

Dunsbury Park, Havant

Park Lane Stream Buffer

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Contents

1	Introduction	2
1.1	Purpose of this report	2
1.2	Planning condition A9	2
2	Description of the area.....	3
2.1	Park Lane Stream and its context	3
2.2	Ecological value.....	3
3	Proposed buffer.....	6
3.1	Extent and purpose of the buffer	6
3.2	Proposed planting/ lighting within the buffer.....	7
3.3	Proposed protection of the buffer during construction and operation.....	7
3.4	Proposed short-term and long-term management of the buffer	8
3.5	Proposed responsibility for management and financial provision for management of the buffer	13
	Appendix 1 Figures	14

1 Introduction

1.1 Purpose of this report

- 1.1.1 This report is produced as evidence in relation to the discharge of a condition of the planning permission granted in 2017 by Havant Borough Council, reference APP/17/01324, to the land owner Portsmouth City Council (PCC). The permission allowed for the development for employment uses and a hotel with conference facilities; together with landscaping, infrastructure and associated works, subject to a number of conditions, hereafter referred to as the Scheme.
- 1.1.2 This report and the accompanying plan (2157-1002) specifically relate to condition A9 which is detailed below.
- 1.1.3 The report and plan are produced by The terra firma Consultancy Ltd, with planning inputs by Savills and ecological inputs by Atkins.
- 1.1.4 Figure 1 in Appendix 1 shows the wider Dunsbury Park development (Scheme) area and location of the Park Lane Stream.

1.2 Planning condition A9

- 1.2.1 The following is the wording included in the decision notice, set out below. It refers to the buffer for Hermitage Stream in the title but clearly sets out in the body that it also relates to the area east of the Park Lane bridleway, alongside Park Lane Stream. The condition related to the buffer for the Hermitage Stream (i) was discharged through development and construction of the road / stream diversion.

A9. Hermitage Stream – Buffer

i) Prior to the commencement of development (with the exception of the construction of vehicular access at Hulbert Road and the first 40 metres of the Access Link Road eastward of Hulbert Road) a scheme for the provision and management of a sufficient buffer zone alongside the Hermitage Stream shall be submitted to and agreed in writing by the Local Planning Authority.

ii) Prior to the commencement of development of that part of the site to the east of the Park Lane bridleway (FP 123) a scheme for the provision and management of a sufficient buffer zone alongside Park Lane Stream shall be submitted to and agreed in writing by the Local Planning Authority.

The development shall be carried out in accordance with the approved schemes i) and ii) and any subsequent amendments which are first agreed in writing by the Local Planning Authority. The buffer zone scheme shall be kept free from built development including lighting, and formal landscaping, unless otherwise approved in writing by the Local Planning Authority. The schemes i) and ii) shall include:

a. Plans showing the extent and layout of the buffer zone.

b. Details of any proposed planting scheme.

c Details demonstrating how the buffer zone will be protected during development and permanently managed and maintained including proof of adequate financial provision and named body responsible for management plus production of detailed management plan.

Reason: To protect the ecological value of the Hermitage Stream & Park Lane Stream in the long term, especially where there is the opportunity to restore the heavily modified channel to a natural state in accordance with the outcomes of the Water Framework Directive, having due regard to policies DM8, CS11, CS15 & CS16 of the Havant Borough Local Plan Core Strategy 2011, and policy AL7 of the Havant Borough Local Plan (Allocations) 2014, and the National Planning Policy Framework 2018.

2 Description of the area

2.1 Park Lane Stream and its context

- 2.1.1 Park Lane Stream is a tributary to Hermitage Stream and runs north/ south along the eastern side of the wider Scheme. To the east of the Scheme, the stream is contained within the broadleaved semi-natural woodland that forms part of Dunsbury Hill Wood Site of Importance for Nature Conservation (SINC). Further upstream to the north-east, the stream is located within the broadleaved ancient and semi-natural woodland that forms part of Bell's Copse SINC. Figure 1 Dunsbury Park development
- 2.1.2 in Appendix 1 shows the Scheme's development plot closest to the Park Lane Stream (plot 6). An area of grassland with scattered trees and scrub is located between plot 6 and Park Lane Stream. Plot 6 is currently in use as an arable field and has an open character in contrast to the more wooded area to the east, which is also enclosed by landform.
- 2.1.3 Public footpaths bound the Scheme to the north and west. The right of way on the western side is an important local route known as Park Lane. This links Leigh Park across the A3 (M) to Waterlooville, which lies to the west. Figure 3 in Appendix 1 comprises photographs of the area, taken in May 2020.
- 2.1.4 For the purpose of this report the 'Site' (i.e. the 'Park Lane Stream buffer'), which this report focuses on, comprises of the land between the Red Line Boundary (RLB) of the Scheme and Park Lane Stream, as shown on Figure 2 in Appendix 1. The northern extent of the Site is shown in Figure 2 in Appendix 1, located directly adjacent to Meadow by Bell's Copse SINC and Dunsbury Hill Wood SINC, and the southern extent is shown by Calshot Road. The habitats within the Site comprise of grassland and scrub with some mature trees and small pockets of marshy grassland.

