



Land at Newgate Lane (North), Fareham and Land at Newgate Lane (South,) Fareham

Document Ref: FL&BH 4.2

Proof of Evidence of David West MEnv Sci (Hons) CEnv MCIEEM on Ecology Matters - Appendices

**For Fareham Land LP and Bargate
Homes**

October 2020

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Appendix A: Chamomile Management Plan

Chamomile Management Plan



Site:	Land at Newgate Lane (South), Fareham
Client:	Bargate Homes
Job Number:	A117387
Survey Type(s):	Botanical Survey and Chamomile Management Plan
Date of Survey(s):	5 August 2020 and 26 October 2020
File Location:	I:\Projects\Projects A117000 on\A117387 Land West of Newgate Lane\Reports

Introduction

WYG were commissioned in July 2020 to undertake a botanical survey of four fields at the Land at Newgate Lane (South), Fareham site. This was principally to establish the presence of the notable species chamomile and assess the vegetation to inform a suitable management plan for the proposed development.

Ethos Ecology (2019) undertook the first Ecological Assessment which assessed the fields as improved grassland, heavily grazed and poached by horses (their section 5.2.2). Species identified were perennial rye-grass *Lolium perenne*, daisy *Bellis perennis*, dandelion *Taraxacum officinale*, annual meadow-grass *Poa annua*, white clover *Trifolium repens*, creeping bent *Agrostis stolonifera* and creeping thistle *Cirsium arvense*. However, subsequently, chamomile *Chamaemelum nobile* was identified as present on the site. Chamomile is a declining species and is listed as 'Vulnerable' within the Vascular Plant Red Data List for Great Britain (Cheffings & Farrell, 2005). This plant is included as a species 'of principal importance for the purpose of conserving biodiversity' under Section 41 (England) of the Natural Environment and Rural Communities Act 2006.

The fields have been identified as a potential Site of Importance for Nature Conservation due to the presence of a large population of chamomile *Chamaemelum nobile* and the potential presence of MG5 Crested dog's-tail *Cynosurus cristatus* – common knapweed *Centaurea nigra* grassland. Further information on the vegetation was required to inform a suitable management plan within the proposed development (see Appendix B).

Site Location

The site is located to the east of Newgate Lane in Fareham, Hampshire centred at OS Grid Reference SU570031 (Figure 1). The fields currently comprises of horse-grazed paddocks and stables. The fields form part of farmland surrounded by the built-up areas of Fareham to the north, Gosport to the east and south, and Stubbington to the west.

Historic maps Ordnance Survey maps available on the National Library of Scotland website (<https://maps.nls.uk/>) suggest these fields were originally part of Peel Common and were rough pasture in 1856, being enclosed from Newgate Lane sometime between 1989 and 1930. They are have sandy loam to clayey loam soils derived to old estuarine mud and sand deposits formed over Wittering Formation sedimentary bedrocks. The land is relatively low-lying and prone to occasional winter flooding.

Development Proposals

The proposals for the wider development site are for up to 115 dwellings, with associated infrastructure, parking and landscaping (Appendix A). This report relates to previously horse-grazed paddocks adjacent to Newgate Lane only.

Methods

The site was visited on 5th August 2020 by WYG Senior Ecologist John Simper MCIEEM to do the initial chamomile survey; the weather conditions were overcast with no rain and mild. The NVC survey and additional plants survey was undertaken on 26 October 2020 by WYG's specialist botanist Dr Tim Rich BSc, PhD, MCIEEM in dry and sometimes sunny weather.

The distribution and abundance of chamomile on site was recorded. Plant species frequencies across all four meadows were recorded using the DAFOR scale (D= dominant, A = abundant, F = frequent, O = occasional, R= rare) as estimated by eye.

A separate detailed National Vegetation Classification (NVC) survey (also known as a British Plant Communities survey) was carried out on 26 October 2020 to assess the vegetation type (see WYG, 2020). Dr Rich has 37 years of experience using with the NVC, and was the first post-doctoral Research Associate in the Unit of Vegetation Science, University of Lancaster using the NVC to assess impacts of climate change and air pollution on calcicolous vegetation. He has carried out many NVC surveys and has written some of the standard guidelines on carrying out NVC surveys (cf. Section 6.1.6 of Hill et al. 2005).

The survey followed the standard method (Rodwell, 2006) concentrating on the three ungrazed grasslands in the north of the site. The southern field was heavily grazed by three ponies who were somewhat frisky so for safety reasons this field was viewed from outside the fence only. Other vegetation such as bramble scrub was not surveyed to NVC level.

The quadrats were deliberately selected to represent the range of grasslands present on the site, which comprised short areas with chamomile and longer areas with rye grass, and some more intermediate grassland. For each quadrat, the GPS location was noted and a photograph taken. Vegetation cover and height were estimated by eye. Species were recorded in 2 m x 2 m quadrats using the DOMIN cover scale estimated by eye as shoot frequency (Table 1).

Table 1 Cover Ranges for DOMIN Cover Scale

Domin Cover Value	% Cover Range
10	91-100%
9	76-90%
8	51-75%
7	34-50%
6	26-33%
5	11-25%
4	4-10%
3	<4%; many individuals
2	<4%; several individuals
1	<4%; few individuals

Five quadrats were recorded in each vegetation type to allow constancy tables to be compiled. Constancies were calculated as follows (Rodwell 2006): V = 81-100% quadrats. IV = 61-80% quadrats, III = 41-60% quadrats, II = 21-40 % quadrats, I = 1-20% quadrats.

Allocation of the NVC communities was carried out by comparison of the constancy tables against the NVC tables, and also by running each quadrat through the mesotrophic grassland key. A further comparison was carried out using the Modular Analysis of Vegetation Information System (MAVIS) software (Smart et al., 2016). This software calculates a similarity coefficient between the quadrat sample(s) and the NVC tables using the Czekanowski coefficient with down-weighting to 0.1 of species not present in the input data but present at constancy I (1-20%) in the NVC tables (Smart *et al.*, 2016). The top 10 matching coefficients are displayed and indicate potential matches against NVC communities, but must be used with caution and are indications of possible relationships rather than statements of fact (Palmer, 1992). Included in the MAVIS package are new communities not covered in the published NVC volumes (Smart et al., 2016).

Scientific names in *italics* are given at the first mention of a species' name and thereafter by their common species name, following the standard British flora (Stace 2019).

Limitations

The optimal period for botanical surveys is generally between April and September. The initial survey was completed within the optimal period with the secondary NVC survey in October, but due to the mild autumn with good weather and the ungrazed condition of the three northern fields was perfectly adequate for assessing the grassland NVC type, though some species which appear early in the season and die down by early summer will have been missed (e.g. the spring-flowering lesser celandine *Ficaria verna*). These species may also be absent within the optimal season and if present would not result in any change in the assessment of grassland NVC type. The timing of the surveys is therefore not considered to be a constraint to the survey or NVC determination.

The southern-most field was grazed by horses during the second visit and was not entered for safety reasons. As far as could be assessed from the edges, this field is of similar composition to the three other ungrazed fields.

Results

Chamomile was found to be abundant throughout the survey area, particularly in areas of shorter sward height such as in shallow ditches or in areas grazed by rabbits (Photograph 1), but dense areas of rye grass in horse latrine areas had little or no chamomile. The site was ungrazed at the time of the surveys resulting in a sward height of 10-20 cm (30-40 cm including the grass inflorescences) over most of the site (Photograph 2), a significant change from the condition at the time of the previous surveys on site. Bramble scrub was found to be colonising a few places in the fields (Photograph 3).

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Photograph 1: Chamomile in shallow ditch



Photograph 2: Ungrazed grassland



Photograph 3: Scrub becoming established in the south of the survey area.



A combined list of plant species seen during both surveys is given in Table 2. Despite the local abundance of rye grass, the fields were unimproved neutral grassland with many old-grassland indicator species such as the abundance of chamomile and smaller quantities of corky-fruited water-

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dropwort *Oenanthe pimpinelloides*, pepper-saxifrage *Silaum silaus*, meadow barley *Hordeum secalinum* and hoary ragwort *Jacobaea erucifolius*.

Table 2. Plant species recorded in the fields.

Plant species	DAFOR frequency
Crested dog's tail <i>Cynosurus cristatus</i>	Dominant
Perennial rye-grass <i>Lolium perenne</i>	Locally dominant
Common bent <i>Agrostis capillaris</i>	Abundant
Chamomile <i>Chamaemelum nobile</i>	Abundant
Creeping bent <i>Agrostis stolonifera</i>	Frequent
Yorkshire-fog <i>Holcus lanatus</i>	Frequent
Cat's-ear <i>Hypochaeris radicata</i>	Frequent
Meadow buttercup <i>Ranunculus acris</i>	Frequent
Autumn hawkbit <i>Scorzoneroides autumnalis</i>	Frequent
Common bird's-foot trefoil <i>Lotus corniculatus</i>	Locally abundant
Common nettle <i>Urtica dioica</i>	Very locally abundant
Common knapweed <i>Centaurea nigra</i>	Very locally frequent
Hairy sedge <i>Carex hirta</i>	Occasional
Bilbao fleabane <i>Erigeron floribundus</i>	Occasional
Red fescue <i>Festuca rubra</i>	Occasional
Lesser hawkbit <i>Leontodon saxatilis</i>	Occasional
Red bartsia <i>Odontites vernus</i>	Occasional
Ribwort plantain <i>Plantago lanceolata</i>	Occasional
Creeping cinquefoil <i>Potentilla reptans</i>	Occasional
Selfheal <i>Prunella vulgaris</i>	Occasional
Fleabane <i>Pulicaria dysenterica</i>	Occasional
Creeping buttercup <i>Ranunculus repens</i>	Occasional
Bramble <i>Rubus fruticosus</i>	Occasional
Clustered dock <i>Rumex conglomeratus</i>	Occasional
Dandelion <i>Taraxacum</i> agg.	Occasional
Red Clover <i>Trifolium pratense</i>	Occasional
White clover <i>Trifolium repens</i>	Occasional
Scentless mayweed <i>Tripleurospermum inodorum</i>	Occasional
Yarrow <i>Achillea millefolium</i>	Rare
Meadow foxtail <i>Alopecurus pratensis</i>	Rare
Cuckooflower <i>Cardamine pratensis</i>	Rare
Spear thistle <i>Cirsium vulgare</i>	Rare
Hawthorn <i>Crataegus monogyna</i>	Rare
Cock's-foot <i>Dactylis glomerata</i>	Rare
Willowherb <i>Epilobium</i> sp.	Rare
Bristly Oxtongue <i>Helminthotheca echioides</i>	Rare
Meadow barley <i>Hordeum secalinum</i>	Rare
Hoary ragwort <i>Jacobaea erucifolius</i>	Rare
Ragwort <i>Jacobaea vulgaris</i>	Rare
Hard rush <i>Juncus inflexus</i>	Rare
Corky-fruited water-dropwort <i>Oenanthe pimpinelloides</i>	Rare
Timothy <i>Phleum pratense</i>	Rare
Greater plantain <i>Plantago major</i>	Rare

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Silverweed <i>Potentilla anserina</i>	Rare
Bulbous buttercup <i>Ranunculus bulbosus</i>	Rare
Common sorrel <i>Rumex acetosa</i>	Rare
Broad-leaved Dock <i>Rumex obtusifolius</i>	Rare
Elder <i>Sambucus nigra</i>	Rare
Tall fescue <i>Schedonorus arundinaceus</i>	Rare
Pepper-saxifrage <i>Silaum silaus</i>	Rare
Chickweed <i>Stellaria media</i>	Rare

Figure 2 shows the vegetation mapped and the location of the grassland quadrats. The grassland quadrats are tabulated in Appendix C, with photographs of each quadrat and the MAVIS similarity coefficients.

