptiles. At approximately 0.5ha in extent, the refugia were places at a density that exceeds that recommended by Froglife (1999) of 10ha^{-1}, but this allows for the loss of any refugia.

3.5.2 The refugia generally heat up quicker than the surrounding environment, which makes them attractive to reptiles which need to attain a certain body temperature to hunt effectively. Thus, careful inspection of the refugia results in a more effective way to locate these often-elusive animals.

3.5.3 The refugia were placed on Site on the 24th April 2020 and allowed to 'bed in' for at least two weeks before the survey proper began. The refugia were then checked on seven subsequent occasions throughout the survey period, as shown in Table 2, on suitable days, which are classified as sunny, or partially sunny days, with little or no wind and an air temperature between 8ºC and 19ºC.

3.5.4 To ensure the 2020 reptile surveys were still valid, a partial re-survey was undertaken over the summer of 2022 (Table 2). As the results of the 2022 survey were similar to those realised during the 2020 survey, it was deemed not necessary to undertake a full survey.

Table 2. Survey dates and weather conditions

Visit No.	Date	Weather
2020		
1	3rd May	16ºc, sunny
2	12th May	17ºc, 2/8 cloud
3	25th May	14ºc, 3/8 cloud, light wind
4	28th May	16ºc, sunny, no cloud
5	3rd June	14ºc, 1/8 cloud, mod wind
6	5th June	17ºc, no cloud
7	16th June	19ºc, 2/8 cloud, light wind
2022		
1	15th May	17ºc, partially sunny
2	28th May	16ºc, 3/8 cloud, light wind
3	27th June	18ºc, 1/8 cloud, no wind

3.6 Consultation

3.6.1 Pre-application advice and consulting was sought from the South Down Nation Park Authority during the scheme design process. The resulting correspondence contained a response from the County Ecologist.

3.7 Survey Constraints

3.7.1 Phase 1 can be undertaken at any time of the year, with April and September both being considered to be suitable. Given the Phase 1 survey was undertaken over multiple visits, confidence in the results is high.

3.7.2 Due to Covid restrictions in place at the time of the initial survey, an internal inspection of the dwelling was not possible; emergence surveys were undertaken instead as per sectoral guidance at the time. But the opportunity arose in September 2022 to undertaken the internal inspection.

3.7.3 The survey was undertaken in line with the latest sectoral guidance from the Chartered Institute of Ecology and Environmental Management (CIEEM) and BS 42020: 2013 Biodiversity – Code of Practice for Planning and Development.

4 ASSESSMENT METHODOLOGY AND SIGNIFICANCE CRITERIA

4.1 Extent of the Study Area

4.1.1 Species data for the desk study were requested within a 2km radius of the Site, as recommended in the Institute of Environmental Management and Assessment's (IEMA's) Guidelines for Baseline Ecological Assessment (1997).

4.1.2 As part of the assessment, an Extended Phase 1 Habitat Survey (JNCC, 2010) was carried out within the entire Site boundary. Further species specific surveys were also undertaken within the Site and the immediate surrounding area as necessary.

4.2 Ecological Zone of Influence (EZoI)

4.2.1 The EZoI is an area defined by the assessment in which there may be receptors subject to impact as a result of the proposed development. Such receptors are likely to include designated sites, notable habitats and protected species, and these could be affected directly, e.g. works affecting a receptor within the Site such as removal of a building occupied by bats, or indirectly, e.g. a designated site downriver of a development being affected by sediment deposition, etc.

4.2.2 The EZoI was determined through:

A review of the existing conditions in comparison with scheme design and construction information;
Consideration of the proposed activities (during Site preparation, construction and operation);
The desk study information including an examination of mapping data;
Responses from consultees and records of protected species;
Findings of the Site survey work; and
Through liaison with other specialists involved in assessing the effects for related disciplines, such as lighting and noise.

4.2.3 The EZoI is defined as the areas/resources that may be affected by the biophysical changes caused by activities associated with the proposed development.

4.2.4 For the purposes of the assessment the EZoI is considered to be largely restricted to those areas within the Site boundary with no significant or measurable off-site effects anticipated.

4.3 Evaluation

Definition of ecological value

4.3.1 A geographical scale of reference is used when evaluating ecological receptors within a Site, in line with the latest sectoral guidance presented by CIEEM (2018), as summarised in Table 3. The evaluation categories for each receptor have generally been reached by applying accepted criteria, such as naturalness, rarity, fragility and diversity, first proposed by Ratcliffe (1977) and commonly used in the assessment of both statutory and non-statutory sites.

4.3.2 Where sites have already been designated on ecological grounds, the assessment reflects the geographical context of the designations. For example, sites designated under international legislation or treaties are assessed to be of International value, whilst sites designated under UK legislation are of National value.

4.3.3 Consideration is also given to legal protection afforded to any ecological receptor within the Site, as are species or habitats identified as 'priorities' for biodiversity conservation in the UK. Local Planning Authorities will often have a duty to consider such species or habitats throughout the panning process, hence their presence within a site is a material consideration.

4.3.4 Further frames of reference for individual species are provided by the Red Data Book system, such as the Vascular Plant Red Data List for Great Britain (Cheffings and Farrell 2006) or for birds by reference to the Birds of Conservation Concern (Stanbury et al. 2021).

Table 3. Ecological Evaluation Criteria

Value/Importance	Criteria
International (European)	Habitats An internationally designated Site or candidate Site (Special Protection Area [SPA]), provisional SPA, Special Areas of Conservation (SAC), candidate SAC, Ramsar Site, Biogenetic / Biosphere Reserve, World Heritage Site or an area that would meet the published selection criteria for designation. A viable area of a habitat type listed in Annex I of the Habitats Directive, or smaller areas of such habitat, which are essential to maintain the viability of a larger whole. Species Any regularly occurring population of internationally important species, threatened or rare in the UK (i.e. a UK Red Data Book species) or, of uncertain conservation status or, of global conservation concern. A regularly occurring, nationally significant population/number of an internationally important species.
National (English)	Habitats A nationally designated Site (Site of Special Scientific Interest [SSSI], National Nature Reserve [NNR], Marine Nature Reserve [MNR] or a discrete area), which would meet the published selection criteria for national designation (e.g. SSSI selection guidelines). Species A regularly occurring, regionally or county significant population/number of an internationally/nationally important species. Any regularly occurring population of a nationally important species, threatened or rare in the region or county.
Regional (South east)	Habitats Sites that exceed County-level designations, but fall short of SSSI selection criteria. Species Any regularly occurring, locally significant population of a species listed as being nationally scarce, which occurs in 16 of 100 10km^2 squares in the UK. A regularly occurring, locally significant population / number of a regionally important species. Sites maintaining populations of

Value/Importance	Criteria
	internationally/nationally important species that are not threatened or rare in the region or county.
Authority Area (e.g. County or District)	Habitats Sites recognised by local authorities, e.g. SINCs. County/District Sites that the designating authority has determined meet the published ecological selection criteria for designation, including Local Nature Reserves (LNR). A diverse and/or ecologically valuable hedgerow network. Semi-natural ancient woodland greater than 0.25ha. Species Any regularly occurring, locally significant population of a considered regional rarity or localisation. Sites supporting populations of internationally/nationally/regionally important species that are not threatened or rare in the region or county, and not integral to maintaining those populations. Sites/features scarce in the County / District or that appreciably enrich the County/District habitat resource.
Local (immediate local area or village importance)	Habitats Areas of habitat that appreciably enrich the local habitat resource (e.g. species-rich hedgerows, ponds etc). Sites that retain other elements of semi-natural vegetation that due to their size, quality or the wide distribution within the local area are not considered for the above classifications. Semi-natural ancient woodland smaller than 0.25 ha. Species Populations/assemblages of species that appreciable enrich the biodiversity resource within the local context. Sites supporting populations of county/district important species that are not threatened or rare in the region or county, and are not integral to maintaining those populations.
Site level (Limited ecological importance)	Sites that retain habitats and/or species of limited ecological importance due to their size, species composition or other factors.

4.3.5 The assessment of potential effects as a result of the proposed development has taken into account both the construction and operational phases. The significance level attributed to each effect has been based on the IEEM guidelines. These guidelines have been followed for the assessment criteria as they have been developed by CIEEM to promote good practice in EcIAs and have also been endorsed by the statutory consultees such as Natural England and the Association of Local Government Ecologists (ALGE).