2.2 Ecological value

2.2.1 Habitats

- 2.2.1.1 The Site extends to the edge of Dunsbury Hill Wood SINC to the north and east, which is described as semi-natural woodland dominated by alder; an important community type of restricted distribution in the county. The Site is also bounded to the north by Meadow By Bell's Copse SINC, which is designated for its agriculturally unimproved grasslands. Based on their designation status, Dunsbury Hill Wood SINC and Meadow By Bell's Copse SINC are recognised as being of nature conservation value in a County context, as described in the Environmental Statement (ES)¹.
- 2.2.1.2 The habitats within the Site comprise semi-improved, neutral grassland with scattered mature trees and scrub sloping towards Park Lane Stream. As part of the Scheme's ecological survey work, the Site was subject to a National Vegetation Classification (NVC) survey on the 5th of July 2019². Although this report has not yet been released, it concludes that the grassland was historically more extensive, with evidence of scrub encroachment from the adjacent Dunsbury Hill Wood SINC woodland.
- 2.2.1.3 Previous data for the Site available from Hampshire Biodiversity Information Centre (HBIC) in 2002 showed that the majority of the grassland on the drier slopes was classified as MG7 *Lolium perenne* grassland, whereas the grassland to the north (now scrubbed over) was classified as MG5; *Cynosurus cristatus*-*Centaurea nigra* (a more diverse community).
- 2.2.1.4 The 2019 survey data shows that the majority of the remaining grassland has transitioned to an MG9; *Holcus lanatus*-*Deschampsia cespitosa* community (the most prominent sub-community being MG9b, a false oat-grass subcommunity with other coarse grasses but no umbellifers), which is characteristic of unmanaged, often damp, pasture, suggesting diversity within the Site is declining. Some species are still present that are typical of the more diverse community MG5; *Cynosurus cristatus*-*Centaurea nigra* grassland. These include common knapweed (*Centaurea nigra*), crested dog's-tail (*Cynosurus cristatus*), bird's-foot-trefoil (*Lotus corniculatus*), Common bent (*Agrostis capillaris*) and meadow vetchling (*Lathyrus pratensis*). At the base of the slope towards the stream, damper grassland showed slightly different characteristics to the rest of the Site, due to the presence of some species typical of damper pasture, including sharp-flowered rush (*Juncus acutiflorus*), silverweed (*Potentilla anserina*) and marsh thistle (*Cirsium palustre*). However, this area also contained abundant Yorkshire

¹ Dunsbury Hill Farm, Environmental Statement, Volume 1. A report under contract to PCC. March 2012. March 2012

² Dunsbury Park, Havant - Plot 6 Development Vegetation Survey Report. A report under contract to PCC. Not issued to date.

fog, and rough meadow-grass, which are present throughout the Site. This community is close to M23; *Juncus effusus/acutiflorus-Galium palustre* rush-pasture, in particular M23a, the sharp-flowered rush sub-community, which is a mire typical of damp pasture and wetter areas than the MG9b sub-community described above. During the 2019 survey, crosswort and dyer's greenweed were both recorded within the grassland, both of which are priority³ plant species.

- 2.2.1.5 Based on the habitats and plant species present, the mosaic of habitats within the Site are considered to provide supporting value to the adjacent designated SINC and would be considered to have at least Local value for nature conservation based on the 2019 Guidelines for Ecological Impact Assessment (EclA)⁴. This is due to the semi-natural nature of the habitats present, and their connectivity with the stream and adjacent SINC. These areas together provide an important wildlife corridor linked to the wider landscape to the north and south of the Site. It is noted however that the quality of the habitats within the Site are deteriorating due to a lack of management.
- 2.2.1.6 Park Lane Stream is located at the eastern edge of the buffer. The stretch of Park Lane Stream running along the eastern boundary of the Site has been historically straightened from previous land management practices that have occurred within 100 m of the Site. It thus lacks diversity when compared to other reaches which have not been modified upstream. Trees that border the stream within the reach also provide significant shading of the stream, which inhibits the development of marginal vegetation. In some places, trees have fallen across the stream and interacted with the flow creating some increased localised diversity. In the absence of detailed surveys, the stream is considered to have at least Local value for nature conservation.

2.2.2 Protected and Priority⁵ Species

Bats

- 2.2.2.1 A number of mature oak trees are present bordering the Site to the west. Targeted bat surveys carried out in 2018 and 2019 for plot 6 found one tree with bat roosting potential and further surveys determined bats were likely absent. However, the tree retains potential to support individual bats, which may use it at other times of the year. It is also likely that Dunsbury Hill Wood SINC (bordering the Site at the north and east) contains mature/semi-mature trees that provide bat roosting opportunities. Trapping and radiotracking surveys carried out in 2019 for plot 6 identified two separate Natterer's bat tree roosts; one approximately 200 m north-west and the other approximately 1.15 km north-east from the Site. Other species recorded comprised Natterer's bat, brown long-eared bat, common pipistrelle, soprano pipistrelle and whiskered bat and included evidence of breeding populations of Natterer's bat, brown long-eared bat and common pipistrelle (by examination of the bats' reproductive status).
- 2.2.2.2 Ecological surveys of the Scheme prior to 2018 have recorded an individual Bechstein's bat (a non-breeding female), a commuting barbastelle, and other bat species comprised of common pipistrelle, soprano pipistrelle, brown long-eared, noctule, serotine, whiskered, Natterer's and brown long-eared^{6, 7}.
- 2.2.2.3 The results suggest that bats are using the unlit connected habitats within and surrounding the Site to forage and commute to/ from their roosts. The connected habitats across the Scheme support Annex II bat species (Bechstein's and barbastelle) of Regional value for nature conservation and other bat species of up to County value for nature conservation, as described in the ES¹.