The quadrats placed in the shorter areas of grassland (quadrats 1, 2, 4, 8, 9) show this was an MG6 *Lolium perenne* - *Cynosurus cristatus* grassland dominated by a mixture of crested dog's-tail and rye grass *Lolium perenne* grassland, with constant common bent *Agrostis capillaris*, chamomile, crested dog's-tail, Yorkshire fog *Holcus lanatus*, rye grass, meadow buttercup *Ranunculus acris* and autumn hawkbit *Scorzoneroides autumnalis* (Table 3). The vegetation fits best the MG6b sweet vernal-grass *Anthoxanthum odoratum* sub-community, though sweet vernal-grass itself was not seen on site. This classification is supported by the MAVIS similarity coefficients for the five quadrats combined (Table 4) which give the closest match to MG6b *Lolium perenne*-*Cynosurus*, *Anthoxanthum odoratum* sub-community or the community as a whole. This vegetation type occurs on lighter-textured soils in grazed pastures throughout Britain (Rodwell 1992).

Table 3. Constancy table for shorter chamomile grasslands (quadrats 1, 2, 4, 8, 9). Figures for species are Domin cover values. Constancies are calculated as above.

Quadrat	1	2	4	8	9	Constancy
<i>Agrostis capillaris</i>	8	7	8	9	7	V
<i>Chamaemelum nobile</i>	3	5	5	7	3	V
<i>Cynosurus cristatus</i>	7	6	6	6	6	V
<i>Holcus lanatus</i>	3	3	3	2	2	V
<i>Lolium perenne</i>	6	5	4	3	4	V
<i>Ranunculus acris</i>	2	3	3	2	1	V
<i>Scorzoneroides autumnalis</i>	2	2	2	3	3	V
<i>Festuca rubra</i>	2		1	1	4	IV
<i>Hypochaeris radicata</i>		1	1	4	1	IV
<i>Trifolium pratense</i>	3	2	4		1	IV
<i>Agrostis stolonifera</i>		4		2	2	III
<i>Lotus corniculatus</i>	3		6	4		III
<i>Plantago lanceolata</i>			1	2	1	III
<i>Centaurea nigra</i>	1				8	II
<i>Jacobaea vulgaris</i>	1		1			II
<i>Leontodon saxatilis</i>				2	2	II
<i>Potentilla reptans</i>	1				3	II
<i>Taraxacum agg.</i>			1		1	II
<i>Achillea millefolium</i>					5	I
<i>Cardamine pratensis</i>	2					I
<i>Carex hirta</i>				2		I

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<i>Odontites verna</i>				3		I
<i>Prunella vulgaris</i>		1				I
<i>Pulicaria dysenterica</i>	1					I
<i>Quercus robur seedling</i>	1					I
<i>Ranunculus bulbosus</i>					3	I
<i>Ranunculus repens</i>				3		I
<i>Rumex conglomeratus</i>			1			I
<i>Trifolium repens</i>					2	I

Table 4. MAVIS similarity coefficients for grouped shorter chamomile grasslands (quadrats 1, 2, 4, 8, 9).

NVC community	MAVIS similarity coefficient
MG6b <i>Lolium perenne</i> - <i>Cynosurus cristatus</i> , <i>Anthoxanthum odoratum</i> sub-community	57.28
MG6b <i>Lolium perenne</i> - <i>Cynosurus cristatus</i> grassland	55.45
MG6a <i>Lolium perenne</i> - <i>Cynosurus cristatus</i> , typical sub-community	53.91
MG4b <i>Alopecurus pratensis</i> - <i>Sanguisorba officinalis</i> grassland Typical subcommunity	53.64
MG4 <i>Alopecurus pratensis</i> - <i>Sanguisorba officinalis</i> grassland (redefined)	52.11
MG6d (v2) <i>Lolium perenne</i> - <i>Cynosurus cristatus</i> grassland <i>Filipendula ulmaria</i> subcommunity	51.89
MG8v2 <i>Cynosurus cristatus</i> - <i>Carex panicea</i> - <i>Caltha palustris</i> grassland <i>Caltha palustris</i> - <i>Bellis perennis</i> subcommunity	51.09
MG5a <i>Cynosurus cristatus</i> - <i>Centaurea nigra</i> grassland, <i>Lathyrus pratensis</i> sub-community	50.84
MG11a <i>Festuca rubra</i> - <i>Agrostis stolonifera</i> - <i>Potentilla anserina</i> grassland, <i>Lolium perenne</i> sub-community	44.92
MG10a <i>Holcus lanatus</i> - <i>Juncus effusus</i> rush-pasture, typical sub-community	44.81

The quadrats placed in the longer areas of grassland which are horse latrines were probably best treated as MG7 *Lolium perenne* leys and related grasslands, dominated by rye grass with common bent, Yorkshire fog, rye grass and meadow buttercup (Table 5). The MAVIS similarity coefficients for the five quadrats combined (Table 5) showed only a small range in values and MG7 is a close fifth in the rankings. Of these, quadrats 5 and 6 were placed on the edges of the horse latrine areas as the vegetation types intergrade, and they include some species of the MG6 *Lolium - Cynosurus* grasslands as well as chamomile.

Table 5. Constancy table for longer rank grasslands in horse latrines (quadrats 3, 5, 6, 7, 10). Figures for species are Domin cover values. Constancies are calculated as above.

Quadrat	3	5	6	7	10	Constancy
<i>Agrostis capillaris</i>	5	6	6	2	5	V
<i>Holcus lanatus</i>	3	7	4	1	3	V
<i>Lolium perenne</i>	9	6	3	6	9	V
<i>Ranunculus acris</i>	1	3	2	1	1	V
<i>Chamaemelum nobile</i>		3	4		1	III
<i>Cynosurus cristatus</i>			6	9	4	III

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<i>Festuca rubra</i>	1	1			1	III
<i>Ranunculus repens</i>		2	2		4	III
<i>Scorzoneroïdes autumnalis</i>			3		2	II
<i>Centaurea nigra</i>		1			2	II
<i>Carex hirta</i>		3		2		II
<i>Hypochaeris radicata</i>			2			I
<i>Lotus corniculatus</i>			3			I
<i>Leontodon saxatilis</i>					2	I
<i>Rumex acetosa</i>	1					I
<i>Odontites verna</i>			1			I
<i>Prunella vulgaris</i>			2			I
<i>Pulicaria dysenterica</i>		1				I
<i>Rumex conglomeratus</i>	2					I
<i>Trifolium repens</i>			2			I

Table 6. MAVIS similarity coefficients for grouped shorter chamomile grasslands (quadrats 1, 2, 4, 8, 10).

NVC community	MAVIS similarity coefficient
MG6d <i>Lolium perenne</i> - <i>Cynosurus cristatus</i> grassland <i>Filipendula ulmaria</i> subcommunity	48.72
MG4c <i>Alopecurus pratensis</i> - <i>Sanguisorba officinalis</i> grassland <i>Holcus lanatus</i> subcommunity	47.48
MG6a <i>Lolium perenne</i> - <i>Cynosurus cristatus</i> , typical sub-community	47.31
MG9 <i>Holcus lanatus</i> - <i>Deschampsia cespitosa</i> grassland	46.63
MG7 <i>Lolium perenne</i> leys and related grasslands	46.02
MG15b <i>Alopecurus pratensis</i> - <i>Poa trivialis</i> - <i>Cardamine pratensis</i> grassland <i>Lolium perenne</i> <i>Ranunculus acris</i> subcommunity	45.98
MG6b <i>Lolium perenne</i> - <i>Cynosurus cristatus</i> , <i>Anthoxanthum odoratum</i> sub-community	45.68
MG15 <i>Alopecurus pratensis</i> - <i>Poa trivialis</i> - <i>Cardamine pratensis</i> grassland.	45.56
MG11a <i>Festuca rubra</i> - <i>Agrostis stolonifera</i> - <i>Potentilla anserina</i> grassland, <i>Lolium perenne</i> sub-community	44.92
MG10a <i>Holcus lanatus</i> - <i>Juncus effusus</i> rush-pasture, typical sub-community	44.81

In addition to the grasslands, there were a few areas of bramble scrub and rank vegetation mainly comprising nettles *Urtica dioica* around the stables and dung heaps (Figure 2); these have not been NVC-mapped in this study which concentrated on the grasslands.

Discussion

The pastures with most chamomile were classified as MG6b *Lolium perenne* - *Cynosurus cristatus* grassland *Anthoxanthum odoratum* sub-community, which occurs on grazed pastures throughout Britain (Rodwell 1992). This is a vegetation type which would be expected on pastures derived from former common land with a long history of heavy grazing. This may also explain the abundance of chamomile across the site as it is a species selectively avoided by grazing animals such as horses. These short MG6b grasslands graded into long rank grassland in horse latrine areas which were classified as MG7 *Lolium perenne* leys due to the dominance by rye grass.

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Other than the abundance of rye grass, there was little sign the meadows have ever been agriculturally-improved by ploughing, reseeding or fertiliser application; the ground is uneven with some wet hollows and there are plants indicative of unimproved conditions such as chamomile, with smaller quantities of corky-fruited water-dropwort *Oenanthe pimpinelloides*, pepper-saxifrage *Silaum silaus*, meadow barley *Hordeum secalinum* and hoary ragwort *Jacobaea erucifolius*. The abundance of rye grass in the latrine areas may be explained as a result of the high levels of nutrients in the latrines, probably augmented by high stocking levels due to supplementary winter feeding of the horses. The rye grass does not appear to have been sown, and fertiliser is unlikely to have been applied as rich grass can cause laminitis in horses; however, no details of historic management are known.

One area in the southern of the two central fields had frequent common knapweed in the south-west quarter (Figure 2). Common knapweed is a characteristic species of the community MG5 *Cynosurus cristatus-Centaurea nigra* grassland, but here was not associated with other constants of the MG5 community such as bird's-foot trefoil *Lotus corniculatus* or red clover *Trifolium pratense* (though both these are present at low frequency). MG5 grasslands are typical hay meadow communities and tend to be managed by mowing often with aftermath grazing, rather than by continuous heavy grazing which is more typical of MG6 communities.

Management recommendations

Objectives and Principles

Based on the findings of the botanical surveys, and comments from the Local Planning Authority Ecologist, there are two objectives for the management of the site:

- maintain, and if possible enhance, the abundance of chamomile; and
- create a lowland meadow habitat.

These objectives have differing management requirements. For example, chamomile thrives in short, disturbed swards (as was present on site previously when grazed). In the absence of management it will become overgrown by more vigorous grasses and herbs, with the sward more closely resembling a traditional meadow. Lowland meadows provide a contrasting habitat, with long grass preferred by a different range of species such as knapweed, corky-fruited water-dropwort, pepper-saxifrage and hoary ragwort.

Therefore a compromise approach is proposed whereby the shorter grassland central portions of the area, which will be used as public open space, will be managed for chamomile. The outer portions of and the longer rank grasslands in former latrine areas will be managed as a longer sward in the manner of a traditional hay meadow to support taller species. The proposed management plan is shown in Figure 3 and has been informed by the existing communities and their distribution shown in Figure 2.

Chamomile areas

Chamomile prefers short swards such as those created by heavy grazing or frequent mowing regimes (Plantlife, 2020). Recreational use of the area resulting in increased trampling by walkers will benefit chamomile and should not be discouraged off pathways.

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From April to August the majority of the interior grassland of the site (Figure 2) should be mown fortnightly to a height of 50 mm. In September/October the mowing should take place once a month to let the chamomile set seed. No cutting is required during the winter. Arisings should be removed following each cut to reduce nutrient input into the soil.

Meadow area

To encourage general wildflower diversity on site and create a Lowland Meadow habitat, areas managed as long grass will be established around the fields on the current latrine areas to avoid any chamomile (Figure 2) and managed as hay meadows.

As these are in latrine areas it will first be necessary to reduce the nutrient loads, which is best done by repeated heavy mowing and removal of cuttings for the first three years; this can be carried out fortnightly at the same time as the chamomile areas are mown.

Thereafter mowing will take twice a year in early July and September with the west side cut in early July and the east side cut in September, alternating timings between different years. The cut should aim for a sward height of 150mm and all arisings should be removed from the site.

Scrub Management

Chamomile is sensitive to shading, therefore areas of scrub that are encroaching into grassland will be cleared using hand tools, ideally during the winter months (October to February) to avoid the bird nesting season. The arisings will be removed from site.