4.3.6 Once the receptors were assigned a value and the EZoI was defined, the next stage in the assessment was to determine which ecological features or resources in the EZoI were of sufficient value to be included in the assessment and vulnerable to likely significant effects as a result of the proposed development.

4.3.7 The impact assessment has been carried out by comparing the existing conditions on the Site and in the surrounding area with the construction information and the proposals for the construction and operational stages of the proposed development.

4.3.8 The assessment of effects has been undertaken in relation to the baseline in a 'do nothing' scenario.

4.3.9 Significant effects have been assessed with reference to the ecological structure and function of the feature in question, for instance the fragility/stability of an ecosystem and its connectivity to other features or available resources (territory/foraging habitat) for the species.

4.3.10 The following parameters have been referred to in assessing effects on ecological structure and function:

Positive or negative;
Magnitude: refers to the 'size' or 'amount' of an impact determined on a quantitative basis e.g. total or partial;
Extent: the area over which the impact occurs;
Duration: the period over which the impact is expected to last prior to recovery or replacement of the resource or feature e.g. short-term or long-term;
Reversibility: whether recovery from the impact is possible or not e.g. irreversible (permanent) impacts or reversible (temporary) impacts; and
Timing and frequency.

4.3.11 To assess the likelihood that a change/activity will occur as predicted and also the degree of confidence in the assessment of the effect on the ecological structure and function; the following confidence levels are used:

Certain (near-certain): probability estimated at 95% chance or higher;
Probable: probability estimated above 50% but below 95%;
Unlikely: probability estimated above 5% but less than 50%; or
Extremely unlikely: probability estimated at less than 5%.

4.4 Effect Significance

4.4.1 Significance can be positive or negative. An ecologically significant effect is defined as an effect (negative or positive) on the integrity of a defined site or ecosystem and/or the conservation status of habitats or species within a given geographical area.

4.4.2 In accordance with CIEEM guidelines the effect significance has been assessed at the geographical scale (e.g. impact on a receptor of Local ecological value is assessed as being significant at the Site level). Integrity is taken to be the coherence of ecological structure and function, across its whole area that enables it to sustain the habitats and/or the levels of populations of the species present.

4.4.3 Conservation status is defined as follows:

Habitats: conservation status is determined by the sum of the influences acting on the habitat and its typical species, that may affect its long-term distribution, structure and functions as well as the long-term survival of its typical species within a given geographical area; and

Species: conservation status is determined by the sum of influences acting on the species concerned that may affect the long-term distribution and abundance of its population within a geographical area.

4.4.4 The value of any feature that will be significantly affected is used to identify the geographical scale at which the effect is significant. The value relates directly to the consequences in terms of legislation, policy and/or development control at the appropriate level.

4.5 Residual Effects

4.5.1 Residual effects are assessed taking into account the proposed mitigation, compensation and enhancement measures. The significance of residual effects is assessed as referred to above following implementation of mitigation.

4.5.2 The effects of the proposed development are summarised in relation to the following headings:

Description of feature and ecological value;
Proposed activity;
Significance of unmitigated effect;
Impact on integrity or conservation status and confidence level;
Mitigation and enhancement; and
Residual effects and confidence level.

5 SITE DESCRIPTION

5.1 Desk Study

Statutory Sites

5.1.1 The Site is over 40km from The Mens SAC, Ebernoe Common SAC and Singleton & Cocking Tunnels SAC, 36km from the Arun Vallet SPA, over 50km from the Solent Coast SPAs and 60km from Wealden Heaths SPA, hence none of the policy requirements within Policy SD10 of the South Downs Local Plan are applicable.

5.1.2 Castel Hill, which holds the multiple designations of SAC and SSSI, is located some 2.2km from the Site; it designated as it is one of the finest examples of ancient, wildflower-rich, chalk grassland sites in the country.

5.1.3 Kingston Escarpment and Iford Hill SSSI is located approximately 800m to the west of the Site, whilst Lewes Brooks SSSI is 1.3km to the east.

Non Statutory Sites

5.1.4 SxBRC provide information of five Local Wildlife Sites (LWS) within 2km of the Site, as summarised in Table 4

Table 4. LWS within 2km of the Site

Site Name	Distance from Site	Description
Cockshut Down	0.6km to the east	A small down between Lewes and Kingston which is the only surviving area of unimproved grassland free of scrub in the Kingston outlier of chalk.
Cold Combes	1.7km to the west	A large site at the adjacent to Kingston Escarpment & Iford Hill SSSI which overlooks Kingston near Lewes
Kingston Escarpment	1km to the west	This site is adjacent to Kingston Escarpment and Iford Hill SSSI and Cold Coombes SNCI.
Kingston Hollow	Adjacent to northern site boundary	South-facing unimproved chalk grassland in places it is heavily rabbit grazed so that there are some quite large open areas and areas of scrub
Lewes Cemetery	1.9km to the east	It is mainly grassland that is regularly mown to maintain a short sward, with trees scattered across the site.
Lewes Racecourse	1.9km to the north east	A relatively small remnant of unimproved grassland on top of the downs

Notable Species

5.1.5 SxBRC do not hold any record of specially protected species, or species of a raised conservation value for the Site itself. Slowworm , grass snake, common lizard and several bat species have been recorded from the area surrounding the Site.

5.2 Extended Phase 1 Survey

5.2.1 The Site was found to comprise an existing residential dwelling, workshops, derelict glass house set amongst amenity grassland, numerous semi-mature trees and a fruit orchard. The village of Kingston lies to the west, a woodland, which is designated as a SNCI, is located immediately to the north, whilst more or less open countryside is present to the south and east.

5.2.2 The following Phase 1 habitats were encountered within the Site:

Broad-leaved trees;
Amenity grassland;
Open water;
Disturbed ground; and
Building and hardstanding.

5.2.3 Each habitat is described in turn below and depicted on Figure 1

Broad-leaved woodland

5.2.4 There are numerous broad-leaved trees within and around the periphery of the Site (Figure 1). Sycamore Acer pseudoplatanus, alder Alnus glutinosa and beech Fagus sylvatica were the most frequently recorded semi-mature trees species within the Site, with willow Salix sp, ash Fraxinus excelsior and lime Tilia sp. also noted in lesser amounts. There are also numerous non-native species present. Full details of the trees within the Site are presented in the Arboricultural Survey (Tree: Fabrik Report Ref: TF1153_8301_P01, dated Nov 2022).

5.2.5 The orchard, which occupies the southwest area do the Site, comprises apple Malus sp in the main with the occasional cherry Prunus Sp.

Amenity grassland

5.2.6 The amenity grassland, which is present throughout the majority of the Site, appears to be subjected to relatively intense management through frequent mowing. This has resulted in generally species poor sward, containing common, widespread species typical of this habitat type, with graminoid species such as perennial rye grass Lolium perenne, cock's-foot Dactylis glomerata, smooth meadow grass Poa pratensis and creeping bent Agrostis capillaris dominating. Forbes are infrequent within the sward, but where they are present creeping buttercup Ranunculus repens and white clover Trifolium repens are locally dominant in places. Other species recorded include ribwort plantain Plantago lanceolata, greater plantain P. major, dandelion Taraxacum officinale agg., prickly sow thistle Sonchus asper and common chickweed Stellaria media.

Open Water

5.2.7 Two small garden ponds, constructed from artificial liners and surrounded by concrete, are located either side of the existing dwelling.

Bare/disturbed ground

5.2.8 Two discrete areas of bare ground are present towards the south of the Site in an area which appears to have once supported glass houses.

Building and hardstanding

5.2.9 At the north west of the Site is an existing brick built, two storey dwelling that is occupied and in more or less sound condition. Within the central western area of the Site are workshops and storage sheds. These are set amongst areas of hardstanding.

5.3 Fauna

5.3.1 [redacted]

5.3.2 Beyond the two small garden ponds, there are no waterbodies within the Site or in the immediate vicinity, hence the potential for terrestrial phase amphibians to be present is negligible. The two small ponds within the Site itself are characterised as neglected garden ponds, with extremely limited amounts of water and surrounded by hardstanding.

5.3.3 A low population of slow worms was identified from within the Site as summarised in Table 5. The majority were associated with the southern boundary of the Site, although the occasional individual was also encountered towards the northeast of the Site.