Hazel dormouse

- 2.2.2.4 Hazel dormouse are known to be present in the habitats (hedgerows and scrub) bordering the west of the Site, confirmed most recently via presence/ likely absence surveys undertaken in 2019. The habitats within the Site are suitable for hazel dormice but are mainly confined to the edges. Towards the north of the Site, the coverage of suitable habitats is increasing due to the presence of encroaching scrub from the adjacent woodland.
- 2.2.2.5 Ecological surveys prior to 2019 recorded hazel dormice in hedgerows and broadleaved woodland to the west and south-west throughout the Scheme⁸. The presence of juveniles recorded throughout the surveys indicates that there is a successful breeding population within the Scheme area.

³ Dyer's greenweed *Genista tinctoria* is Vulnerable in England and crosswort *Cruciata laevipes* is Near Threatened in England, as detailed within Stroh, P.A. et al. (2014) A Vascular Plant Red List for England. Botanical Society of Britain and Ireland, Bristol.

⁴ CIEEM (2019) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester.

⁵ These are defined in CIEEM (2017) Guidelines for Preliminary Ecological Appraisal 2nd Edition.

⁶ Atkins (2013) Dunsbury Park, Environmental Statement. Appendix 15.4 Bat Survey Report.

⁷ Atkins (2020) Dunsbury Business Park, Havant Reserved Matters Application Plot 4A Development Ecological Impact Assessment.

⁸ Atkins (2013) Dunsbury Park, Environmental Statement. Appendix 15.5 Dormouse Survey Report.

- 2.2.2.6 As the habitats within and bordering the Site are well-connected to areas where hazel dormice were recorded in 2019 (and previous surveys), it is considered likely that individual dormice would be present within the Site. The connected habitats across the Scheme support a population of hazel dormice of County value for nature conservation, as described in the ES.

Reptiles

- 2.2.2.7 All four common species of reptile (slow worm, common lizard, grass snake and adder) are known to be present within habitats directly adjacent the Site to the west and south-west, confirmed most recently via presence/ likely absence surveys undertaken in 2019. During the surveys, reptile populations were classified in accordance with good practice guidance⁹ as follows: an exceptional population of slow worms, a good population of common lizards, and low populations of adder and grass snake.

- 2.2.2.8 Ecological surveys prior to 2019 recorded all four reptile species throughout the Scheme¹⁰ and evidence of breeding. Due to the highly suitable and well-connected nature of the habitats present, it is considered highly likely that all four species of reptiles would be present in similar numbers within the Site. The connected habitats across the Scheme support populations of reptiles of County value for nature conservation, as described in the ES¹.

Birds

- 2.2.2.9 The habitats within the Site are highly suitable for nesting birds throughout the scrub borders, encroaching scrub from the north, adjacent woodland and the unmanaged grassland, which also provides opportunities for ground nesting species. There is potential for individuals of common species as well as Schedule 1¹¹ birds and priority species to be present.

- 2.2.2.10 Ecological surveys prior to 2019 recorded 39 species during breeding bird surveys, including redwing, a Schedule 1 species; however, this was recorded on winter passage rather than breeding within the Scheme, and 31 species during wintering bird surveys; the majority of which were non-priority bird species typical of the pasture and woodland habitats present¹². Based on the assemblage recorded, the connected habitats across the Scheme support populations of breeding and wintering birds of Local value for nature conservation, as described in the ES¹.

Badger

- 2.2.2.11 Badgers are known to be present directly to the west of the Site, by evidence of latrines, and mammal paths are also present within the Site, which could be used by badger, all of which were recorded during a recent badger survey undertaken in 2019⁷. The Site is highly suitable for foraging badgers due to the abundance grassland and scrub. Suitable habitat for sett creation is also located within the adjacent woodland.

- 2.2.2.12 Ecological surveys prior to 2019 recorded a main sett within woodland to the west outside of the Scheme and evidence of foraging/ commuting badgers throughout the Scheme area¹³. Based on the evidence recorded to date, the connected habitats across the Scheme support a population of badgers of nature conservation value within the context of the Scheme only.

Invertebrates

- 2.2.2.13 A mosaic of tall grassland and scrub with areas of shorter, more flowery swards and marshy grassland is present within the Site, supporting a total of 142 invertebrate species that were recorded within the Site during an invertebrate survey carried out in 2019¹⁴. The species recorded were dominated by beetles, bees, wasps, and flies; eight invertebrate species recorded have a national status¹⁵.

- 2.2.2.14 There is no detailed survey information available across the Scheme prior to 2019 for terrestrial invertebrates. However, suitable habitat is limited to the hedgerows and woodland edges. Based on the invertebrate assemblage recorded, the habitats across the Scheme support populations of invertebrates of at least Local and potentially County value for nature conservation. These populations are restricted within the Scheme area and

⁹ Froglife (1999) Reptile Survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife advice sheet 10.