Further scrub encroachment is likely to be suppressed by the mowing regime but this should be monitored yearly with target removal taking place where necessary.

The exception to this will be the boundary of the management area, which is demarcated by a wire fence). Along the fence line, scrub will be allowed to establish to provide an additional element of habitat variation and habitat to fauna. However, the above management will be undertaken to prevent scrub along the site boundary from encroaching the areas of grassland (which are the principle aims of the management plan).

Nutrient and Chemical Control

No fertilizers or herbicides will be used as part of the management of the area. All arisings will be removed following management to reduce nutrient levels within the soil.

An increase in nutrients resulting from an increase in dog waste has the potential to alter the botanical diversity of the site (in localised areas). Dog waste bins and associated signage will therefore be installed to minimise impacts resulting from dog waste.

Management Timetable

The timings of the cutting regimes for the chamomile area and the meadow area are shown in Table 2.

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Table 2. Management for chamomile.

Year	Chamomile area	Meadow area
1	Mowing to 50 mm fortnightly April to August with removal of cuttings and monthly in September and October, no cutting during winter	Mowing fortnightly April-October with removal of cuttings to reduced nutrient load
2	Mowing to 50 mm fortnightly April to August with removal of cuttings and monthly in September and October, no cutting during winter	Mowing fortnightly April-October with removal of cuttings to reduced nutrient load
3	Mowing to 50 mm fortnightly April to August with removal of cuttings and monthly in September and October, no cutting during winter	Mowing fortnightly April-October with removal of cuttings to reduced nutrient load
4	Mowing to 50 mm fortnightly April to August with removal of cuttings and monthly in September and October, no cutting during winter	West side mown July with removal of cuttings, east side mown September with removal of cuttings
5	Mowing to 50 mm fortnightly April to August with removal of cuttings and monthly in September and October, no cutting during winter	West side mown September with removal of cuttings, east side mown July with removal of cuttings
6 etc	Mowing to 50 mm fortnightly April to August with removal of cuttings and monthly in September and October, no cutting during winter	West side mown July with removal of cuttings, east side mown September with removal of cuttings

Monitoring

Monitoring should take place every third year to ensure that the management prescriptions are successful in retaining and enhancing chamomile and creating a botanically rich meadow area. It is expected that there may be some annual variation in the abundance and distribution of chamomile on site due to climatic conditions, therefore short term monitoring is not considered necessary.

Chamomile cover averaged about 5-10% (range c. 2%-40%) across the short grasslands areas in 2020; it should be aimed to ensure this chamomile cover is maintained. Chamomile monitoring should take place every three years in July-August by estimating cover in thirty 1 m² randomly quadrats spaced throughout the short grassland areas. Monitoring should preferably take place a fortnight after a cut and prior to any cut taking place.

If corrective action is required a suitably qualified ecologist should be consulted to provide advice as to the necessary actions required. This may require further NVC survey to determine changes in the vegetation.



Summary

The site requires appropriate management to allow chamomile to thrive and to encourage a high botanical diversity. The following measures are recommended:

- Interior of the site to cut fortnightly during the summer to allow chamomile be maintained and enhanced on site, and monthly in autumn.
- Once nutrient levels have reduced after three years by fortnightly mowing, longer grassland areas around the site to be managed as lowland meadow ensuring sides are cut alternately in early July and late September.
- Removal of encroaching scrub.
- All arisings to be removed from site.
- Provision of dog waste bins and associated signage in order to reduce nutrient inputs.

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Chamomile Management Plan



Quality Control	
Version:	1 FINAL
Prepared by:	 John Simper MCIEEM Senior Ecologist
Checked By:	 Tim Rich MCIEEM Principal Ecologist
Verified By:	 David West CEnv MCIEEM Associate Ecologist

Version:	Date:	Updated by:	Verified by:	Description of changes:
2	October 20	T. Rich	D. West	Updated to include NVC findings and amended management areas.

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Figure 1: Site Location

Figure 2: NVC Plan

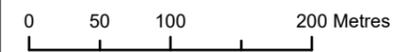
Figure 3: Chamomile Management Plan



Rev	Date	Notes
A	27/10/20	Initial map production

Legend

 NVC survey area



Site Location Plan

**Newgate Lane North and South, Fareham
Fareham Land LP and Bargate Homes**

Scale at A3: 1:5,000	Project No: A117387	Drawing No: Figure 1	Revision: A
Drawn by: Ben Blowers	Drawn date: 27/10/2020	Approved by: Tim Rich	

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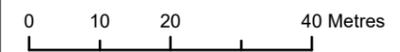
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Rev	Date	Notes
A	27/10/20	Initial map production

Legend

-  NVC survey area
-  Bramble scrub
-  MG6 *Lolium perenne*-*Cynosurus cristatus* grassland
-  Knapweed over MG6
-  MG7 *Lolium perenne* leys and related grasslands
-  Rank vegetation (unclassified)
-  Stables
-  Target note



National Vegetation Classification survey

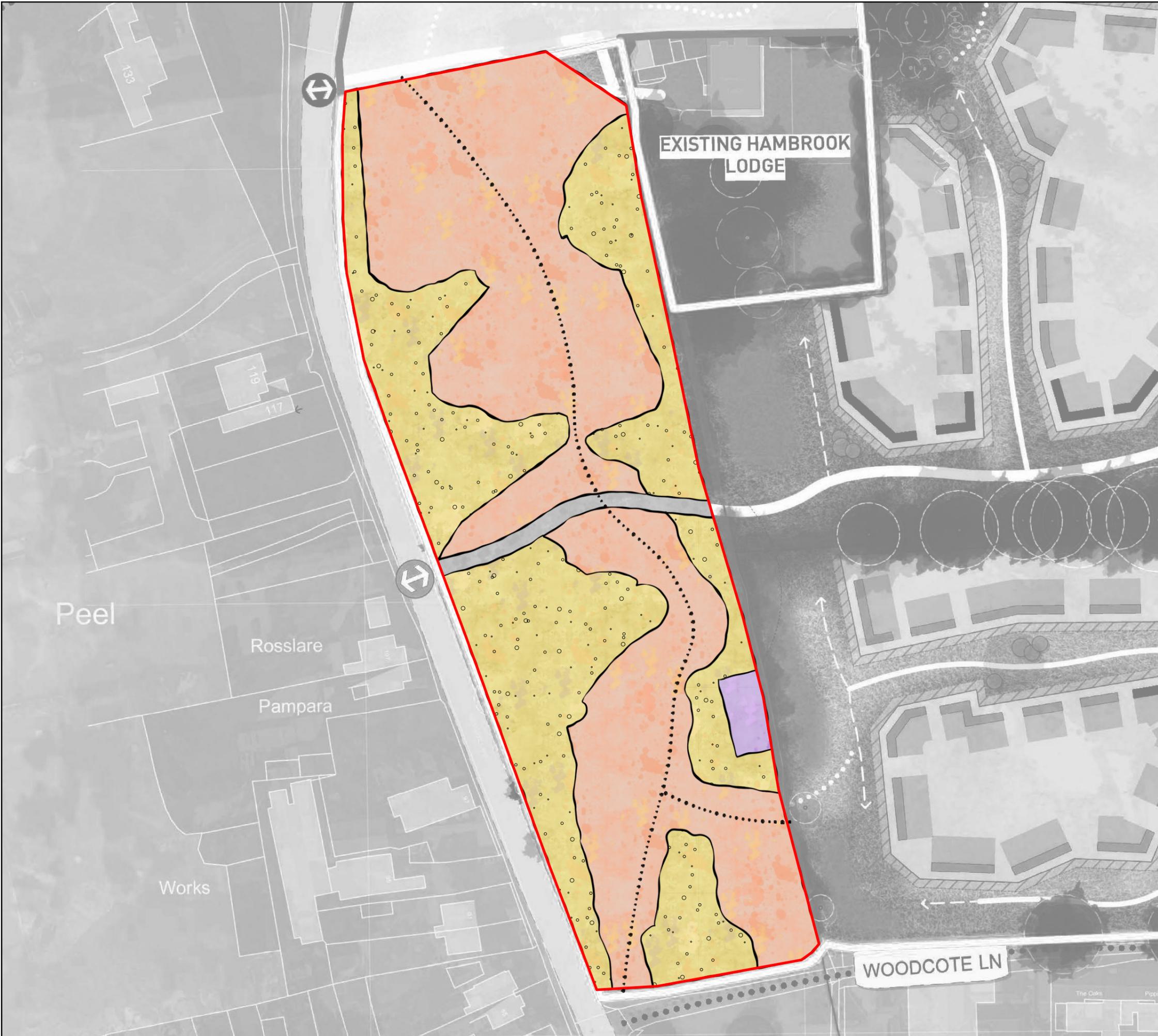
**Newgate Lane North and South, Fareham
Fareham Land LP and Bargate Homes**

Scale at A3: 1:1,000	Project No: A117387	Drawing No: Figure 2	Revision: A
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Drawn by: Ben Blowers	Drawn date: 28/10/2020	Approved by: Tim Rich
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Rev	Date	Notes
A	27/10/20	Initial map production

Legend

- NVC survey area
- Indicative access road
- Long grass areas cut twice a year
- Indicative play area
- Areas of short grassland managed for chamomile
- Indicative footpath



Proposed chamomile management plan

**Newgate Lane North and South, Fareham
Fareham Land LP and Bargate Homes**

Scale at A3: 1:850	Project No: A117387	Drawing No: Figure 3	Revision: A
Drawn by: Ben Blowers	Drawn date: 28/10/2020	Approved by: Tim Rich	

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Appendix A. Illustrative masterplan for site including area to be managed for chamomile (see Figure 2)



-  APPLICATION BOUNDARY
- LAND USE:**
-  RESIDENTIAL PARCELS
-  PRIMARY FRONTAGE
-  SECONDARY FRONTAGE
-  PUBLIC OPEN SPACE
- ACCESS AND CONNECTIONS:**
-  PROPOSED ACCESS
-  RETAINED EXISTING ACCESS TO HAMBROOK LODGE
-  PRIMARY SPINE ROAD
-  SECONDARY ROAD
-  TERTIARY ROAD
-  FOOTPATH CONNECTIONS
-  FOOTPATHS KEY NODE
- GREEN AND BLUE INFRASTRUCTURE:**
-  EXISTING VEGETATION
-  PROPOSED VEGETATION
-  PROPOSED LEAP (400SQM WITH 20M OFFSET)
-  DRAINAGE CHANNELS
-  INDICATIVE ATTENUATION
- OTHER:**
-  PROPOSED PUMPING STATION (MIN 12M X 8M WITH 15M OFFSET)