Table 5. Summary of number of slow worms encountered

Visit No.	Date	Slow worm		
		M	F	SA
2020				
1	3rd May	-	2	-
2	12th May	1	3	-
3	25th May	2	1	2
4	28th May	1	3	3
5	3rd June	-	3	2
6	5th June	-	4	4
7	16th June	2	1	3
2022				
1	15th May	1	2	
2	28th May	3	3	1
3	27th June	-	2	3

5.3.4 None of the trees within the Site displayed any features that could be exploited by roosting bats. The existing dwelling showed some potential ingress points that could be exploited by bats, such as the hanging tiles on several aspects of the dwelling. But no bats were encountered exiting the building during two emergence surveys undertaken in May and

June 2020. Internally, no evidence of bat presence was detected during the survey conducted in September 2022. No dropping, scratch marks or feeding remains were noted, and the distinct smell often associated with bat roost was missing. A dense build up of cobwebs was noted throughout the attic void, suggesting a lack of bat activity.

5.3.5 The Site may provide some limiting foraging habitat for bats but given the extent of the Site and alternative foraging areas in the vicinity, the Site is unlikely to provide an important bat feeding area.

5.3.6 The Site is likely to support common, widespread bird species associated with the urban environment. But given the limited extent of the habitats present, it is unlikely that any uncommon species are present.

5.3.7 No other uncommon species, or species of a raised conservation concern were noted within the Site and the Site was assessed as having negligible potential to support such species.

6 EVALUATION

6.1 Site Evaluation

6.1.1 No part of the Site or the immediate surrounding area is covered by any form of statutory designation on ecological grounds. The nearest is Kingston Escarpment and Iford Hill SSSI, which would be deemed to be of National significance. Given the scale of the proposed development, the SSSI is deemed to be outside the Zone of Ecological Influence.

6.1.2 The woodland immediately to the north of the Site is designated as SNCI as well as a Habitat of Principle Importance under Section 41 of the NERC Act 2006; as such the woodland is assessed to be of County value.

6.1.3 The native semi-mature trees within the Site offer limited potential for breeding birds or roosting bats. When compared with the adjacent woodland, they are limited in extent and hence would be assessed as being of Site to Local value only, with those adjacent to the neighbouring woodland being slightly higher in value. The non-native semi-mature trees would be assessed as being of Site value. The fruit trees would meet the threshold to be considered to be an Orchard Habitat of Principle Importance and as such, have been assessed to be of Local value.

6.1.4 The remaining habitats within the Site would be considered to be of Negligible ecological value.

6.1.5 A summary of the value of the ecological receptors within the Site is shown on Figure 2.

6.1.6 The slow worm population identified within the Site was relatively small and more or less restricted to the periphery of the Site. Overall, it would be assessed to be of Local value. Badgers are known to be present in the wider area. Although badgers receive full protection under the Protection of Badgers Act 1992, they are still considered to be one of Britian's more common large mammals. As such their presence would be evaluated as being of Site value only. No other specially protected species, or species of a raised conservation concern, were identified within the Site. Beyond the occasional potential foraging bat, the Site was assessed as having Negligible value to support such species.

7 PREDICTED INMPACTS, MITIGATION AND ENHANCEMENTS

7.1 Predicted Impacts

7.1.1 The proposed construction of 10 dwellings within the Site would result in the loss of much of the amenity grassland, the house and associated outbuildings, many of the native and non-native trees as well as approximately 430m^2 out of a total of 1000m^2 of the orchard.

7.1.2 The amenity grassland, the house and associated outbuildings have been assessed as being of Negligible ecological value, hence their loss would result in a Negligible impact and a non-significant effect.

7.1.3 The native trees and orchard have been assessed to be of Site and Local value value respectively. Therefore, in the absence of mitigation, their loss would be considered to lead to an adverse, permanent ecological impact at a Site scale for the loss of the trees, and at a Local scale in relation to the orchard.

7.1.4 Pre-construction site clearance works have the potential to negatively impact upon the slow worm population identified within the Site through loss of habitat as well as potentially resulting in death or injury to individual animals. Hence, in the absence of mitigation, this would lead to an adverse, permanent impact at a Local scale.

7.2 Mitigation and Enhancements

7.2.1 An ecological mitigation and enhancement scheme is proposed within the Site, or within an area of adjoining land which is under the control of the applicant. A replacement orchard, covering more than 520m^2 will be planted to offset the loss of the existing orchard. This equates to the area to be lost plus 20%. Additional tree planting, comprising 39 trees, will be undertaken in appropriate locations within the Site.

7.2.2 Numerous native hedges will be planted throughout the Site, using a mixture of hawthorn, blackthorn, field maple, hazel and dogrose.

7.2.3 Extensive areas of wildflower meadow, utilising a species rich seed mix such as Emorsgate EM2 or similar, will be sown in appropriate locations around the south and west of the Site, as well as along the driveway. Whilst a species rich wet grassland mix will be used within the swales.

7.2.4 Furthermore, green roofs will be incorporated in two of the larger plots within the Site (plots 9 & 10), including the car ports form these plots and plots 1 – 4. The location and extent of the habitat creation within the Site is depicted on the landscape drawings produced by Fabrik and reproduced as Appendix 1.

7.2.5 A reptile mitigation strategy will also be implemented prior to the commencement of works on Site to ensure the construction zone is free of reptiles. A suitable receptor site located within the south west of the Site, extending into the new orchard, will be subject to habitat improvements specifically for reptiles, such as the installation of hibernacula and log piles; these works will be undertaken in advance.

7.2.6 Any necessary external lighting on the new dwellings would be ecologically sensitive and avoid light spill onto the surrounding retained trees. Additional ecological enhancements, such as the provision of bird and bat boxes, will also be considered.

7.3 Residual Impacts

7.3.1 After the implementation of the mitigation and enhancement scheme, no residual, adverse ecological impacts are predicted. In fact, a long term increase in the biodiversity value of the Site is predicted. Using the Defra Biodiversity Metric V3.1 suggests the scheme would achieve an increase in the biodiversity value of the site of approximately 38%, as summarised in Table 6 below.

Table 6. Headline BNG Results

CASTELMER, KINGSTON
Headline Results

Return to results menu

On-site baseline	*Habitat units*	2.68
	Hedgerow units	0.00
	River units	0.00
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	3.62
	Hedgerow units	0.00
	River units	0.00
On-site net % change (Including habitat retention, creation & enhancement)	*Habitat units*	34.94%
	Hedgerow units	0.00%
	River units	0.00%
Off-site baseline	*Habitat units*	0.20
	Hedgerow units	0.00
	River units	0.00
Off-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	0.29
	Hedgerow units	0.00
	River units	0.00
Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	1.03
	Hedgerow units	0.00
	River units	0.00
Total on-site net % change plus off-site surplus (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	38.46%
	Hedgerow units	0.00%
	River units	0.00%

REFERENCES

BCT. 2016. Bat Surveys for Professional Ecologists: Good Practice Guidelines. Third Edition. Bat Conservation Trust, London.

Charter Institute of Ecology and Environmental Management (CIEEM) 2018. Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland. Third Edition. CIEEM, Winchester.