¹⁰ Atkins (2013) Dunsbury Park, Environmental Statement. Appendix 15.3 Reptile Survey Report

¹¹ Some bird species have an extra level of protection under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) (see <https://www.gov.uk/guidance/wild-birds-protection-surveys-and-licences> for further details).

¹² Atkins (2013) Dunsbury Park, Environmental Statement. Appendix 15.6 Breeding Bird Survey Report

¹³ Atkins (2013) Dunsbury Park, Environmental Statement. Appendix 15H Badger Survey Report CONFIDENTIAL

¹⁴ Grassland to the east of Plot 6, Dunsbury. An Invertebrate Assessment. A report under contract to PCC.

¹⁵ Using Red Data Book definitions from Category 1 (endangered) to Nationally notable (species that occur within the range of 16–100 10-km squares in Britain).

are generally concentrated to the remaining semi-natural habitats; small numbers of more mobile individuals may utilise the connected hedgerows and woodland edges across the wider Scheme.

- 2.2.2.15 Ecological surveys carried out prior to 2019 to inform the ES recorded no protected aquatic invertebrates and limited aquatic and marginal macrophyte value associated with Park Lane Stream. A low species richness and a high proportion of pollution tolerant species were recorded, considered to be of nature conservation value within the context of the Scheme only.

Other Protected/ Priority Species

- 2.2.2.16 There are no ponds within the Site and three ponds within 500 m of the Scheme. Great crested newts are likely absent from the Site and Scheme based on previous surveys undertaken in and prior to 2019. Two common amphibian species were recorded within ponds external to the Scheme: palmate newt and common frog. A common toad was also recorded west of the Site during reptile presence/likely absence surveys carried out in 2019.
- 2.2.2.17 No evidence of otter / water vole has been recorded within the Scheme to date (ES¹); however, surveys focussed on Hermitage Stream, and were not carried out for Park Lane Stream. No previous desk study records were provided for either species within the ES¹. Therefore, otter and water vole are considered to be likely absent from the Site.
- 2.2.2.18 The Site is suitable to support the priority species hedgehog and other common wildlife species such as roe deer, which have been recorded across the Scheme.
- 2.2.2.19 Due to the declining status of hedgehog, populations of this species that may be present across the Scheme are considered to be of Local value for nature conservation. Other more common species recorded are considered to be of nature conservation value within the context of the Scheme only.

3 Proposed buffer

3.1 Extent and purpose of the buffer

3.1.1 Extent of the buffer

- 3.1.1.1 The Site is approximately 2 ha in size and comprises grassland, scrub, trees and the periphery habitats of Park Lane Stream and the bordering Dunsbury Hill SINC woodland and Meadow By Bell's Copse SINC.

3.1.2 Purpose of the buffer

- 3.1.2.1 The habitats within the Site (including the grassland, scrub and scattered trees) provide a green corridor adjacent to Park Lane Stream and form a vegetative buffer between plot 6, the adjacent SINC, and Park Lane stream. This is an important feature in the local landscape to ensure that designated sites and important habitats are protected from any potential impacts (e.g. light pollution) associated with the future development of plot 6.
- 3.1.2.2 Park Lane Stream is a tributary to Hermitage Stream and the buffer will aid in maintaining this area as a dark corridor for the movement of wildlife, specifically bats. The Site will provide unlit vegetative screening from any future development within plot 6. It will also provide a continued resource for terrestrial species to use and facilitate dispersal throughout the wider local area. The Site will be suitable for continued use by a variety of protected and priority species including hazel dormice, reptiles, birds, badgers, invertebrates and other priority species present locally such as hedgehog.
- 3.1.2.3 Based on the results of the NVC and invertebrate surveys, the mosaic of habitats will need effective management, primarily through reducing scrub encroachment, to ensure the long-term stability of the grassland habitat. This is important as the local surroundings comprise largely of woodland and residential/ industrial development. If left un-manged, the Site would slowly become scrubbed over, thereby eliminating the grassland habitat that is uncommon locally and an important resource for invertebrates.

3.2 Proposed planting/ lighting within the buffer

3.2.1 Planting

- 3.2.1.1 Due to the variety of semi-natural habitats that are currently present within the Site, there will be limited planting. Planting will be focussed along the western edge of the Site and comprise filling existing gaps in the boundary vegetation with whips to form a continuous line of scrub that separates the Site from plot 6 (see Figure 3 in Appendix 1). This feature will provide connectivity to the woodland to the north of the Site and to the woodland habitats to the south of the Site, which will be beneficial for the dispersal of hazel dormice.
- 3.2.1.2 Tree and shrub species to be planted comprise blackthorn, hawthorn, holly, hazel, field rose and oak, with climbers/ shrubs such as honey-suckle and bramble, to provide a valuable foraging resource for hazel dormice.
- 3.2.1.3 The planting prescription should:
- Wherever possible, native local stock of UK provenance will be used to establish the continuous scrub habitat. This will ensure that the habitat is in keeping with the landscape character of the surrounding area and will also comprise species which are likely to thrive in local conditions;
 - Species will be planted in double rows (approximately 40-50 cm between). Staggering the plants at irregular intervals between rows. This variable spacing also allows space for natural regeneration to supplement the planted trees; and
 - The species will be planted in winter (i.e. November - March), in suitable weather conditions, supported by additional planting in the subsequent winter, where required. The prescriptions to manage this habitat are provided in Table 1.