LAND ADJACENT TO NEWGATE LANE, FAREHAM - ILLUSTRATIVE FRAMEWORK MASTERPLAN - SOUTHERN PARCEL



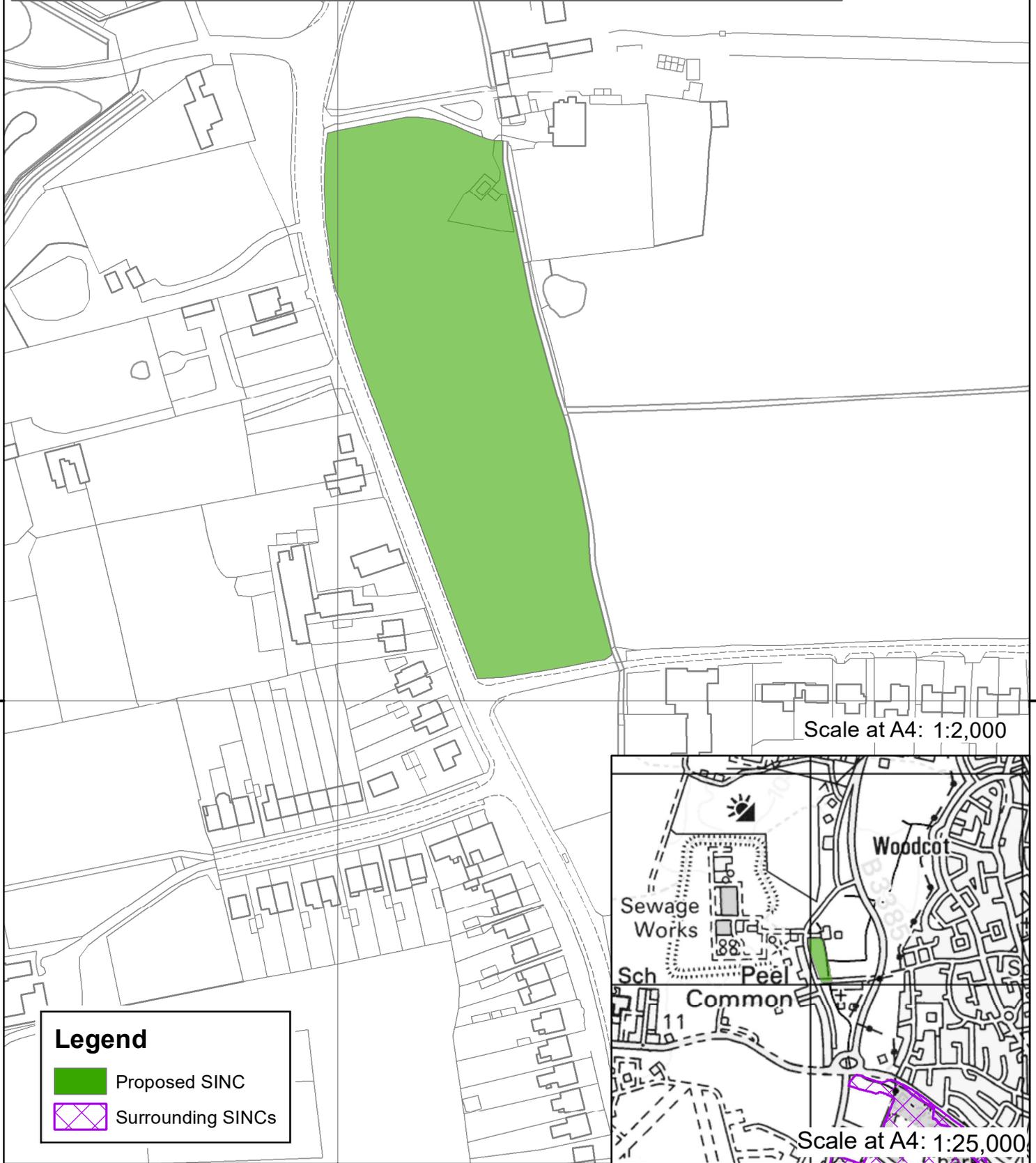


Appendix B. SINC's Advisory Panel Assessment: May 2020 Proposed SINC

457000

SINCs Advisory Panel Assessment: May 2020

Proposed SINC



Legend

- Proposed SINC
- Surrounding SINCs

457000



Appendix C – Quadrat data

QUADRAT 1

GPS Location: SU5701103201



Cover 100%, Height 10 cm.
Typical short open chamomile turf

<i>Agrostis capillaris</i>	8	<i>Lolium perenne</i>	6
<i>Cardamine pratensis</i>	2	<i>Lotus corniculatus</i>	3
<i>Centaurea nigra</i>	1	<i>Potentilla reptans</i>	1
<i>Chamaemelum nobile</i>	3	<i>Pulicaria dysenterica</i>	1
<i>Cynosurus cristatus</i>	7	<i>Quercus seedling/sp</i>	2
<i>Festuca rubra</i>	2	<i>Ranunculus acris</i>	2
<i>Holcus lanatus</i>	3	<i>Scorzoneroideis autumnalis</i>	2
<i>Jacobaea vulgaris</i>	1	<i>Trifolium pratense</i>	3

MAVIS similarity coefficients:

NVC: MG6b 42.58
NVC: MG5a 41.79
NVC: MG5 41.59
NVC: MG4b 41.58
NVC: MG6d 41.49

NVC: MG6 41.09
NVC: MG5c 39.82
NVC: MG5b 39.57
NVC: MG4a 39.50
NVC: MG6a 38.77

Chamomile Management Plan



QUADRAT 2

GPS Location: SU5703503189



Cover 100%, Height 10 cm.
Typical short open chamomile turf

<i>Agrostis capillaris</i>	7	<i>Lolium perenne</i>	5
<i>Agrostis stolonifera</i>	4	<i>Prunella vulgaris</i>	1
<i>Chamaemelum nobile</i>	5	<i>Ranunculus acris</i>	3
<i>Cynosurus cristatus</i>	6	<i>Scorzoneroideis autumnalis</i>	2
<i>Holcus lanatus</i>	3	<i>Trifolium pratense</i>	2
<i>Hypochaeris radicata</i>	1		

MAVIS similarity coefficients:

NVC: MG6b	46.21	NVC: MG4b	38.23
NVC: MG6a	43.65	NVC: MG15b	37.30
NVC: MG6	42.89	NVC: MG5a	37.00
NVC: MG8d	38.46	NVC: MG10a	36.92
NVC: MG6d	38.25	NVC: MG8	36.78

Chamomile Management Plan



QUADRAT 3

GPS Location: SU5701703179



Cover 100%, Height 15 cm.

Rank former latrine area dominated by rye grass

Agrostis capillaris	5	Lolium perenne	9
Festuca rubra	1	Ranunculus acris	1
Holcus lanatus	3	Rumex conglomeratus	2

MAVIS similarity coefficients:

MG6b 41.18	MG7D 36.76
MG6 38.70	MG12a 36.68
MG6a 37.50	MG7 36.46
MG7E 37.20	MG10a 36.31
MC9e 37.15	MG11a 36.08

Chamomile Management Plan



QUADRAT 4

GPS Location: SU5701203176



Cover 100%, Height 8 cm.
Typical short open chamomile turf

Agrostis capillaris	8	Lotus corniculatus	6
Chamaemelum nobile	5	Plantago lanceolata	1
Cynosurus cristatus	6	Ranunculus acris	3
Festuca rubra	3	Rumex conglomeratus	1
Holcus lanatus	3	Scorzoneroides autumnalis	2
Hypochaeris radicata	1	Taraxacum agg.	1
Jacobaea vulgaris	1	Trifolium pratense	4
Lolium perenne	4		

MAVIS similarity coefficients:

NVC: MG6b	49.78	NVC: MG4b	44.82
NVC: MG5a	48.09	NVC: MG6a	44.82
NVC: MG5	48.00	NVC: MG5b	44.77
NVC: MG6	47.19	NVC: MG5c	44.63
NVC: MG6d	45.03	NVC: MG7E	43.70

Chamomile Management Plan



QUADRAT 5

GPS Location: SU5702203140



Cover 100%, Height 15 cm.

Relative long grass with little chamomile tending towards latrine area

Agrostis capillaris	6	Holcus lanatus	7
Carex hirta	3	Lolium perenne	6
Centaurea nigra	1	Pulicaria dysenterica	1
Chamaemelum nobile	3	Ranunculus acris	3
Cynosurus cristatus	6	Ranunculus repens	2
Festuca rubra	1	Rumex acetosa	1

MAVIS similarity coefficients:

NVC: MG6d 47.88

NVC: MG6b 45.99

NVC: MG6a 44.13

NVC: MG6 43.08

NVC: MG4c 42.58

NVC: MG15b 41.04

NVC: MG4b 40.60

NVC: MG8d 39.44

NVC: MG10a 38.68

NVC: MG4v2 38.53

Chamomile Management Plan



QUADRAT 6

GPS Location: SU5705103165



Cover 100%, Height 8 cm.
Typical short open chamomile turf

Agrostis capillaris	6	Lotus corniculatus	3
Chamaemelum nobile	4	Odontites vernus	1
Cynosurus cristatus	9	Prunella vulgaris	2
Holcus lanatus	4	Ranunculus acris	2
Hordeum secalinum	3	Scorzoneroides autumnalis	3
Hypochaeris radicata	2	Trifolium repens	2
Lolium perenne	3		

MAVIS similarity coefficients:

NVC: MG6b 46.07
NVC: MG6 42.96
NVC: MG6a 41.88
NVC: MG5c 39.98
NVC: MG5a 39.40

NVC: MG5 39.13
NVC: MG6c 37.82
NVC: MG4b 36.08
NVC: MG4a 35.68
NVC: MG8 35.59

Chamomile Management Plan



QUADRAT 7

GPS Location: SU5703603135



Cover 100%, Height 15 cm.
Rank rye grass in latrine area

Agrostis capillaris	2	Pheum pratense	4
Agrostis stolonifera	4	Ranunculus acris	1
Carex hirta	2	Ranunculus repens	2
Holcus lanatus	1	Rumex obtusifolius	1
Lolium perenne	6	Stellaria media	1

MAVIS similarity coefficients:

NVC: MG11a 46.70	NVC: MG15b 39.91
NVC: MG10b 46.30	NVC: MG7D 38.35
NVC: MG10a 45.41	NVC: MG6d 36.92
NVC: MG7B 43.78	NVC: MG4c 36.67
NVC: MG10 42.75	NVC: MG7 36.51

Chamomile Management Plan



QUADRAT 8

GPS Location: SU5705703099



Cover 100%, Height 8 cm.
Typical short open chamomile turf

<i>Agrostis capillaris</i>	9	<i>Leontodon saxatilis</i>	2
<i>Agrostis stolonifera</i>	2	<i>Lolium perenne</i>	3
<i>Carex hirta</i>	2	<i>Lotus corniculatus</i>	4
<i>Chamaemelum nobile</i>	7	<i>Odontites vernus</i>	3
<i>Cynosurus cristatus</i>	6	<i>Plantago lanceolata</i>	2
<i>Festuca rubra</i>	2	<i>Ranunculus acris</i>	2
<i>Holcus lanatus</i>	2	<i>Ranunculus repens</i>	3
<i>Hypochaeris radicata</i>	4	<i>Scorzoneroides autumnalis</i>	3

MAVIS similarity coefficients:

NVC: MG6b 45.26

NVC: MG6d 43.83

NVC: MG6 42.41

NVC: MG4b 42.22

NVC: MG5a 42.15

NVC: MG6a 41.95

NVC: MC9a 41.61

NVC: MG11a 41.16

NVC: MG5 40.80

NVC: MG8v2 40.35

Chamomile Management Plan



QUADRAT 9

GPS Location: SU5704003077



Cover 100%, Height 10 cm.

Species-rich grassland with knapweed and chamomile

<i>Achillea millefolium</i>	5	<i>Lolium perenne</i>	4
<i>Agrostis capillaris</i>	7	<i>Plantago lanceolata</i>	1
<i>Agrostis stolonifera</i>	2	<i>Potentilla reptans</i>	3
<i>Centaurea nigra</i>	8	<i>Ranunculus acris</i>	1
<i>Chamaemelum nobile</i>	3	<i>Ranunculus bulbosus</i>	3
<i>Cynosurus cristatus</i>	6	<i>Scorzoneroideis autumnalis</i>	3
<i>Festuca rubra</i>	4	<i>Taraxacum agg.</i>	1
<i>Holcus lanatus</i>	2	<i>Trifolium pratense</i>	1
<i>Hypochaeris radicata</i>	1	<i>Trifolium repens</i>	2
<i>Leontodon saxatilis</i>	2		

MAVIS similarity coefficients:

NVC: MG6b 54.63

NVC: MG6 52.76

NVC: MG5a 52.51

NVC: MG5 52.51

NVC: MG6a 52.25

NVC: MG4b 51.18

NVC: MG5c 50.85

NVC: MG5b 50.35

NVC: MG6d 49.26

NVC: MG4a 48.80

Chamomile Management Plan



QUADRAT 10

GPS Location: SU5706003073



Cover 100%, Height 20 cm.
Rank rye grass, latrine area

<i>Agrostis capillaris</i>	5	<i>Holcus lanatus</i>	3
<i>Alopecurus pratensis</i>	1	<i>Leontodon saxatilis</i>	2
<i>Centaurea nigra</i>	2	<i>Lolium perenne</i>	9
<i>Chamaemelum nobile</i>	1	<i>Ranunculus acris</i>	1
<i>Cynosurus cristatus</i>	4	<i>Ranunculus repens</i>	4
<i>Festuca rubra</i>	1	<i>Scorzoneroidees autumnalis</i>	2

MAVIS similarity coefficients:

NVC: MG6b 42.58
NVC: MG5a 41.79
NVC: MG5 41.59
NVC: MG4b 41.58
NVC: MG6d 41.49
NVC: MG6 41.09
NVC: MG5c 39.82
NVC: MG5b 39.57
NVC: MG4a 39.50
NVC: MG6a 38.7



Appendix B: Report to Inform Habitats Regulations Assessment Stage 1 and Stage 2



Land at Newgate Lane, North and Land at Newgate Lane, South

Report to Inform Habitats Regulations Assessment Stage 1 and Stage 2

Fareham Land LP and Bargate Homes

October 2020

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Document Control

Project: Land at Newgate Lane, North and Land at Newgate Lane, South
 Client: Fareham Land LP and Bargate Homes
 Job Number: A117387
 File Origin: \\LDS-DC-VM-002\Group Ecology\Projects\Projects A117000 on\A117387 Land West of Newgate Lane\Reports

Issue 1	May 2020	FINAL
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Rev:	Date:	Updated by:	Verified by:	Description of changes:
2	October 20	JS	DW	Updated to reflect proposed winter bird mitigation.