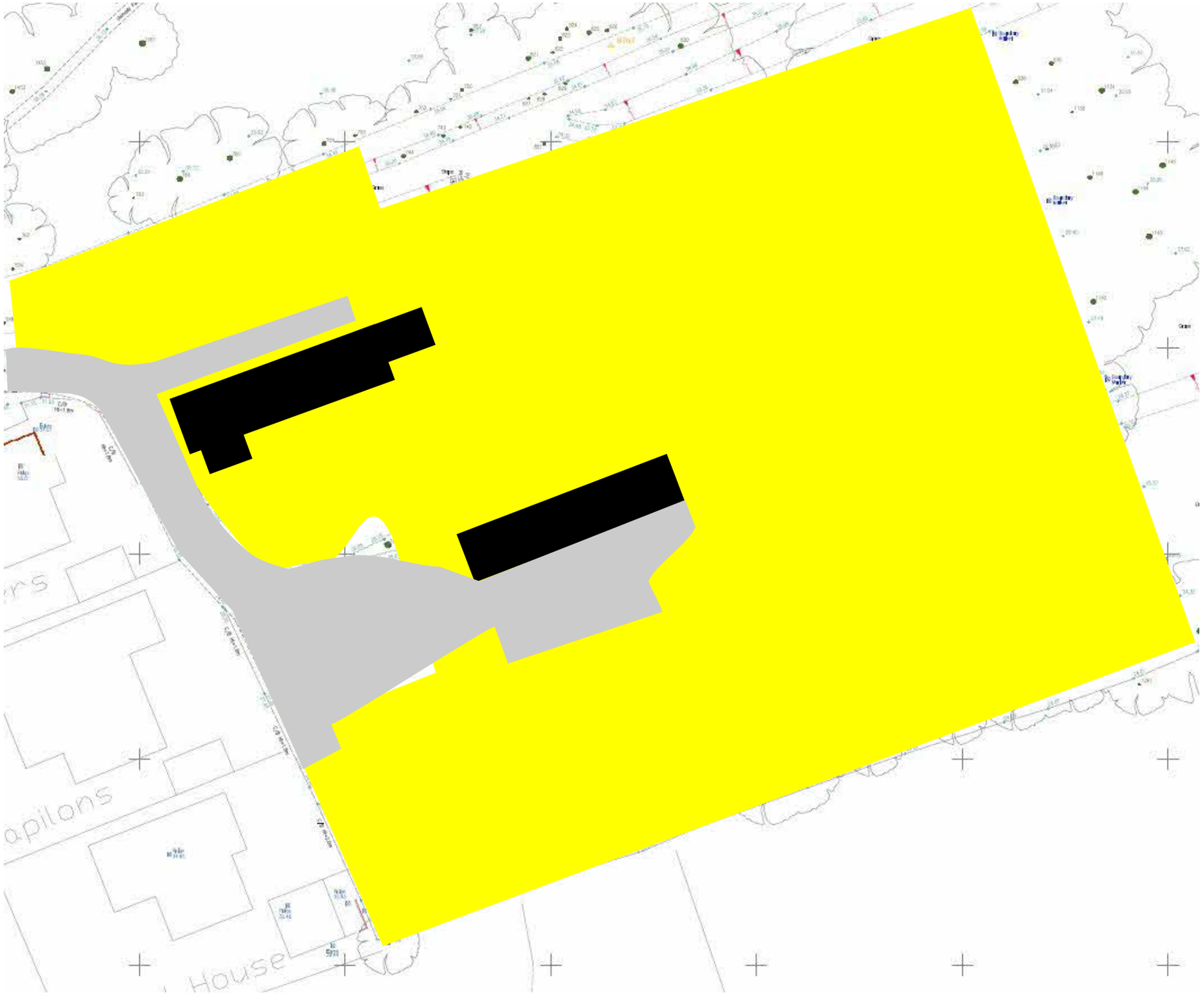
Charter Institute of Ecology and Environmental Management (CIEEM) 2019 On the lifespan of ecological report and surveys. CIEEM, Winchester.

Cheffings, C.M. & Farrell, L. (eds), 2005. The Vascular Plant Red Data List for Great Britain. Joint Nature Conservation Committee.

Eaton M A, Aebischer N J, Brown A F, Hearn R, Lock L, Musgrove A J, Noble D G, Stroud D, and Gregory R D (2015) Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. British Birds. 108: 7080-746.

JNCC 2010. Handbook for Phase 1 habitat survey - A technique for environmental audit. Joint Nature Conservation Committee, Peterborough.

Ratcliffe. D.R. 1977 A Nature Conservation Review (Volumes 1 & 2). Cambridge University Press.



Legend:

N

Do not scale

Drawing No: Figure 1

Title: Phase 1 Habitat Map

Date: December 2022

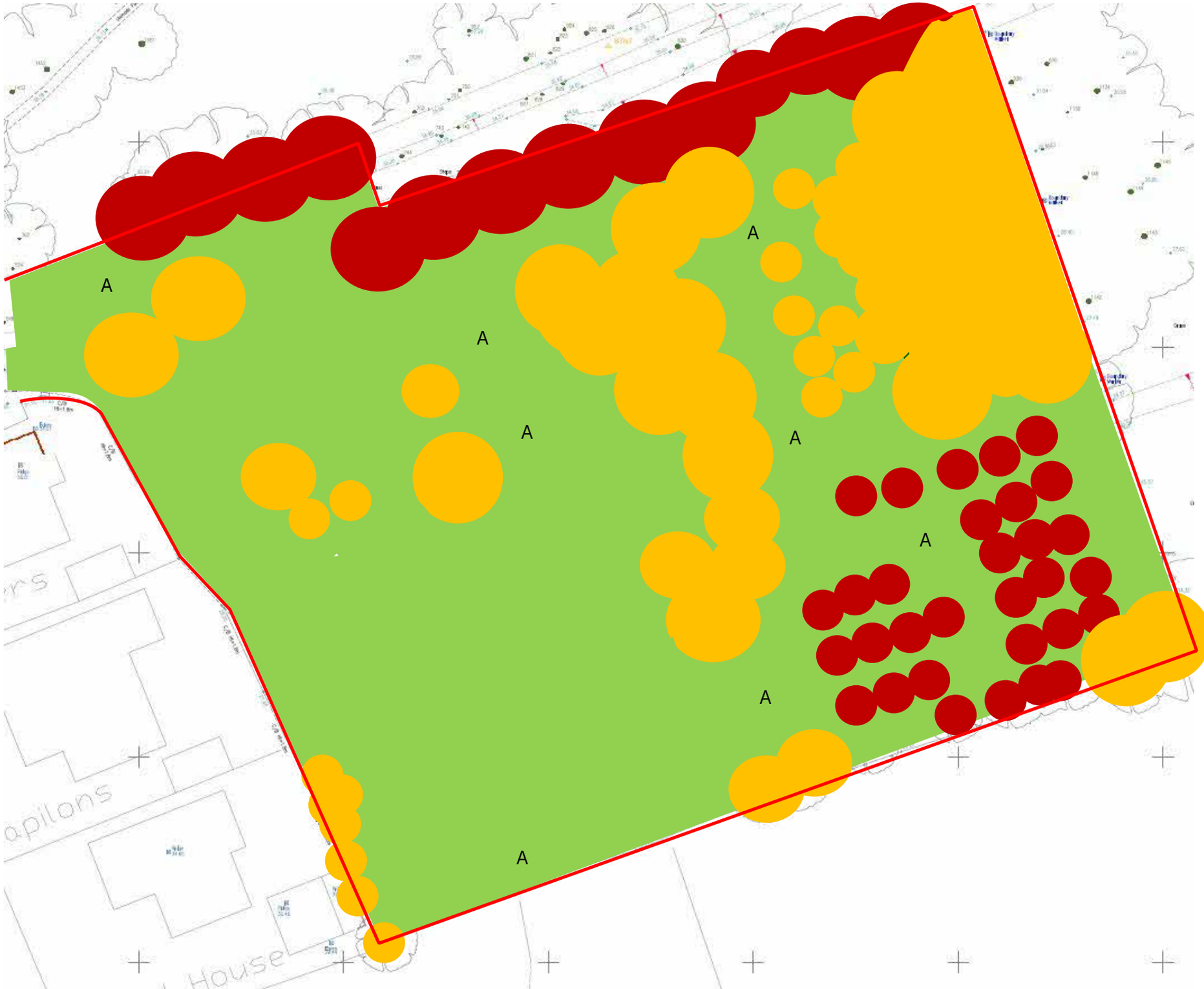
Project: Castelmer, Kingston

Client: Greenplan

Derek Finnie Associates
CONSULTANT ECOLOGISTS

20 Soames Place
Wokingham
Berks RG40 5AT

info@derekfinnie.com



Legend:

Relative Ecological Value

Low

High

Site boundary

N

Do not scale

Drawing No: Figure 2

Title: Ecological Constraints

Date: December 2022

Project: Castelmer, KIngston

Client: Greenplan

Derek Finnie Associates
CONSULTANT ECOLOGISTS

20 Soames Place
Wokingham
Berks RG40 5AT

info@derekfinnie.com

Appendix 1

Landscape Plans

(Fabrik Ltd)

LEGEND

Site Boundary

SOFT LANDSCAPE

Existing Tree Planting to be retained
Note: Red dashed line indicates Root Protection Areas as defined in arboricultural survey and report. No dig construction to be carried out in any location where construction is within RPA of existing trees. Refer to Arboriculturalist's drawings & reports for further details