3.2.2 Lighting

- 3.2.2.1 No lighting will be installed within the Site to retain a dark wildlife corridor, specifically for nocturnal species such as bats.
- 3.2.2.2 Only light recreational activity is proposed within the Site via an unlit, mown grassland path (or similar), which will be located approximately 50 m from the Park Lane Stream at its nearest point.

3.3 Proposed protection of the buffer during construction and operation

3.3.1 Protection of trees with potential to support roosting bats and other vegetation

- 3.3.1.1 The Site currently supports a tree with bat roosting potential along the south-west boundary, which will be prioritised for retention within the development proposals for plot 6. Where it is not possible to retain the tree, it will be re-surveyed for bats and suitable mitigation/compensation measures will be applied (including a mitigation licence if bats are found to be present), as recommended by the Ecologist.
- 3.3.1.2 All retained trees and the vegetation along the western boundary of the Site will be suitably protected during construction using guidelines provided in BS 5837:2012 Trees in relation to construction¹⁶ and construction exclusion heras fencing to avoid encroachment to retained habitats/disturbance to protected species.

3.3.2 Screening from Plot 6

- 3.3.2.1 As detailed in Section 3.2.1 above, it is proposed that the western border of the Site is planted up with whips within the gaps in advance of construction to provide a vegetative screen from plot 6. This will also provide enhanced connected habitat for hazel dormice. Details for the management of this habitat are provided in Sections 3.4 and 3.5 below.

3.3.3 Access

- 3.3.3.1 There will be no use of the Site for access/ machinery/ materials storage during construction.
- 3.3.3.2 Due to plot 6 being located in close proximity to the Site, it is likely that once developed, there will be increased recreational use. To ensure that the Site's habitats are protected, an informal pedestrian route will be created by providing a closely mown path in a loop through the centre of the Site, which will minimise disturbance and discourage use of the other semi-natural habitats present.

¹⁶ British Standards Institute (2012) BS 5837:2012 Trees in relation to design, demolition, construction.

3.3.4 Lighting

- 3.3.4.1 No lighting will be permitted within the Site during construction and operation of plot 6 and the wider Dunsbury Business Park development.
- 3.3.4.2 During construction of plot 6, night work will be avoided as far as possible. Where night work is essential, any temporary lighting required will be the minimum necessary to complete the works and directed downwards towards the works area only, thereby minimising light spill onto adjacent vegetation within the Site.
- 3.3.4.3 The development proposals for plot 6 will include a sensitive lighting design following the recommendations published by the Institute of Lighting Engineers (ILE)¹⁷, to ensure light spill onto adjacent vegetation within the Site is avoided and minimised as far as possible during operation.
- 3.3.4.4 No lighting within the Site and a sensitive lighting scheme during construction and operation of plot 6 will ensure that the Site remains suitable as a wildlife corridor for important Annex II rare bat species (Bechstein's and barbastelle) and is suitable for continued use by other nocturnal protected and priority species, including hazel dormice, other bat species, badgers and hedgehog.

3.4 Proposed short-term and long-term management of the buffer

- 3.4.1 The current mosaic of habitats will be retained and managed to reduce scrub encroachment, promote floral species-diversity and provide a valuable foraging resource for bats and invertebrates, as well as offering suitable and enhanced habitats for hazel dormice, reptiles, birds, and badgers.
- 3.4.2 All management activities will be undertaken sympathetically with regards to protected species, specifically hazel dormouse and reptiles. The management prescriptions in Table 1 provide suitable timing and methods to avoid causing harm to protected species.

3.4.2 Grassland

- 3.4.2.1 The grassland will be managed with the aim of restoring the species-rich MG5; *Cynosurus cristatus*-*Centaurea nigra* community and improving the diversity of the plant species that have been historically recorded. This will in-turn, promote the flowering swards that are of value for invertebrates and other wildlife. On this basis the grassland has been divided into three sections (A, B and C) as shown on Figure 2 in Appendix 1 to allow the grassland to be managed on a 3-year rotational basis, which will form differing vegetation heights. This will create transitional zones to allow some areas to be left taller, which should benefit invertebrates and other wildlife as it provides additional refuge and foraging opportunities.
- 3.4.2.2 Rotational grazing by cattle would be the ideal form of management for the grassland. However, this is considered unsuitable for the Site based on the requirement to keep the cattle appropriately fenced in and due to the small area of each section to be managed. Instead, the grassland will be managed as a hay meadow with rotational cutting within each of the sections.
- 3.4.2.3 Cutting should take place between August and October using hand tools only, to allow dispersal of invertebrates and other animals (e.g. reptiles). By using hand tools, cutting can be moderated to avoid the remaining scrub and tree habitat within the mosaic.
- 3.4.2.4 All cuttings from the grassland will be removed and placed in a compost heap (in the same location each year, as shown on Figure 24 in Appendix 1), which will provide enhanced habitat for invertebrates and reptiles such as grass snake. The compost heap should be at least 1 m³, located in a sunny position and created on brash to encourage aeration and allow access for animals at the base. This compost heap should then be sectioned off (ideally contained with a timber structure) and left undisturbed with the exception of new cuttings being placed on top.
- 3.4.2.5 No fertilisers will be used within the grassland as this enriches the soil nutrients, allowing grasses to easily outcompete wildflowers. Similarly, the use of chemical herbicides will be avoided as wildflowers are more susceptible than grasses and weeds. Infrequent spot-treatment of common persistent weeds may be permitted due to the localised nature of its application.
- 3.4.2.6 No seed shall be sown. This is not required due to the existing presence of wildflowers in the sward, which will slowly spread following appropriate management of the grassland, outlined above.