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Figure 1: Site Location Plan

Figure 2: European Designated Sites within 10 km of the Boundary of the Site

Figure 3: Site Location in Relation to Low Use Site F15

Appendix A – Report Conditions

Appendix B – Illustrative Masterplan

Appendix C – Qualifying Features of European Sites Screened into this Assessment

Appendix D – Land at Newgate Lane, North Nutrient Balancing Calculations

Appendix E – Land at Newgate Lane, South Nutrient Balancing Calculations

Appendix F – Winter Bird Mitigation Strategy

Appendix G – Natural England Correspondence



Glossary

AADT	Annual Average Daily Traffic
ALSE	Assessment of Likely Significant Effects
CEnv	Chartered Environmentalist
CIEEM	Chartered Institute of Ecology & Environmental Management
CJEU	Court of Justice of the European Union
EFT	Emission Factor Toolkit
GradCIEEM	Graduate Member of Chartered Institute of Ecology & Environmental Management
Habitats Regulations	Conservation of Habitats and Species Regulations 2017
HDV	Heavy Duty Vehicles
HRA	Habitats Regulations Assessment
IAQM	Institute for Air Quality Management
IROPI	Imperative Reasons of Over-riding Public Interest
LSE	Likely Significant Effect
MCIEEM	Member of Chartered Institute of Ecology & Environmental Management
Natura 2000 site	A European site designated for its nature conservation value
NO _x	Nitrogen Oxides
PC	Process Contribution
PEC	Predicted Environmental Concentration
PUSH	Partnership for Urban South Hampshire
SAC	Special Area of Conservation
SANG	Suitable Alternative Natural Greenspace
SPA	Special Protection Area
SWBGS	Solent Waders and Brent Goose Strategy
TEMPro	Trip End Model Presentation Program
TN	Total Nitrogen
WwTW	Wastewater Treatment Works



Executive Summary

Contents	Summary
Site location and description	<p>The site is located to the west of the Newgate Lane East in Fareham, Hampshire and is centred at OS Grid Reference SU 57163 03124. The site currently comprises of grazed paddocks, arable fields and outbuildings associated with a residential property. The fields form part of farmland surrounded by the built-up areas of Fareham to the north, Gosport to the east and south and Stubbington to the west. The newly constructed Newgate Lane East bypass is to the east of the site.</p> <p>The proposed development comprises two Outline applications: P/18/1118/OA Land at Newgate Lane, North (Fareham Land LP) for up to 75 dwellings and P/19/0460/OA Land at Newgate Lane, South (Bargate Homes) for up to 115 dwellings, with associated infrastructure, parking and landscaping.</p>
Scope of this Assessment	<p>This report assesses the pathways to LSE (HRA Stage 1) of each development upon relevant designated Natura 2000 sites and subsequently assesses the significance of effects upon the integrity of such designated Natura 2000 sites (HRA Stage 2).</p> <p>This is a submission to inform the Competent Authority's (Planning Inspector) HRA.</p>
Results of Stage 1: Screening	<p>The results from the Stage 1 Screening Assessment found four pathways to LSE that required Stage 2: Appropriate Assessment. These were:</p> <ul style="list-style-type: none"> • Loss of functionally linked habitat: Alone and in-combination; • Nutrient outputs during occupation: Alone and in-combination; • Recreational use during occupation: Alone and in-combination; and • Air quality changes during occupation: In-combination. <p>Air quality changes during construction was also identified as a potential pathway to LSE at Stage 1, but was screened out.</p>
Results of Stage 2: Appropriate Assessment	<p>The results from the Stage 2 Appropriate Assessment found that, for both Land at Newgate Lane, North and Land at Newgate Lane, South, with mitigation (in the form of financial contributions to existing regional strategies and the delivery of a proposed winter bird mitigation area), loss of functionally linked habitat and recreational use during occupation do not have the potential to affect the integrity of any European designated site for nature conservation.</p> <p>The detailed analysis of the potential for changes in air quality to act in-combination, and nutrient outputs during occupation found that there was no potential for the integrity of any Natura 2000 site to be affected and no mitigation was required.</p>
Conclusion	<p>The 'Competent Authority', is therefore considered not to require further assessment under the Habitats Regulations, and both proposed developments can proceed without Stage 3 and Stage 4 being completed.</p>



1.0 Introduction

1.1 Background

WYG was commissioned by Fareham Land LP and Bargate Homes in April 2020, to prepare a report to inform Stage 1: Screening and Stage 2: Appropriate Assessment of a Habitats Regulations Assessment (HRA). The report was required in relation to the development proposals which comprise the construction of up to 190 residential units across two development parcels. This report is intended to support appeals against non-determination of the two Outline planning applications for the site, as described in Section 1.3.

This report has been prepared by WYG Senior Ecologist Kevin Wood. The conditions pertinent to the report are provided in Appendix A.

1.2 Site Location

The site is located to the west of the Newgate Lane east in Fareham, Hampshire and is centred at Ordnance Survey (OS) National Grid Reference SU 57163 03124. The site is shown on Figure 1 and comprises of grazed paddocks, arable fields and outbuildings associated with a residential property. The property forms part of farmland surrounded by the built-up areas of Fareham to the north, Gosport to the east and south and Stubbington to the west. The newly constructed Newgate Lane East bypass is to the east of the site

1.3 Development Proposals

The proposed development comprises two Outline applications: P/18/1118/OA Land at Newgate Lane, North (Fareham Land LP) for up to 75 dwellings and P/19/0460/OA Land at Newgate Lane, South (Bargate Homes) for up to 115 dwellings, with associated infrastructure, parking and landscaping. The illustrative masterplan showing the development proposals is provided in Appendix B.

1.4 Requirements for the HRA

The requirement for an HRA is established through Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora, hereby referred to as the 'Habitats Directive', in Articles 6(3) and 6(4). The Habitats Directive is transposed into national legislation by the Conservation of Habitats and Species Regulations 2017. These are hereafter referred to as the 'Habitats Regulations'.

Under Regulation 63, any project which is likely to have a significant effect on a European site (either alone or in-combination with other projects) and is not directly connected with, or necessary for the management of the site, must be subject to an HRA to determine the implications for the site in view of its conservation objectives. This is determined during the Stage 1: Screening Assessment of an HRA (see below).

A Stage 2: Appropriate Assessment then needs to be carried out in respect of any plan or project which:



- either alone or in combination with other plans or projects would be likely to have a significant effect on a site designated within the European network; and
- is not directly connected with the management of the site for nature conservation.

The term European site is defined fully in Regulation 8 of the Habitats Regulations and includes:

- Special Areas of Conservation (SACs);
- candidate and proposed SACs;
- Special Protection Areas (SPAs);
- potential SPAs;
- proposed Wetlands of International Importance designated or proposed for their wetland features under the auspices of the Convention of Wetlands of International Importance (commonly referred to as 'Ramsar sites'); and
- sites identified for Natura 2000 compensatory measures.

The final two categories are afforded the same level of protection as SACs and SPAs as a matter of Government policy, and the assessment provisions of the Habitats Regulations are applied to them (Natural England, 2017).



2.0 Assessment Methodology

2.1 Assessment Guidance

The Habitats Directive and Regulations do not specify how assessment should be undertaken. In undertaking this HRA, the process we have adopted is that recommended in official EC guidance (EC, 2001). In this report, our Stage 1: Screening found that LSE were possible and so a Stage 2: Appropriate Assessment was required. These two stages form the first of four HRA stages, as described below:

- **Stage 1: Screening** – the process which identifies the likely impacts upon a Natura 2000 site of a project or plan, either alone or in combination with other projects or plans and considers whether these impacts are likely to be significant. This is also known as an ‘assessment of likely significant affects (ALSE)’;
- **Stage 2: Appropriate assessment** – the consideration of the impact on the integrity of the Natura 2000 site of the project or plan, either alone or in-combination with other projects or plans, with respect to the site’s structure and function and its conservation objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts (in accordance with guidance following the recent decision by the CJEU; People Over Wind and Sweetman v Coillte Teoranta (C-323/17) regarding application of embedded mitigation at Stage 1 or Stage 2 of an HRA (Freeths, 2018));
- **Stage 3: Assessment of alternative solutions** – the process which examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the Natura 2000 site; and
- **Stage 4: Assessment where no alternative solutions exist and where adverse impacts remain** – an assessment of compensatory measures where, in the light of an assessment of Imperative Reasons of Over-riding Public Interest (IROPI), it is deemed that the project or plan should proceed (it is important to note that this guidance does not deal with the assessment of IROPI).

The Stage 1 Screening Assessment comprises four steps, as described below:

- **Step 1.** Determining whether the project or plan is directly connected with or necessary to the management of the Natura 2000 site(s);
- **Step 2.** Describing the project or plan and the description and characterisation of other projects or plans that in-combination have the potential for having significant effects on the Natura 2000 site(s);
- **Step 3.** Identifying the potential effects on the Natura 2000 site(s); and
- **Step 4.** Assessing the significance of any effects on the Natura 2000 site(s).

The Stage 2: Appropriate Assessment should identify the effects of those plans or projects on qualifying features of the European sites in relation to the Conservation Objectives of those sites and determine whether these effects will result in an adverse effect on the integrity of the designated site. Only where the decision maker (the Competent Authority – in this case the Planning Inspector), is satisfied that there will be no adverse effect on integrity, or where there are imperative reasons of overriding public interest (IROPI), can the plan or project be approved.



3.0 Stage 1: Screening

Projects may have spatial implications which can have further reaching effects than those predicted to fall within the development footprint. Specifically, it is recognised that the distance between a proposed development and a designated site is not a definitive determinant as to the likelihood or severity of an impact occurring. Site variables such as prevailing wind conditions, surface and groundwater flow direction will all have an influence on the relative distance at which an impact can occur.

Additionally, the mobile nature of qualifying interest bird species must also be considered, since an adverse effect on the qualifying species of a site, even if they are not present within the site for which they are a qualifying feature, may still result in a significant adverse impact upon a site.

3.1 Step 1 – Determining whether the development proposals are directly connected with or necessary to the management of the internationally designated site(s)

The development proposals are not connected with and are not necessary for the management of any internationally designated sites, although they do have the potential to affect them.

3.2 Step 2 – Description of the development proposals, Internationally Designated Sites that may be Affected and Approach taken to identifying Other Plans or Projects that could lead to In-combination Effects

3.2.1 Description of the Development Proposals

The planning applications comprise the construction of up to 190 dwellings with associated gardens, roads and open space as shown in Appendix B. Although the development comprises two separate applications (and subsequently two appeals), the proposals have always been conceived as a cohesive development, with the project team responsible for the applications and the two developers working collaboratively. Therefore they have been assessed together within this report.