Existing Hedge to be retained
Note: Refer to Arboriculturalist's drawings & reports for further details

Proposed Trees
Size/Spec: Refer to plant schedule for details
Note: All trees are to be tagged by a Landscape Architect prior to delivery

Proposed Multi Stem Trees
Size/Spec: Refer to plant schedule for details
Note: All trees are to be tagged by a Landscape Architect prior to delivery

Proposed Shrub Planting
Size/Spec: Refer to plant schedule for details
Note: All batches of species are to be labelled prior to delivery

Proposed Native Hedge
Size/Spec: Refer to plant schedule for details
Note: All batches of species are to be labelled prior to delivery

Proposed Formal Hedge
Size/Spec: Refer to plant schedule for details
Note: All batches of species are to be labelled prior to delivery

Proposed Formal Low Hedge
Size/Spec: Refer to plant schedule for details
Note: All batches of species are to be labelled prior to delivery

GT1
Grass Type 1: Species Rich Lawn Turf
GT1 - WFT-Species-Rich-26
Supplier: Wildflower Turf or similar approved
Size/Spec: Refer to plant schedule for details

GT2
Grass Type 2: Existing Grass to be made good
GT2 - EM2 general purpose meadow mixture
Supplier: Emorsgate or similar and approved
Size/Spec: Refer to plant schedule for details

GT2a
Grass Type 2a: Mown Grass

GT3
Grass Type 3: Wildflower Meadow for Wetlands
GT3 - EM8F meadow mixture for wetlands
Supplier: Emorsgate or similar and approved
Size/Spec: Refer to plant schedule for details

GR
Green Roofs: Sedum Green Roofs
SB Sedum blanket extensive green roof system
Supplier: Bauder or similar and approved

RG
Rain Gardens
Refer to Engineers' drawings for rain gardens details

HARD LANDSCAPE

Note: Sub-base and base design to be suitable for vehicular or pedestrian usage to be determined by engineer. Specification and detail to engineers information. All block paving to meet BS EN 1339:2003 requirements. All concrete slab paving to meet BS EN 1341:2012 requirements.

Paving Types

PT1
Paving Type 1 - Tarmacadam
To Engineer's detail & specification

PT2
Paving Type 2 - Compacted Gravel
Product: Breedon Buff
Size/Colour: 10 mm/Buff
Supplier: Breedon or similar and approved

PT3
Paving Type 3 - Permeable Block Paving
Product: Drivesett Tegula Priora
Size/Colour/Bonding: Project pack including 3 different sizes/Traditional/Stretcher Bond
Supplier: Marshalls or similar and approved

PT4
Paving Type 4 - Conservation Sett
Product: Fairstone Cropped Granite Setts
Size/Colour/Bonding: 100 x 100 x 100 mm/Silver Grey/Stack Bond
Supplier: Marshalls or similar and approved

PT5
Paving Type 5 - Slab Paving
Product: Saxon Textured Natural
Size/Colour/Bonding: 450 x 450 x 50 mm/Natural/Stretcher Bond
Supplier: Marshalls or similar and approved

PT6
Paving Type 6 - Hoggin Gravel
Product: Hoggin Gravel
Colour: Natural
Supplier: CED Stone or similar and approved

PT7
Paving Type 7 - Timber Bridge
Product: Timber bridge
Supplier: CTS Bridges or similar and approved

Edging Types

Note: Refer to Engineers drawings and specifications for details on kerbs. All edging are to meet BS EN 1340:2003 requirements.

ET1
Edging Type 1 - Block Kerb
Product: Drivesett Kerb
Size/Colour: 120 x 80 x 240 mm /Traditional
Supplier: Marshalls or similar and approved

ET2
Edging Type 2 - Block Edging
Product: Saxon Edging
Size/Colour: 600 x 136 x 50 mm /Buff
Supplier: Marshalls or similar and approved

ET3
Edging Type 3 - Timber Edging
Product: Treated timber edging boards fixed with timber spikes
Size: 150 x 19mm board and 50 x 50 x 450mm spikes
Supplier: Jacksons Fencing or similar and approved

Boundary Types

BT1
Boundary Type 1 - Retaining Brick Wall
Product: Brick wall to Engineer's specification

BT2
Boundary Type 2 - Close Board Fencing
Product: Featheredge fencing
Size: 1.8m high
Supplier: Jacksons Fencing or similar and approved

BT3
Boundary Type 3 - Post and Rail Fencing
Product: Post and rail fencing
Size: 1.2m high
Supplier: Jacksons Fencing or similar and approved

G1
Single Gate
Product: To match fencing treatment

Street Furniture

Note: Refer to Engineers drawings and specifications for details on all lighting elements.

FT1
Furniture Type 1 - Timber Bench
Product: Hatton Rustic 4 Slat Seat
Size/Material: 2000 x 580 x 770mm/Timber
Supplier: Broxap or similar and approved

FT2
Furniture Type 2 - Low level lighting bollards
Product: Centurion Illuminated Bollard
Size/Material: height 800mm /Metal with opal glazing
Supplier: Broxap or similar and approved

GENERAL NOTES FOR SOFT LANDSCAPE

PLANT SCHEDULE

Proposed Trees

Species	Size/Spec	Condition
Amelanchier lamarckii (Multistem)	2.0-2.5m ht	RB
Amelanchier lam 'Robin Hill'(Multistem)	2.0-2.5m ht	RB
Corylus avellana 'Purple'(Multistem)	2.0-2.5m ht	RB
Malus hupehensis	12-14cmg	RB
Malus 'Rudolph'	12-14cmg	RB
Malus domestica 'Bramley Seedling'	12-14cmg	RB
Malus domestica 'Cox'	12-14cmg	RB
Malus 'golden hornet'	12-14cmg	RB
Pyrus calleryana 'Chanticleer'	12-14cmg	RB
Prunus serrula 'Tibetica'	12-14cmg	RB

Proposed Native Hedge Planting

Species	Size/Spec	Condition
Crataegus monogyna	120-150cm	BR
Prunus spinosus	120-150cm	BR
Acer campestre	120-150cm	BR
Corylus avellana	120-150cm	BR
Rosa canina	120-150cm	BR

Proposed Hedge Planting

Species	Size/Spec	Condition	Density
Carpinus betulus	60-80cm	C15	0.5Ctr Double Staggered at 0.3m offset
Lonicera nitida	60-80cm	C15	0.5Ctr Double Staggered at 0.3m offset

Proposed Shrub Planting

Species	Size/Spec	Condition	Density
Artemisia 'Powis Castle'	30-40cm	C5	7/m²
Cornus 'midwinter fire'	30-40cm	C5	5/m²
Hebe rakaiensis	30-40cm	C5	7/m²
Hebe 'great orme'	30-40cm	C5	7/m²
Hydrangea quercifolia	40-60cm	C5	5/m²
Lonicera xpurpusei 'winter beauty'	30-40cm	C5	7/m²
Pittosporum tenifolium 'golf ball'	30-40cm	C5	5/m²
Sarcococca hookeriana var. digyna	40-60cm	C5	5/m²
Trachelospermum jasminoides	30-40cm	C5	5/m²

Proposed Herbaceous Planting

Species	Size/Spec	Condition	Density
Acanthus spinosus	15-20cm	C3	5/m²
Penstemon 'raven'	15-20cm	C3	9/m²
Achillea 'coronation gold'	15-20cm	C3	9/m²
Echinacea 'magnus'	15-20cm	C3	9/m²
Geranium phaeum	15-20cm	C3	7/m²
Geranium sanguineum	15-20cm	C3	7/m²
Phlomis amazone	15-20cm	C3	7/m²
Salvia	15-20cm	C3	9/m²
Helleborus orientalis	15-20cm	C3	7/m²

Proposed Ornamental Grasses

Species	Size/Spec	Condition	Density
Miscanthus sinensis	30-40cm	C3 Full Pot	7/m²
Deschampsia cepitosa	30-40cm	C3 Full Pot	7/m²
Festuca glauca 'elija blue'	30-40cm	C3 Full Pot	7/m²
Calamagrostis 'karl foerester'	30-40cm	C3 Full Pot	7/m²
Anemanthele lessoniana	30-40cm	C3 Full Pot	7/m²
Nassella (stipa) tenuissima	30-40cm	C3 Full Pot	7/m²
Pennisetum alopecuroides 'hameln'	30-40cm	C3 Full Pot	7/m²
Molinia 'edith dudzus'	30-40cm	C3 Full Pot	7/m²
Ophiopogon planiscapus nigrescens	30-40cm	C3 Full Pot	7/m²

Proposed Bulb Planting

Species	Size/Spec	Condition	Density
Allium 'purple sensation'	Top size	Dry Bulb	50/m²
Allium sphacephalon	Top size	Dry Bulb	50/m²
Camassia leichtlinii subsp. suksdorfii	Top size	Dry Bulb	50/m²
Narcissus	Top size	Dry Bulb	50/m²
Muscari armeniacum	Top size	Dry Bulb	50/m²
Hyacinthoides non scripta	Top size	Dry Bulb	50/m²
Galanthus nivalis	Top size	Dry Bulb	50/m²
Naturalised crocus sp. mix	Top size	Dry Bulb	50/m²

GT2 - EM2 general purpose meadow mixture

EM2 is a meadow mixture which contains species that are characteristic of traditional meadows across a wide range of soil types.