¹⁷ Bat Conservation Trust ILP (2018) Bats and artificial lighting in the UK: Overview of current evidence and mitigation guidance.

- 3.4.2.7 As the floral diversity of the grassland improves from the prescriptions in this document, this is likely to increase invertebrate diversity and in turn provide an improved foraging resource for bats and other wildlife.

3.4.3 Scrub

- 3.4.3.1 Scrub encroaching the grassland (particularly in the northern half of the Site) will be cut back on a three-year rotation over the winter (i.e. November-February) to improve the size and quality of the grassland area. Areas of scrub cut back are to be concentrated in a different section to the grassland (i.e. all of the scrub and grassland will not be cut down in a single area) in each management year. All arisings will be removed from the Site. If the cutting regime is not successful in preventing the spread of scrub/ ruderal vegetation, alternative methods such as digging out a maximum of 25% of the scrub by hand will be required.
- 3.4.3.2 All scrub around the edges of the Site will be retained and can be lightly managed on a three-year rotation as above to prevent overgrowth (i.e. intrusion into plot 6). This will retain the dynamic range of features within the Site and structural diversity between woodland, open habitats, scrub, flowery swards and ruderals.
- 3.4.3.3 Due to the potential for hazel dormice to be present within the scrub to be cut back, the following requirements would need to be met in order to undertake this work:
- These works would not be permitted until the west Site boundary has been planted with whips and sufficiently developed to form a continuous scrub habitat that could be used and provide connectivity for hazel dormice;
 - Works are to be timed for the winter (i.e. November to February) to avoid potential harm and disturbance hazel dormice during the breeding season and to avoid the core bird nesting season¹⁸;
 - The works would need to be completed under a Precautionary Method of Working (PMW) to ensure appropriate measures are in place to avoid harm and any potential disturbance to hibernating hazel dormice and other protected species (e.g. potential bat roosts). The PMW would include the presence of a suitably experienced Ecologist on site to supervise the works. The Ecologist would advise measures to avoid affecting protected species and suitable working methods to minimise disturbance to hazel dormice, including a thorough check of the vegetation for hazel dormice before the works can proceed. If any hazel dormice are discovered, the works would stop and alternative approaches to the work / different areas for cutting / thinning / or a hazel dormouse licence obtained would be considered;
 - Small areas of vegetation would be cut at a time and may need to be removed over consecutive winters, as required, based on advice from the Ecologist; and
 - After the initial cut back/ thinning, management of the same areas over subsequent years is to be timed to occur during the winter (i.e. November to February) and depending on the extent of regrowth, ecological supervision may not be required (to be confirmed by the Ecologist).

3.4.4 Planting up the western Site boundary

- 3.4.4.1 First-year management of the newly planted continuous scrub along the western boundary of the Site will depend on the rate of growth of the planted specimens, which are generally slow to grow. Any growth of common persistent weeds will be controlled through spot-treatment during the first five years.
- 3.4.4.2 The new scrub planting will be checked at the end of each growing season and any failed stock will be replaced in the next available planting season (November-March) from years 2-5. Following checks will be made every 5 years until year 30 to monitor growth and replant any failed stock where required.
- 3.4.4.3 The continuous scrub boundary will provide valuable connected habitat for hazel dormice, cover for reptiles, and be suitable for nesting birds and other wildlife.

3.4.5 Park Lane Stream

- 3.4.5.1 There is the ability to improve the habitat within the reach adjacent to the Site, which will in turn have positive impacts downstream, where it is known that the Environment Agency¹⁹ are currently carrying out improvements.
- 3.4.5.2 Local thinning of the trees/ shrubs adjacent to the stream would open up the channel and enable more light to get to the watercourse, to support in the establishment of marginal vegetation. The wood arisings can be used to provide deflectors²⁰, which should be placed on alternate banks within the reach to move flow from one side of the stream to another to provide increased sinuosity. This would enhance natural processes through erosion and

¹⁸ Generally March-August inclusive (weather and temperature dependant); however, some species can nest earlier and later than this.

¹⁹ Based on catchment wide knowledge as the Atkin's team are also working on a different scheme that affects the Hermitage Stream.