3.2.2 List of the Internationally Designated Sites that may be Affected by the Development Proposals

The *Habitats Regulations Assessment for the Fareham Borough Local Plan* (Urban Edge Environmental Consulting, 2017) was the primary source used to identify internationally designated sites that may be affected by the proposals. This report screened the following sites, as shown in Figure 2 (the qualifying features of these sites are provided in Appendix C). These comprise:

- Butser Hill SAC;
- Solent and Isle of Wight Lagoons SAC;
- The New Forest Ramsar;
- The New Forest SAC;
- The New Forest SPA;
- Portsmouth Harbour SPA;



- Portsmouth Harbour Ramsar;
- Solent and Southampton Water SPA;
- Solent and Southampton Water Ramsar;
- Chichester and Langstone Harbours SPA;
- Chichester and Langstone Harbours Ramsar;
- River Itchen SAC;
- Solent Maritime SAC; and
- Solent and Dorset Coast SPA.

3.2.3 Approach taken to identifying Other Plans or Projects that could lead to In-combination Effects

In Step 3, four potential pathways to LSE were identified. To identify other plans and projects that could be relevant and act in-combination, it was first established whether effects could be mitigated by measures that also apply in-combination. For instance, the nutrient outputs mitigation would mitigate all effects leading to a zero net increase in nitrogen. Therefore, no search of other projects is necessary. Where this approach was taken, it is explained fully in the text.

For the assessment of air quality impacts, the methodology used for the in-combination assessment involves the use of TEMPro modelling. This predicts growth in traffic numbers based on several factors, including population growth as it was not possible to establish traffic data for all other applications that could result in increases in traffic levels on roads affected by the development proposals by any other means. This is explained fully in Section 3.2.4 and in the *Newgate Lane, Fareham: Air Quality Ecological Impacts Statement* (REC Delivering Solutions, 2019).

Step 3 – Identifying the Potential Effects on Internationally Designated site(s)

The potential pathways to LSE were identified following a review of the following:

- The *Habitats Regulations Assessment for the Fareham Borough Local Plan* (Urban Edge Environmental Consulting, 2017);
- The designation citation of part of the site as a Low Use Site (F15) identified in the Solent Waders and Brent Goose Strategy (SWBGS, 2019);
- The qualifying features of SACs and SPAs (see Appendix C);
- The conservation objectives for SACs and SPAs;
- The threats to SPAs;
- The Ramsar criteria; and
- Site Improvement Plans for SACs and SPAs.

Following this review the following potential pathways to LSE were considered to be relevant to the development proposals based on the activities during construction and operation activities:

- Loss of functionally linked habitat for SPA qualifying bird species;
- Air quality changes during occupation primarily from exhaust emissions caused by increases in traffic arising from the development proposals;
- Increased recreational use during occupation use of Solent European designated sites identified in the SWBGS; and



- Increases in nutrient outputs from changing the occupied use of the site from agricultural use to residential use.

These are discussed in the following section, where the differentiation is made with respect to the potential for pathways to act alone or in-combination.

This report does not discuss those pathways where there is no potential for them to result in LSE. Therefore, only those where there is a tangible risk of the effect occurring are discussed.

3.2.4 Loss of functionally linked habitat: Alone and in-combination

Part of both sites lie within a Low Use Site (F15) identified in the Solent Wader and Brent Goose Strategy (SWBGS) (Solent WBGS, 2019), as shown in Figure 3. This being the case, a potential pathway to LSE therefore exists as the site may support qualifying species of bird from SWBGS European sites.

Loss of functionally linked habitat: Alone and In-combination has therefore been taken forward to Stage 2: Appropriate Assessment.

3.2.5 Air quality changes during construction: Alone and in-combination

An *Air Quality Ecological Impacts Statement* was completed by REC Delivering Solutions (2019). The salient points from the report have been provided below and are discussed as necessary.

The report does not make any reference to the potential for the development proposals to affect any Natura 2000 site during construction. This is considered appropriate as there are no Natura 2000 sites within the typical zone of influence of air quality changes caused by construction i.e. releases of fugitive dust. This is identified by the Institute of Air Quality Management (IAQM) (2014) as being up to 50 m from sources. As shown in Figure 2, none of the sites screened into this assessment are within this zone.

The report also does not make reference to the potential for construction traffic to result in a potential pathway to LSE. However, as shown in Section 3.2.5, predicted Annual Average Daily Traffic (AADT) movements for the occupied site (which are always higher than during construction) are not predicted to be higher than the threshold for requiring detailed assessment set out in the Natural England guidance document *Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations* (Natural England, 2018). These are based on 1000 AADT for cars and 200 AADT for heavy duty vehicles (HDV) not being exceeded.

It is therefore considered that Air Quality Changes During Construction: Alone and In-Combination can be screened out and are not taken further in this assessment.

3.2.6 Air quality changes during occupation: Alone and in-combination

An *Air Quality Ecological Impacts Statement* was completed by REC Delivering Solutions (2019). The salient points from the report have been provided below and are discussed as necessary.



- The report found that there were two sites within 200 m of roads potentially affected by increases in traffic levels caused by the development proposals. These were the Portsmouth Harbour Ramsar and SPA. This distance is consistent with *Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations* (Natural England, 2018).
- The report uses Natural England guidance to establish that the development proposals do not have the potential to act alone. This is based on the development proposals generating 100 AADT for cars and no AADT for HDV:

"The development is predicted to generate 100 AADT with no HDVs. As such, roads which are predicted to experience increases in traffic flows associated with the development are not expected to experience changes of over 1,000 AADT or 200 HDVs."

(REC Delivering Solutions, 2019: Page 14)

The 1000 AADT movements of cars or 200 AADT of HDV thresholds are therefore not predicted to be exceeded. It is therefore considered that changes in air quality as a result of increases in traffic movements during operation alone can be screened out at Stage 1 and Stage 2: Appropriate Assessment is not required.

- The report found that it was not possible to establish that the level of traffic on roads affected by the development proposals in-combination with other plans and projects would be below 1000 AADT movements of cars and / or 200 AADT of HDV. Changes in air quality as a result of increases in traffic movements during operation in-combination has therefore been taken forward to Stage 2: Appropriate Assessment.

Air Quality Changes During Occupation: Alone can be screened out and has not been taken forward to Stage 2: Appropriate Assessment.

Air Quality Changes During Occupation: In-combination has therefore been taken forward to Stage 2: Appropriate Assessment.

3.2.7 Recreational use during occupation: Alone and in-combination

The site is within 5.6 km of the Solent and Southampton Water SPA and Ramsar and the Portsmouth Harbour SPA and Ramsar. This means that the impacts arising from the development proposals due to recreational pressure must be mitigated for in accordance with the Solent Recreation Mitigation Strategy (Bird Aware Solent, 2017). This strategy determined that all residential developments within 5.6 km had the potential to result in increased visitor pressure with subsequent disturbance impacts on qualifying bird species.

This is considered to apply both alone and in-combination. However, due to the proposed mitigation, it is not necessary to specifically identify all projects that could result in an increase in recreational pressure on Solent European designated sites included within the strategy (i.e. those within 5.6 km).

Recreational Use During Occupation: Alone and In-combination therefore been taken forward to Stage 2: Appropriate Assessment.



3.2.8 Nutrient outputs during occupation: Alone and in-combination

In June 2018, an Integrated Water Management Study for South Hampshire was published by the Partnership for Urban South Hampshire (PUSH) (2018) has identified that there is uncertainty in some locations as to whether there will be sufficient capacity to accommodate new housing growth, and the potential for adverse effects upon coastal SPAs (including the Solent and Southampton Water SPA) as a result of nitrogen discharge.

Natural England have identified that there is the potential for nutrients arising from increased wastewater from residential development to affect the qualifying features of European designated sites in the Solent (Natural England, 2020).

This effect has been identified as having the potential to promote algae growth that can affect aquatic vegetation and increase turbidity thereby affecting foraging efficacy of fish-eating birds, and the availability of suitable vegetation for species such as dark-bellied brent geese. These effects could ultimately impact all aspects of the functioning of European designated sites in an interconnected manner.

Included within this guidance, Natural England have provided a calculator for establishing the change in nutrient (nitrogen) levels in water arising from the site pre- and post-development. This includes calculating the change in surface water as a result of a change in land use, and from wastewater that is discharged into the Solent with consent from Peel Common Wastewater Treatment Works (WwTW) (and eventually reaches the Solent).

Wastewater from the development proposals will be treated at the Southern Water WwTW at Peel Common, but ultimately water will discharge to the sea and may contribute to background nitrogen levels within the Solent. The development therefore has the potential to result in LSE on Solent SACs, SPAs and Ramsars due to direct and indirect effects of water pollution and therefore this pathway cannot be screened out at Stage 1 and Stage 2 Appropriate Assessment is required.

This is considered to apply both alone and in-combination, but due to the proposed mitigation, it is not necessary to specifically identify all projects within the Solent catchment that could result in an increase in nutrient discharge into the Solent.

Nutrient Outputs During Occupation: Alone and In-combination therefore been taken forward to Stage 2: Appropriate Assessment.

3.3 Step 4 – Assessing the significance of any effects on the Natura 2000 site(s)

The Stage 1: Screening Assessment found that there were two pathways to LSE that require appropriate assessment at Stage 2. These are summarised in Table 1. These LSE apply to both Land North of Newgate Lane and Land South of Newgate Lane.



Table 1 Summary of Stage 1 Screening

Pathway	Site	Stage 2 required
Loss of functionally linked habitat: Alone and in-combination	Portsmouth Harbour SPA and Ramsar Solent and Southampton Water SPA and Ramsar	Yes
Air quality changes during construction: Alone	None within (50 m) zone of influence of the site.	No
Air quality changes during construction: In-combination	None within (50 m) zone of influence of the site.	No
Air quality changes during occupation: Alone	Portsmouth Harbour Ramsar and SPA	No
Air quality changes during occupation: In-combination	Portsmouth Harbour Ramsar and SPA	Yes
Nutrient outputs during occupation: Alone	All Solent European sites.	Yes
Nutrient outputs during occupation: In-combination	All Solent European sites.	Yes
Recreational use during occupation Alone	Portsmouth Harbour SPA and Ramsar Solent and Southampton Water SPA and Ramsar	Yes
Recreational use during occupation: In-combination	Portsmouth Harbour SPA and Ramsar Solent and Southampton Water SPA and Ramsar	Yes

It is therefore concluded that there are no pathways for LSE on the following European designated sites and they are not taken further in the HRA process:

- Butser Hill SAC;
- River Itchen SAC;
- The New Forest Ramsar;
- The New Forest SAC; and
- The New Forest SPA.



4.0 Stage 2: Appropriate Assessment

The following sections discuss the potential pathways to LSE that could result in impacts on the integrity of the European sites identified during Stage 1: Screening, summarised in Table 1.

4.1 Loss of Functionally Linked Habitat: Alone and In-combination

The site was surveyed from November 2013 to March 2014 and October 2014 to March 2015 to inform the application to construct the new Newgate Lane East and Stubbington Bypass (WSP, 2015). During the surveys, it was found that it did not support significant numbers of SPA qualifying species and the bypass was subsequently approved and constructed. The bypass now bisects site F15 and it is considered that this has further reduced the suitability of that habitats to support SWBGS species. Surveys were also carried out on 6th and 17th March 2018 (Ethos Environmental Planning, 2019) and no geese or waders were recorded, with the only SPA-listed species being a single black-headed gull *Chroicocephalus ridibundus* recorded on the 17th March 2018. However, there is not sufficient evidence to determine with certainty that the loss of Low Use Site F15 would not result in adverse effects on the qualifying SPA bird population.

The proposed development at Land at Newgate Lane, North will result in the loss of 3.14 ha of Low Use Site F15 and Land at Newgate Lane, South will result in the loss of 4.67 ha of Low Use Site F15, a total loss of 7.81 ha.

Typically, mitigation for the loss of Low Use Sites is through the payment of a financial contribution of £35,610 which is secured via Section 106 agreement to enhance, manage and monitor the wider Solent Wader and Brent Goose Network. This funding is to be managed by the respective local authority and used to support schemes across the network, including in neighbouring authorities. Due to the lack of an established strategy within Fareham Borough, Natural England have requested further information to demonstrate a clear link between impact and mitigation, i.e. detail of how the financial contribution would be used to enhance the wider network.