Mixture Breakdown

Wild Flowers 15%

%	Latin name	Common name
0.9	Achillea millefolium	Yarrow
0.9	Centurea nigra	Common Knapweed
0.15	Cruciata laevipes	Crosswort
0.45	Daucus carota	Wild Carrot
0.3	Knautia arvensis	Field Scabious
0.75	Leucanthemum vulgare	Oxeye Daisy
2.1	Malva moschata	Musk Mallow
0.12	Medicago lupulina	Black Medick
3.0	Plantago lanceolata	Ribwort Plantain
2.25	Poterium sanguisorba ssp sanguisorba	Salad Burnet
0.12	rimula veris	Cowslip
0.54	Ranunculus acris	Meadow Buttercup
1.05	Rhinanthus minor	Yellow Rattle
2.25	Silene dioica	Red Campion
0.12	Silene vulgaris	Bladder Campion

Grasses 85%

%	Latin name	Common name
8.50	Agrostis capillaris	Common Bent
29.75	Cynosurus cristatus	Crested Dogstail
25.50	Festuca rubra	Red Fescue
4.25	Phleum bertolonii	Smaller Cat's-tail (a)
17.00	Poa pratensis	Smooth-stalked Meadow-grass

GT3 - EM8F meadow mixture for wetlands

EM8F contains wild flower species suitable for seasonally wet soils and is based on the vegetation of traditional floodplain and water meadows. Soils in wet meadows may flood for short periods in winter, but are usually well drained in summer.

Mixture Breakdown

Wild Flowers 100%

%	Latin name	Common name
12.0	Achillea millefolium	Yarrow
0.5	Betonica officinalis	Betony
20.0	Centaurea nigra	Common Knapweed
0.5	Daucus carota	Wild Carrot
2.0	Filipendula ularia	Meadowsweet
3.0	Galium album	Hedge Bedstraw
10.0	Galium verum	Lady's Bedstraw
2.0	Lathyrus pratensis	Meadow Vetchling
1.5	Leucanthemum vulgare	Oxeye Daisy – (Moon Daisy)
1.0	Lotus corniculatus	Birdsfoot Trefoil
2.0	Lotus pedunculatus	Greater Birdsfoot Trefoil
1.0	Medicago lupulina	Black Medick
20.0	Plantago lancelata	Ribwort Plantain
0.5	Primula veris	Cowslip
7.0	Ranunculus acris	Meadow Buttercup
7.5	Rhinanthus minor	Yellow Rattle
0.5	Rumex acetosa	Common Sorrel
0.5	Silaum silaus	Pepper Saxifrage
8.0	Silene flos-cuculi	Ragged Robin
0.5	Succisa pratensis	Devil's-bit Scabious

SOFT SPECIFICATION NOTES

Proposed Tree Planting

Nursery Stock and Selection

All trees and planting are to be selected and tagged by the landscape architect prior to any stock being delivered to site. All planting should comply with the requirements specified in BS 3936:1992 'Nursery Stock' (Part One). All nursery stock and trees are to be free of pest and diseases prior to being delivered to site. All delivered stock is to be inspected by the landscape architect prior to any planting being carried out.

The Landscape architect reserves the right to reject trees and nursery stock that do not meet specifications as set out in the requirements and guidelines in BS 3936:1992 or in accordance with the landscape architects drawings. If a particular defect or substandard element can be corrected easily, appropriate remedies shall be applied and agreed with the landscape architect. If destructive inspection of a root ball is to be carried out, agreement should be in place prior as to the time and place of inspection. Inspection of shrub roots in containers or rootball can be carried out on site if required.

Tree Handling

It is recommended that companies that do not have experience with handling large trees or the required equipment to do so seek advice from the landscape architect or tree supplier. Furthermore, specialist hauliers are to be used who will have the correct lifting equipment to deal with unloading large trees.

The landscape contractor is to follow standards set out in BS 8545:2014 'Trees: from nursery to independence in the landscape – Recommendations'

The landscape contractor must follow the industry guidance method for handling trees. Below are recommended industry standards.

Dormant trees sizes of 12-16cmg

These can be lifted and unloaded using a root hook and hoist. Even when the tree is dormant it is recommended to wrap the stem in hessian for additional protection when unloading maintaining the lifting weight on the root hooks.

Dormant trees sizes of 18-20cmg - 25-30cmg

These can be lifted and unloaded using a 3 tonne sling in combination with a chain and root hooks. Even when the tree is dormant it is recommended to wrap the stem in hessian for additional protection when unloading.

Tree Planting

The tree supplier is to be approved by landscape architect prior to any ordering of stock. All trees are to be planted in the first available planting season after construction as root balled stock unless otherwise specified and agreed with the client. All tree pits are to be excavated 24 hours prior to delivery to reduce the time the rootball is out of the ground. All tree pits are to be excavated under favourable weather conditions to avoid deterioration of the soil structure and glazing. All excavations are to be carried out using a toothed bucket ensuring tree pit walls are not glazed, the walls of the tree pit can also be loosened with hand held tools.

Tree pit dimensions are subject to soil conditions, soil report provided by agronomist and rootball size. Tree pits can never be excavated too wide in an unrestricted space (open ground), however they can be too deep.

All trees are to be planted at the correct height which is the same depth as the tree was growing on the nursery. The root collar must remain visible. Tree pit sizes are to be agreed with landscape architect prior to excavations. All tree pits are to be inspected by the landscape architect prior to planting. All tree pits are to have suitable irrigation pipe and end cap and aeration tubes if required (aeration tubes tend to be required for trees planted in a hard landscape environment). They are only required for the first two years after which they are superfluous. All irrigation pipes are to be placed as high as possible not at the base of the rootball. The tree would also benefit from an earth reservoir around the rootball on the surface to aid watering. The reservoir is best backfilled with bark mulch to avoid soil glazing on the surface.

All trees and planting are to be selected and tagged by the landscape architect prior to any stock being delivered to site. All planting should comply with the requirements specified in BS 3936:1992 'Nursery Stock' (Part One). All nursery stock and trees are to be free of pest and diseases prior to being delivered to site. All delivered stock is to be inspected by the landscape architect prior to any planting being carried out.

- The Landscape architect reserves the right to reject trees and nursery stock that do not meet specifications as set out in the requirements and guidelines in BS 3936:1992 or in accordance with the landscape architects drawings. If a particular defect or substandard element can be corrected easily, appropriate remedies shall be applied and agreed with the landscape architect. If destructive inspection of a root ball is to be carried out, agreement should be in place prior as to the time and place of inspection. Inspection of shrub roots in containers or rootball can be carried out on site if required.

Note: Trees may sink after planting due to soil settlement. With sandy soils generally there will be a settlement of 10% and clay soils 20%, this will need to be considered by the landscape contractor when planting and therefore the tree may need to be planted slightly higher to accommodate soil settlement.

Note: Never excavate deeper than the highest water table to ensure organic matter does not come in contact with groundwater resulting in anaerobic digestion within the soil.

All hessian and wire supports around the rootball are to remain in place when planting (in some case it may be required to loosen the hessian and wire). The hessian will quickly decompose. The wire will oxidize and also disappear in the soil eventually.

Note: Incorporate mycorrhizal fungi to the root zone to encourage establishment through nutrient transference.