²⁰ Deflectors in this case are large wooden debris installed at a bank toe and extending towards the center of a stream, in order to concentrate stream flow away from its banks. They can limit bank erosion and generate varying flow conditions in terms of depth and velocity, which can positively impact fish habitat.

deposition providing increased habitat value. Photograph 1 shows some of the headwater restoration that has been delivered with the support of Atkins on the River Wensum in Norfolk. The localised changes have led to fine sediment being mobilised from the bed through narrowing of the channel (which leads to increased velocities) leading to gravels being uncovered and then deposition starting to occur in the margins. This has led to enhanced diversity. In this example, *Ranunculus* species have since recovered within this reach where in the past they were largely missing; thus simple measures can have beneficial results and similar opportunities for comparable improvements could thus be sought for Park Lane Stream. A constraints map (produced by Terra Firma in conjunction with a Geomorphologist) would first need to be developed to ensure that there are no significant constraints, such as utilities, within this area, which could inhibit the delivery of such an approach.

- 3.4.5.3 Due to the potential for hazel dormice to be present within the continuous trees/ scrub along the banks of the stream, the requirements provided in paragraph 3.4.3.3 above would need to be met in order to undertake this work.

Photograph 1: This photograph shows headwater restoration that has been delivered with Atkins' support on the River Wensum in Norfolk



3.4.6 Deadwood

- 3.4.6.1 Any deadwood that develops or falls from the trees within the Site is to be retained and provided in sheltered sunny areas for use by invertebrates (e.g. deadwood-nesting bees) and saprophytic fungi.

3.4.7 Recreational use/ litter

- 3.4.7.1 The Site will be regularly monitored to ensure it does not become a location for un-planned activities (such as a bike park), which could have adverse impacts on the biodiversity interest of the Site. If any such use is identified, measures will be put in place to deter such activity, e.g. signage/fencing/security patrol, as required.
- 3.4.7.2 Any litter found during regular monitoring/management of the Site will be removed. If litter becomes a problem due to recreational use, then measures will be put in place to rectify the issue, e.g. bins provided within plot 6/ signage, as required.

Table 1: Ecological Management Prescriptions

Ecological Feature	Prescription	Years								
		Timing	Annually	Year 1	Year 2	Year 3	Year 4	Year 5	Every 3 Years (from 6 to 30)	Every 5 Years (from 10 to 30)
Grassland	Rotational cut by hand tools in Areas A, B and C (ensuring each area is only cut once every three years). <i>This must include the removal of all arisings to the compost heap (see below).</i> <i>No fertilisers or chemical herbicides to be used.</i>	Aug – Oct (using hand tools only)	X ensuring each area is only cut once every three years							
Creation of the compost heap	Created on brash and should be at least 1 m³. This area should then be sectioned off (ideally contained within a timber structure/ fencing) and left undisturbed (with the exception of new cuttings being placed on top). <i>To be used for arisings from grassland management only. Scrub brash is to be removed from Site.</i>	Aug - Oct	X ensuring each area is only cut once every three years							
Scrub	Scrub clearance/pruning using hand tools in Areas A, B and C as shown in Figure 4 in Appendix 1 (ensuring each area is only cut once every three years). <i>All arising to be removed form Site.</i>	Winter (Nov-Feb)	X ensuring each area is only cut once every three years						X	
	If the cutting regime is not successful in preventing the spread of scrub, alternative methods such as digging out a maximum of 25% of the scrub by hand will be considered.	Winter (Nov-Feb)				X			X	
Scrub infill planting along the western Site boundary	Planting of whips within the gaps along the western boundary between plot 6 and the Site	Winter (Nov-Mar)		X						
	Inspect guards, stakes <i>etc.</i> and replace mulch	Winter (Nov-Mar)		X	X	X	X	X		X
	Replacement of failed stock for newly planted scrub	Winter (Nov-Mar)			X	X	X	X		X
	Removal of guards for newly planted scrub	As required			X	X	X	X		

	Cutting - Encourage some outgrowth of bramble or field rose clumps at the side, as they provide excellent nesting places, and are a good food source.	Winter (Nov-Feb)				X			X	
Common persistent weeds	Inspection and control with spot treatment where necessary.	May - Jun		X	X	X	X	X	X	
Deadwood	Any deadwood from the trees is to be retained and moved to sheltered sunny areas for use by invertebrates.	May-Oct	X							
Park Lane Stream	A constraints map should be developed (by Terra Firma in conjunction with a Geomorphologist) to ensure that there are no constraints, such as utilities, within this area which could inhibit the delivery of such an approach.	Anytime in advance of the works		X						
	Local thinning of trees/ shrubs to control shading vegetation. <i>This can be carried out in conjunction with the management of scrub encroachment detailed above.</i> <i>All arising to be removed form Site.</i>	Winter (Nov-Feb)						X Only after the western Site boundary has been planted to form a continuous habitat that could be used by hazel dormice	X	
Monitoring and reporting	Site check (including fixed point photographs or habitat mapping) to ensure there is no scrub and ruderal encroachment/ increase which would consequently result in a reduction in the size and quality of the grassland area. An assessment of how the Site has been used recreationally also to ensure that the biodiversity of the Site is not being adversely affected. This visit will include monitoring and removal of litter (the frequency of this may need to be increased depending on level of use).	Mar or Oct	X							
	Review of this document and adjustments made as necessary in consultation with an Ecologist.	End of year	X							

3.5 Proposed responsibility for management and financial provision for management of the buffer

- 3.5.1 PCC as landowner and developer of Dunsbury Business Park will be responsible for the management of the Park Lane Stream buffer. The buffer will be included as a named feature in the Scheme wide Landscape Management Plan that PCC have prepared.
- 3.5.2 PCC will be financially responsible for the management of the buffer. As Dunsbury Business Park develops over time, occupiers will contribute an estate service charge that will be collected by PCC and used to fund site wide estate management that will include landscape maintenance. Once in place, the Park Lane Stream Buffer will be included within the Dunsbury Park Landscape Management Plan that PCC are required to update every 4 years in line with Condition A1 of APP/17/01324.