It is proposed that a Winter Bird Mitigation Area measuring 5.0 ha is created at Old Street, Stubbington which will enhance the wader and Brent Goose network. A Winter Bird Mitigation Strategy setting out the background, rationale and proposed management of the Mitigation Area is included at Appendix F and correspondence with Natural England agreeing the principles of the mitigation at Appendix G.

It is therefore considered that, taking into account mitigation, loss of functionally linked habitat at Land at Newgate Lane, North and Land at Newgate Lane, South will not affect the integrity of the Solent and Southampton Water SPA and Ramsar or Portsmouth Harbour SPA and Ramsar.

4.2 Air Quality Changes during Occupation: In-combination

The data and assessment from the *Air Quality Ecological Impacts Statement* (REC Delivering Solutions, 2020) has been used to inform this Stage 2: Appropriate Assessment. These data have been used to follow the guidance provided in *Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations* (Natural



England, 2018) to make the assessment. The *Air Quality Ecological Impacts Statement* did not assess the two applications individually, but in-combination. Therefore this assessment takes the same approach.

The data in the *Air Quality Ecological Impacts Statement* uses the following information:

- 2017 Verification of Traffic Data (see Appendix II of the *Air Quality Ecological Impacts Statement*) which uses the Department for Transport (DfT) Matrix web tool¹ and Trip End Model Presentation Program (TEMPRO) software package to allow for conversion from the obtained 2017 traffic flow year to 2024 to represent the development opening year.
- Process contribution (PC) – This is the predicted emissions as a result of the traffic generated from the development proposal including those in-combination effects i.e. emissions from traffic generated by other plans or projects on the same roads affected by these development proposals. The report included four projects as having the potential to act in-combination which were therefore included in the PC value, these were:
 - Stubbington Bypass;
 - Land at Old Street, Stubbington (P/17/1451/OA);
 - Newlands Farm, Fareham (P15/1279/OA); and
 - Daedalus Development.

These data were used to assess whether the PC exceeded 1% of the critical load / level of nitrogen / acid for the habitats of the Portsmouth Harbour Ramsar and SPA within 200 m of roads affected by traffic from the development proposals. These levels are referred to jointly as the environmental standards (Page 13) and environmental quality standards (EQS) (all tables) in the *Air Quality Ecological Impacts Statement*. These were determined for all 10 parcels of land within the Portsmouth Harbour Ramsar and SPA using the Air Pollution Information System (APIS) website.

The 1% level is used as a threshold for significance in the report and is consistent with *Natural England’s approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations* (Natural England, 2018). Where this is not exceeded therefore, the PC for emissions is no considered to be significant.

The findings from the *Air Quality Ecological Impacts Statement* are summarised in Table 2, these apply to 10 parcels of land within the Portsmouth Harbour Ramsar and SPA that are within 200 m of roads affected by traffic generated by the development proposals.

Table 2 Summary of the Quantification of PC Screening

Emission	Range of Proportion of EQS at the 10 parcels within Portsmouth Harbour Ramsar and SPA (%)	1% of EQS Exceeded
Predicted Annual Mean NOx Concentration (µg/m3)	0 – 1	No

¹ It should be noted that the DfT matrix is referenced in DEFRA guidance LAQM (TG16) (DEFRA, 2018) as being a suitable source of data for air quality assessments and is therefore considered to provide a good representation of traffic flows in the vicinity of the site.



Emission	Range of Proportion of EQS at the 10 parcels within Portsmouth Harbour Ramsar and SPA (%)	1% of EQS Exceeded
Predicted 24-hour Mean NO _x Concentration (µg/m ³)	0 – 1	No
Predicted Annual Mean NH ₃ Concentrations	0	No
Predicted Annual Mean Nitrogen Deposition Rate (kgN/ha/yr)	0	No
Predicted Annual Mean Acid Deposition Rate (kq/ha/yr)	0	No

These results show that 1% of the EQS of any pollutant would not be exceeded at any of the 10 locations within the Portsmouth Harbour Ramsar and SPA that are within 200 m of roads affected by traffic generated by the development proposals.

It is therefore considered that changes in air quality during operation as a result of traffic generated by Land at Newgate Lane, North or Land at Newgate Lane, South will not affect the integrity of Portsmouth Harbour Ramsar or SPA.

4.3 Recreational use during Occupation: Alone and In-combination

4.3.1 Land at Newgate Lane, North

Land at Newgate Lane, North will comprise a development of up to 75 dwellings. As discussed in Section 3.2.7, a per-unit financial contribution will be made in accordance with the latest charging schedule for the Solent Recreation Mitigation Strategy (Bird Aware Solent, 2017) in order to mitigate for potential alone and in-combination recreational impacts upon the Solent SPAs and Ramsars.

This financial contribution will be secured within a Section 106 Agreement.

With the application of this mitigation, recreation as a result of Land at Newgate Lane, North is predicted to have no impact on the integrity of the Solent SPAs and Ramsars.

4.3.2 Land at Newgate Lane, South

Land at Newgate Lane, South will comprise a development of up to 115 dwellings. As discussed in Section 3.2.7, a per-unit financial contribution will be made in accordance with the latest charging schedule for the Solent Recreation Mitigation Strategy (Bird Aware Solent, 2017) in order to mitigate for potential alone and in-combination recreational impacts upon the Solent SPAs and Ramsars.

This financial contribution will be secured within a Section 106 Agreement.

With the application of this mitigation, recreation as a result of Land at Newgate Lane, South is predicted to have no impact on the integrity of the Solent SPAs and Ramsars.



4.4 Nutrient Outputs during Occupation: Alone and In-combination

Due to the uncertainty over whether new development can be accommodated by existing wastewater treatment infrastructure without causing harm to coastal European sites, Natural England advise that all residential development should achieve nitrogen neutrality.

4.4.1 Land at Newgate Lane, North

A Nitrate Budget Calculation was completed by CEP (CEP, 2020a) which concluded that the development would result in a decrease of -28.1 Kg/yr TN.

As part of this assessment, a further calculation has been undertaken which takes a more precautionary approach to the assessment of existing land uses. This uses Version 4 of Natural England's *Advice on Achieving Nutrient Neutrality for New Development in the Solent Region* (Natural England, 2020) for calculating nitrogen budgets. The assumptions used in this assessment are as follows:

- 110 litres of waste water will be generated per person per day;
- Wastewater will be treated at Peel Common WwTW;
- Peel Common has a discharge consent limit of 9 mg/l TN;
- The scheme comprises a maximum of 75 dwellings;
- The post-development site will comprise 3.37 ha of urban land and 0.55 ha of open space;
- An occupancy rate of 2.4 people per dwelling as per Natural England guidance; and
- The pre-development site comprises 3.4 ha of cereals (31.20 Kg/TN/ha/yr) and 0.55 ha of land not in agricultural use (5.00 Kg/TN/ha/yr).

The full calculations are provided in Appendix D (Land at Newgate Lane, North) and are summarised in Table 3.

Table 3 Summary of nutrient input calculations (Land at Newgate Lane, North)

Option	Current Land Use TN Load (A)	Waste water from Future Land Use TN Load (B)	Future Land Use TN Load (C)	Change (B+C-A)
75 units	108.830 Kg/TN/yr	44.085 Kg/TN/yr	51.091 Kg/TN/yr	-13.654 Kg/TN/yr

The calculations show that taking a more precautionary approach, the development proposals would still result in a decrease in nitrogen load of -13.654 Kg/yr TN.

A planning condition should be attached to any permission requiring a landscape management plan setting out how the open space on site will be managed in the long-term to prevent any additional nutrient inputs (for example through inclusion of dog waste bins).



As the combined changes in land use for Land at Newgate Lane, North will result in a net decrease in nutrient inputs into the Solent, there is no potential for an adverse effect on the integrity of the Solent European sites for nature conservation alone or in-combination.

4.4.2 Land at Newgate Lane, South

A Nitrate Budget Calculation was completed by CEP (CEP, 2020b) which concluded that the development would result in a decrease of -21.6 Kg/yr TN.

As part of this assessment, a further calculation has been undertaken which takes a more precautionary approach to the assessment of existing land uses. This uses Version 4 of Natural England’s *Advice on Achieving Nutrient Neutrality for New Development in the Solent Region* (Natural England, 2020) for calculating nitrogen budgets. The assumptions used in this assessment are as follows:

- 110 litres of waste water will be generated per person per day;
- Wastewater will be treated at Peel Common WwTW;
- Peel Common has a discharge consent limit of 9 mg/l TN;
- The scheme comprises a maximum of 115 dwellings;
- The post-development site will comprise 4.73 ha of urban land and 1.27 ha of open space;
- An occupancy rate of 2.4 people per dwelling as per Natural England guidance; and
- The pre-development site comprises 4.6 ha of cereals (31.20 Kg/TN/ha/yr) and 1.4 ha of lowland grazing (13.00 Kg/TN/ha/yr).

The full calculations are provided in Appendix E (Land at Newgate Lane, South) and are summarised in Table 4.

Table 4 Summary of nutrient input calculations (Land at Newgate Lane, South)

Option	Current Land Use TN Load (A)	Waste water from Future Land Use TN Load (B)	Future Land Use TN Load (C)	Change (B+C-A)
115 units	161.720 Kg/TN/yr	67.597 Kg/TN/yr	73.989 Kg/TN/yr	-20.134 Kg/TN/yr

The calculations show that taking a more precautionary approach, the development proposals would still result in a decrease in nitrogen load of -20.134 Kg/yr TN.

A planning condition should be attached to any permission requiring a landscape management plan setting out how the open space on site will be managed in the long-term to prevent any additional nutrient inputs (for example through inclusion of dog waste bins).

As the combined changes in land use for Land at Newgate Lane, South will result in a net decrease in nutrient inputs into the Solent, there is no potential for an adverse effect on the integrity of the Solent European sites for nature conservation alone or in-combination.



5.0 Summary

The Stage 2: Appropriate Assessment found that for all potential pathways to LSE taken forward to Stage 2: Appropriate Assessment, with the application of mitigation, there would be no impact on the integrity of any European site as a result of either Land at Newgate Lane, North or Land at Newgate Lane, South.

As such, it is considered that the 'Competent Authority' can permit each development and does not require Stage 3 or Stage 4 assessments to be undertaken, as described in Section 2.1.