Trees are to be supported either by high anchoring, low anchoring or underground anchoring systems. The type of anchoring system is to be agreed with the landscape architect and detailed within the specification of works. For trees that are <10-12cmg use 1no untreated softwood stake at min 10cm diameter driven into the ground at least 1m depth (30cm of which must be in undisturbed ground), the stake is to be placed on the side of the prevailing wind. Trees >10-12cmg use 2no untreated softwood stakes at min 10cm diameter driven into the ground at least 1m depth with horizontal bracing bar. Trees >25-30cmg use 3no stakes in a triangle around the tree (1.4m above ground level) with horizontal bracing bars, tree bands are to be secured to the posts with galvanised nails.

Underground anchoring systems are to be used for large compact rootballs or trees within hard landscape with tree grilles to BS 4043: 1989' Recommendations for Transplanting Root-Balled Trees'. The type of anchoring system is to be agreed with the landscape architect. Biodegradable anchoring straps are to be used to ensure the straps do not grow into the trunk.

Note: There are benefits to using low level anchoring as field trials have demonstrated that the tree becomes independent in the ground quicker as a result of the wind rocking the tree that encourages root ground. However, this method is not recommended in exposed conditions or coastal locations due to a greater risk of the trunk breaking.

Ties and stakes are to be checked and adjusted every six months or after periods of strong wind and rain.

All topsoil is to conform to BS 3882:2007 'Multipurpose' or similar approved by an agronomist. The tree pit shall be backfilled with previously prepared topsoil excavated from the pit and additional topsoil as required. All backfilled material is to include an organic slow release fertilizer to ensure there is no adverse affect on soil organisms (Vitax Q4HN) or similar approved at a ratio of 10 -7.5 -10.2 + TE. The second application to be made 10-16 weeks after planting depending on soil type and weather conditions.

Tree pit root barrier are to be installed to all trees within 3m of any underground service routes or within 2.0m of kerb lines & hard surfaces & building foundations. Type of root barrier material is to be agreed with the landscape architect. The landscape contractor is to confirm locations of all services prior to implementation of trees. Prior to installation NJUG specification and requirements are to be referred too.

Guidance for Tree Pit Sizes within Soft Landscape Areas

Final tree pit size will vary dependent on size of rootball, tree stock and soil type.

Below are general guidance sizes only. The landscape contractor is to speak to the grower to obtain exact sizes prior to delivery. Landscape Architect to inspect tree pits prior to planting.

Tree pit size guidelines:

Tree size	Rootball Size	Tree pit size (length, width, depth)
12-14 cmg	50x50cm	80x80x65cm

Tree aftercare and pruning

When a tree is lifted/harvested it will lose a percentage of it's root system. As a result the roots are unable to supply the crown with the water demand being placed on the root system which can cause stress to the tree. As a result the tree will respond by reducing the amount of foliage, in some cases when the water storage is great the tree will shed wood from the crown. Watering the tree is important in the first two years after transplanting. In very hot conditions the canopy can dry out even when the rootball is moist simply because there is not enough root development yet. Therefore, the only solution is to reduce the canopy volume to reduce the stress.

All pruning is to be done by removing first and second wood only, all pruning works are to be carried out by appropriately trained landscape contractors.

It is recommended that hessian is placed around the tree stems after planting to prevent the overheating of the trunks.

The flow of water within the bark will normally prevent this, however, after planting less water is transplanted and as a result the trunk is at risk of sunburn. The setting sun will cause the most potential damage. Most of the damage will be visible on the western side of the tree. Trees with smooth bark are more vulnerable to sunburn than trees with rough bark.

Note: This is to only be done as a temporary measure as the tree is establishing, after which the hessian is to be removed.

Monitoring of the trees is to be carried out during the rectification period and as part of the long term management. The following points are to be considered and monitored;

- Watering, trees will require watering for the first two years after planting, after which they will generally look after themselves. The number of times will depend on location, weather conditions and growing season. Therefore, as the tree is a growing organisum the required experience and knowledge will determine the number of times the tree is watered to ensure establishment. It is better to give the tree a lot of water once a week rather than water every day as this will encourage root development and prevent the tree becoming "lazy". Over watering will push oxygen away from the root system preventing root development.
- Soil condition, these can be carried out by a specialist to monitor the oxygen levels (that should ideally be 18-21%, 16-18% will be sufficient levels, 12-16% will be poor levels <5% shows acute root mortality). Soil moisture levels both within the rootball and surrounding ground to also be monitored.
- Soil compaction, traffic over planted areas or areas to be planted are to be limited or ideally avoided completely. When soil compaction is higher than 2.5MPa root development will not be possible.
- Canopy, monitor leaf development, size, colour and the amount of foliage that is within the crown. Length of new growth and bud development and size of buds.

Proposed Ornamental Shrub / Perennial Planting

- To be planted in a minimum of 300mm depth approved topsoil to BS 3882: 2015 'Multipurpose' in the first available planting season after construction.
- All shrubs are to be planted as container stock unless otherwise specified (5 or 10 litre), all stock is to be well rooted into the container but not pot bound.
- All shrubs are to be planted with a slow release organic fertilizer (vitax or similar approved) and backfilled with a mixture of excavated top soil and compost (not peat based). A minimum of 50 mm approved ornamental grade bark mulch is to be applied to planting areas unless stated otherwise.

Planting Guidelines

- All planting and landscape operations should comply with the requirements specified in BS 3936-4:2007 'Nursery Stock' (Part One) and BS4428:1989 'Code of Practice for General Landscape Operations' (excluding hard surfaces).
- All topsoil and testing to conform to BS 3882: 2015 'Specification for Topsoil and Requirements for Use'.
- All topsoil used for planting to be tested by an approved Topsoil Analyst and any required amelioration or soil improvements to be carried out in line with Analyst's report.
- All fertilizers are to be applied or supervised by qualified staff to avoid the action of plasmolysis.
- Nurseries to provide protocols for ensuring that plant stock is free of invasive species.
- No planting is to be carried out when the site is covered by frost.
- Irrigation of plant material to be carried out during periods of drought will be required to ensure successful establishment of all plant stock.
- All new planting to be protected from mammal grazing by individual guards or stock proof fencing.
- If planting is to be carried out outside the growing season, all bareroot / rootballed plant stock is to be substituted with containerised stock. Specification to be agreed with Landscape Architect prior to ordering and implementation.

Maintenance Notes - Overview

Refer to separate landscape maintenance and management plan for detailed specification.

- All landscaped areas are to be maintained for 24 months following practical completion of the phase or until the plants have established, all tree planting to be maintained for 36 months.
- Planting to be protected from mammal and human damage by stock proof fencing.
- All planted areas to be kept clear of weeds at all times throughout maintenance period.
- Planted areas to be forked through regularly to keep soil loose and aerated.
- All litter and debris to be removed from landscaped areas and carted off site.
- Plants pruned as instructed by the Landscape Architect to promote healthy growth and to remove dead and diseased wood.
- Watering as required to maintain healthy growth.
- Any species that dies or fails to establish in the first five years should be replaced by an identical species, or alternative species as agreed with LPA.

Additional Notes

- Existing levels to be preserved around existing trees and vegetation to be retained.
- Existing trees and vegetation to be retained are to be protected during construction to BS 5837:2012 'Trees in Relation to Design, Demolition and Conservation Recommendations'.
- Any necessary tree works to be carried out by an approved tree surgeon to BS 3998:2010 'Recommendations for Tree Works'. For all arboricultural issues refer to survey and reports carried out by the arboriculturalist.
- Final location and tree species selection will be subject to service report and foundation depths to be provided by engineers.
- Planting within visibility splays to include ground cover plants only and to be maintained at 600mm high.