Appendix 1 Figures

Figure 1 Dunsbury Park development	15
Figure 2 Park Lane Stream Buffer	16
Figure 3 Park Lane Stream photographs.....	17
Figure 4 Park Lane Stream Buffer Landscape and Ecological Design	18

Figure 1 Dunsbury Park development

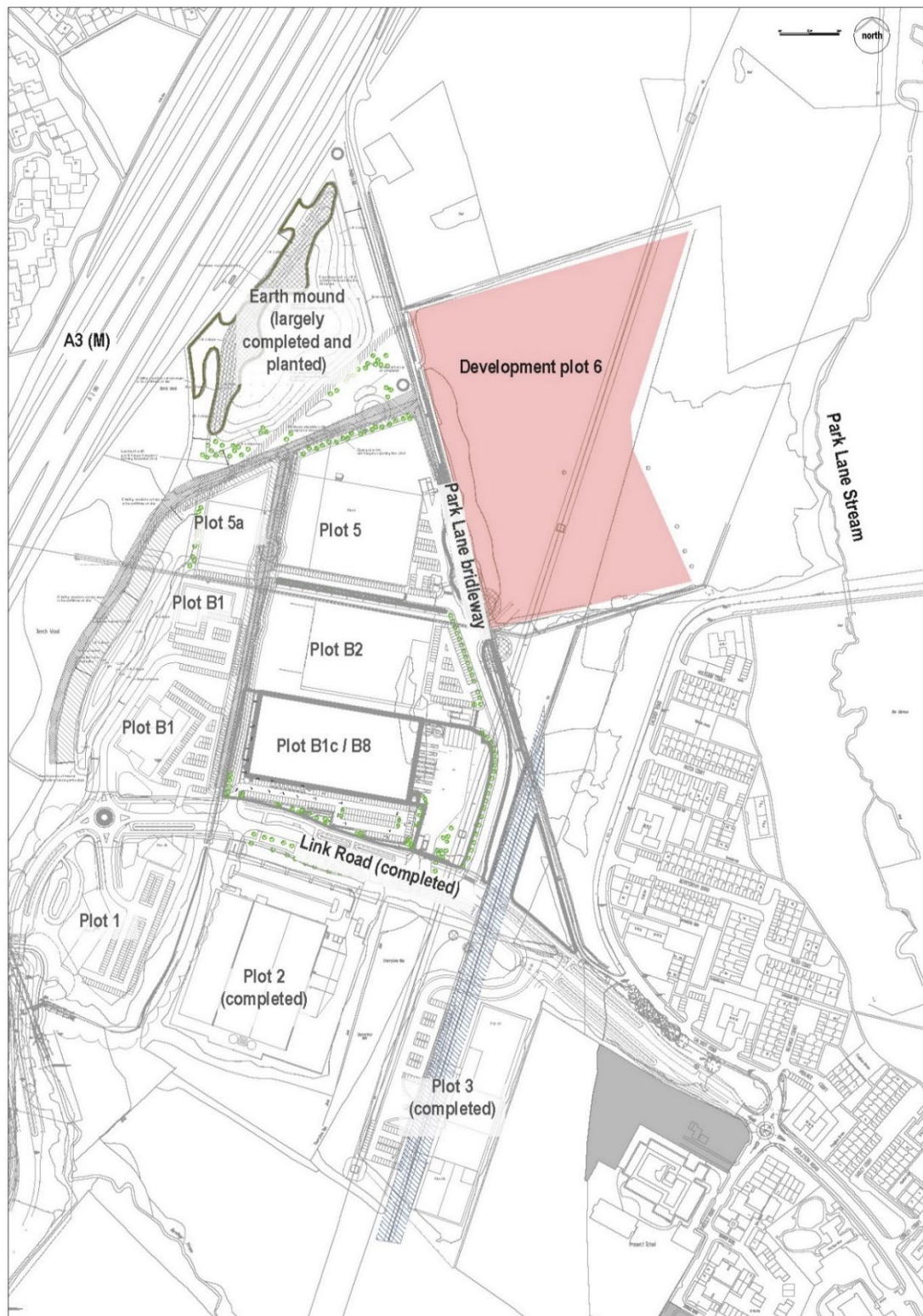


Figure 2 Park Lane Stream Buffer



Figure 3 Park Lane Stream photographs

	
Park Lane Stream corridor and Dunsbury Hill Wood SINC viewed from higher ground, looking east	Park Lane Stream in dense woodland – Dunsbury Hill Wood SINC
	
Mosaic of scrubland and grassland within the Site on a slope towards Park Lane Stream	Arable field adjacent to the Site (this is Plot 6 of the Scheme)

Figure 4 Park Lane Stream Buffer Landscape and Ecological Design