Revision	Date	Reason	Drawn	Checked
PL01	15-12-2022	Issued for Planning	pm/sw	sg

fabrik landscape architects
Lenten House | 16 Lenten Street | Alton | Hampshire | GU34 1HG
T : 01420 593250 | E : alton@fabrikuk.com | W : www.fabrikuk.com

Project: Land at Castelmer Fruit Farm, Kingston, Lewes
Client: Greenplan Designer Homes
Drawing Title: Combined Hard & Soft General Arrangement Plan - Legend

Purpose of Issue	Drawn By	Checked By	Drawn Scale	Date of First Issue
ISSUED FOR PLANNING APPROVAL	pm/sw	sg	1:200 @ A1	Dec | 2022

Project Number	Origin	Zone	Level	File Type	Role	Number	Revision
D2906	FAB	00	XX	DR	L	1000	PL01

A1 File Reference D2906-FAB-00-XX-DR-L-1000.dwg Plot Date 15-Dec-22

Juggs Corner

Cottage

Benelan

Precautionary area
Replacement of existing hard surfacing within RPA (refer to Tree Removal and Arboricultural Impact Assessment drawings for details)

Precautionary area
Replacement of existing hard surfacing within RPA (refer to Tree Removal and Arboricultural Impact Assessment drawings for details)

Precautionary area
Replacement of existing hard surfacing within RPA (refer to Tree Removal and Arboricultural Impact Assessment drawings for details)

Precautionary area
Area of 'no dig' construction within RPA (refer to Tree Removal and Arboricultural Impact Assessment drawings for details)

Existing sub-station

Badgers

Pippins

Papilons

Rowans

Orchard House

St Ronans

D2906-FAB-00-XX-DR-L-1002

This drawing may contain: Ordnance Survey material by permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown Copyright 2017. All rights reserved. Reference number xxxxxx. OS Open data © Crown copyright and database right 2017 | Aerial Photography © XXXXXX

Revision	Date	Reason	Drawn	Checked
PL01	15-12-2022	Issued for Planning	pm/sw	sg

Disclaimer:
1. This drawing is copyright of fabrik ltd. It must not be copied or reproduced without written consent from the owner.
2. Do not scale from this drawing. Only figured dimensions are to be taken from this drawing.
3. All contractors must visit site and be responsible for taking and checking all dimensions related to the works shown on the drawing prior to fabrication or setting out.
4. This drawing uses coloured lines. Please do not rely on a monochrome copy.

0 1 2.5 5 7.5 10 15 20m
1:200

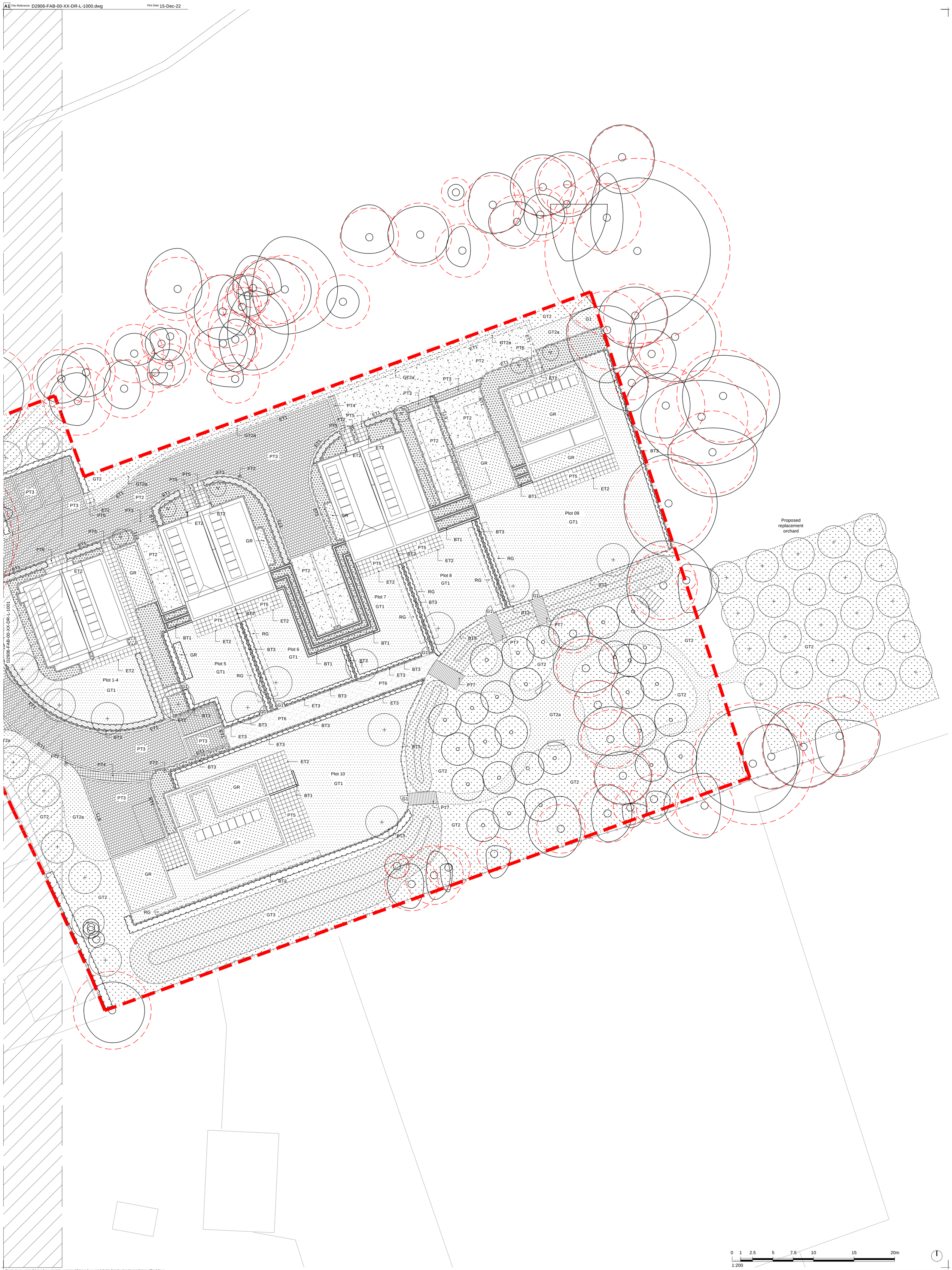
Location Plan

fabrik landscape architects
Lenten House | 16 Lenten Street | Alton | Hampshire | GU34 1HG
T : 01420 593250 | E : alton@fabrikuk.com | W : www.fabrikuk.com

Project: Land at Castelmer Fruit Farm, Kingston, Lewes
Client: Greenplan Designer Homes
Drawing Title: Combined Hard & Soft General Arrangement Plan - Sheet 1 of 2

Purpose of Issue	Drawn By	Checked By	Drawn Scale	Date of First Issue
ISSUED FOR PLANNING APPROVAL	pm/sw	sg	1:200 @ A1	Dec | 2022

Project Number	Origin	Zone	Level	File Type	Role	Number	Revision
D2906	FAB	00	XX	DR	L	1001	PL01



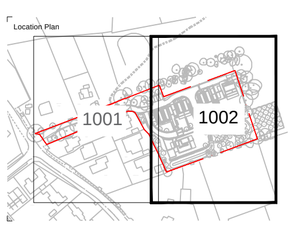
D2906-FAB-00-XX-DR-L-1001

This drawing may contain: Ordnance Survey material by permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown Copyright 2017. All rights reserved. Reference number xxxxxx. OS Open data © Crown copyright and database right 2017 | Aerial Photography © XXXXXX

Revision	Date	Reason	Drawn	Checked
PL01	15-12-2022	Issued for Planning	pm/sw	sg

Disclaimer:
1. This drawing is copyright of fabrik ltd. It must not be copied or reproduced without written consent from the owner.
2. Do not scale from this drawing. Only figured dimensions are to be taken from this drawing.
3. All contractors must visit site and be responsible for taking and checking all dimensions related to the works shown on the drawing prior to fabrication or setting out.
4. This drawing uses coloured lines. Please do not rely on a monochrome copy.

Location Plan



0 1 2.5 5 7.5 10 15 20m
1:200

fabrik landscape architects
Lenten House | 16 Lenten Street | Alton | Hampshire | GU34 1HG
T : 01420 593250 | E : alton@fabrikuk.com | W : www.fabrikuk.com

Project: Land at Castelmer Fruit Farm, Kingston, Lewes
Client: Greenplan Designer Homes
Drawing Title: Combined Hard & Soft General Arrangement Plan - Sheet 2 of 2

Purpose of Issue	Drawn By	Checked By	Drawn Scale	Date of First Issue
ISSUED FOR PLANNING APPROVAL	pm/sw	sg	1:200 @ A1	Dec | 2022

Project Number	Origin	Zone	Level	File Type	Role	Number	Revision
D2906	FAB	00	XX	DR	L	1002	PL01