6.0 References

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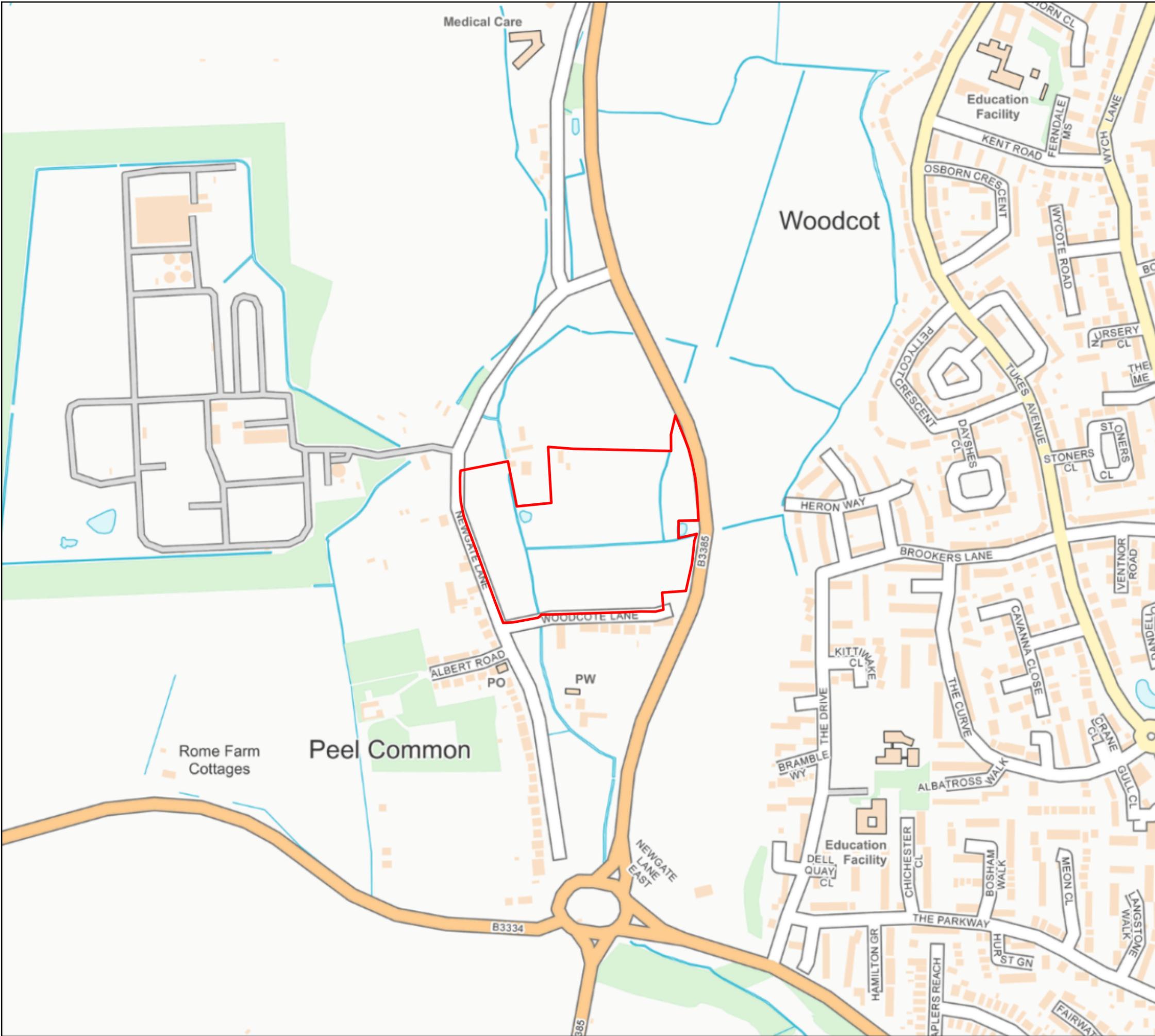


Figures

Figure 1: Site Location Plan

**Figure 2: European Designated Sites within 10 km of the
Boundary of the Site**

Figure 3: Site Location in Relation to Low Use Site F15



Rev	Date	Notes
A	23/04/20	Initial map production

Legend

 Site boundary



Site Location Plan

Land West of Newgate Lane
Pegasus Group

Scale at A3: 1:5,000	Project No: A117387	Drawing No: Figure 1	Revision: A
Drawn by: Ben Blowers		Drawn date: 23/04/2020	Approved by: Kevin Wood

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Rev	Date	Notes
A	23/04/20	Initial map production

Legend

-  Site boundary
-  Site boundary 10km buffer
-  Special Protection Areas (SPA)
-  Special Areas of Conservation (SAC)
-  Ramsar
-  Potential Special Protection Areas (pSPA)



European Designated Sites within 10 km of the Boundary of the Site

**Land West of Newgate Lane
Pegasus Group**

Scale at A3: 1:77,500	Project No: A117387	Drawing No: Figure 2	Revision: A
Drawn by: Ben Blowers	Drawn date: 23/04/2020	Approved by: Kevin Wood	

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Rev	Date	Notes
A	23/04/20	Initial map production

Legend

- Site boundary
- F15 site boundary

0 25 50 100 Metres



Site Location in Relation to Low Use Site F15

**Land West of Newgate Lane
Pegasus Group**

Scale at A3: 1:3,000	Project No: A117387	Drawing No: Figure 3	Revision: A
Drawn by: Ben Blowers	Drawn date: 23/04/2020	Approved by: Kevin Wood	

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Appendix A – Report Conditions



REPORT CONDITIONS

This Report has been prepared using reasonable skill and care for the sole benefit of Fareham Land LP and Bargate Homes ("the Client") for the proposed uses stated in the report by WYG Environment Planning Transport Limited ("WYG"). WYG exclude all liability for any other uses and to any other party. The report must not be relied on or reproduced in whole or in part by any other party without the copyright holder's permission.

No liability is accepted or warranty given for; unconfirmed data, third party documents and information supplied to WYG or for the performance, reliability, standing etc of any products, services, organisations or companies referred to in this report. WYG does not purport to provide specialist legal, tax or accounting advice.

The report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspections'. Environmental conditions can vary and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times. No investigative method can eliminate the possibility of obtaining partially imprecise, incomplete or not fully representative information. Any monitoring or survey work undertaken as part of the commission will have been subject to limitations, including for example timescale, seasonal and weather-related conditions. Actual environmental conditions are typically more complex and variable than the investigative, predictive and modelling approaches indicate in practice, and the output of such approaches cannot be relied upon as a comprehensive or accurate indicator of future conditions. The "shelf life" of the Report will be determined by a number of factors including; its original purpose, the Client's instructions, passage of time, advances in technology and techniques, changes in legislation etc. and therefore may require future re-assessment.

The whole of the report must be read as other sections of the report may contain information which puts into context the findings in any executive summary.

The performance of environmental protection measures and of buildings and other structures in relation to acoustics, vibration, noise mitigation and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. WYG accept no liability for issues with performance arising from such factors.



Appendix B – Illustrative Masterplan



Appendix C – Qualifying Features of European Sites Screened into this Assessment



Butser Hill SAC (JNCC, 2015a)

Annex I habitats that are a primary reason for selection of this site

- Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia)
- *Taxus baccata* woods of the British Isles

Solent and Isle of Wight Lagoons SAC (JNCC, 2015b)

Annex I habitats that are a primary reason for selection of this site

1150 Coastal lagoons * Priority feature

The Solent on the south coast of England encompasses a series of **Coastal lagoons**, including percolation, isolated and sluiced lagoons. The site includes a number of lagoons in the marshes in the Keyhaven – Pennington area, at Farlington Marshes in Chichester Harbour, behind the sea-wall at Bembridge Harbour and at Gilkicker, near Gosport. The lagoons show a range of salinities and substrates, ranging from soft mud to muddy sand with a high proportion of shingle, which support a diverse fauna including large populations of three notable species: the nationally rare foxtail stonewort *Lamprothamnium papulosum*, the nationally scarce lagoon sand shrimp *Gammarus insensibilis*, and the nationally scarce starlet sea anemone *Nematostella vectensis*. The lagoons in Keyhaven – Pennington Marshes are part of a network of ditches and ponds within the saltmarsh behind a sea-wall. Farlington Marshes is an isolated lagoon in marsh pasture that, although separated from the sea by a sea-wall, receives sea water during spring tides. The lagoon holds a well-developed low-medium salinity insect-dominated fauna. Gilkicker Lagoon is a sluiced lagoon with marked seasonal salinity fluctuation and supports a high species diversity. The lagoons at Bembridge Harbour have formed in a depression behind the sea-wall and sea water enters by percolation. Species diversity in these lagoons is high and the fauna includes very high densities of *N. vectensis*.

The New Forest Ramsar (JNCC, 1993)

There are three Ramsar criteria for which the Dorset Heathlands Ramsar is designated.

Ramsar criterion 1

Valley mires and wet heaths are found throughout the site and are of outstanding scientific interest. The mires and heaths are within catchments whose uncultivated and undeveloped state buffer the mires against adverse ecological change. This is the largest concentration of intact valley mires of their type in Britain.

Ramsar criterion 2

The site supports a diverse assemblage of wetland plants and animals including several nationally rare species. Seven species of nationally rare plant are found on the site, as are at least 65 British Red Data Book species of invertebrate.

Ramsar criterion 3

The mire habitats are of high ecological quality and diversity and have undisturbed transition zones. The invertebrate fauna of the site is important due to the concentration of rare and scarce wetland species. The whole site complex, with its examples of semi-natural habitats is essential to the genetic and ecological diversity of southern England.



The New Forest SAC (JNCC, 2015c)

There are 11 Annex I habitats present that are a primary reason for selection of this site:

- **3110** Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae);
- **3130** Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea;
- **4010** Northern Atlantic wet heaths with *Erica tetralix*;
- **4030** European dry heaths;
- **6410** Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae);
- **7150** Depressions on peat substrates of the Rhynchosporion;
- **9120** Atlantic acidophilous beech forests with *Ilex* and sometimes also *Taxus* in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion);
- **9130** Asperulo-Fagetum beech forests;
- **9190** Old acidophilous oak woods with *Quercus robur* on sandy plains;
- **91D0** Bog woodland; and
- **91E0** Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae).

There are two Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:

- **7140** Transition mires and quaking bogs
- **7230** Alkaline fens

There are two Annex II species that are primary reasons for selection of this site (JNCC, 2015):

- **1044** Southern damselfly (*Coenagrion mercurial*); and
- **1083** Stag beetle (*Lucanus cervus*).

There is one Annex II species present as a qualifying feature, but not a primary reason for site selection:

- **1166** Great crested newt (GCN) (*Triturus cristatus*)

The New Forest SPA (JNCC, 2001a)

There are four Annex I species present during the breeding season that are qualifying species for selection of this site:

- Dartford warbler, 538 pairs representing at least 33.6% of the breeding population in Great Britain;
- Honey buzzard (*Pernis apivorus*), two pairs representing at least 10.0% of the breeding population in Great Britain;
- Nightjar, 300 pairs representing at least 8.8% of the breeding population in Great Britain; and
- Woodlark, 184 pairs representing at least 12.3% of the breeding population in Great Britain (Count as at 1997).



There is one Annex I species present during the over-wintering season that is a qualifying species for selection of this site:

- Hen harrier, 15 individuals representing at least 2.0% of the wintering population in Great Britain.

Portsmouth Harbour SPA (JNCC, 2001b)

Over winter

Dark-bellied Brent Goose *Branta bernicla bernicla*, 2,847 individuals representing at least 0.9% of the wintering Western Siberia/Western Europe population (5-year peak mean 1991/2 - 1995/6).

Portsmouth Harbour Ramsar (JNCC, 1995)

Ramsar criterion 3

The intertidal mudflat areas possess extensive beds of eelgrass *Zostera angustifolia* and *Zostera noltei* which support the grazing dark-bellied brent geese populations. The mud-snail *Hydrobia ulvae* is found at extremely high densities, which helps to support the wading bird interest of the site. Common cord-grass *Spartina anglica* dominates large areas of the saltmarsh and there are also extensive areas of green algae *Enteromorpha* spp. and sea lettuce *Ulva lactuca*. More locally the saltmarsh is dominated by sea purslane *Halimione portulacoides* which gradates to more varied communities at the higher shore levels. The site also includes a number of saline lagoons hosting nationally important species.

Ramsar criterion 6

Dark-bellied brent goose, *Branta bernicla bernicla*, 2105 individuals, representing an average of 2.1% of the GB population (5-year peak mean 1998/9-2002/3).

Solent and Southampton Water SPA (JNCC, 2001c)

This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:

- During the breeding season;
 - Common tern (*Sterna hirundo*), 267 pairs representing at least 2.2% of the breeding population in Great Britain (5-year peak mean, 1993-1997);
 - Little tern (*Sterna albifrons*), 49 pairs representing at least 2.0% of the breeding population in Great Britain (5-year peak mean, 1993-1997);
 - Mediterranean gull (*Larus melanocephalus*), 2 pairs representing at least 20.0% of the breeding population in Great Britain (5-year peak mean, 1994-1998);
 - Roseate tern (*Sterna dougallii*), 2 pairs representing at least 3.3% of the breeding population in Great Britain (5-year peak mean, 1993-1997); and
 - Sandwich tern (*Sterna sandvicensis*), 231 pairs representing at least 1.7% of the breeding population in Great Britain (5-year peak mean, 1993-1997).

This site also qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:



- Over winter;
 - Black-tailed godwit (*Limosa limosa islandica*), 1,125 individuals representing at least 1.6% of the wintering Iceland - breeding population (5-year peak mean, 1992/3-1996/7);
 - Dark-bellied brent goose (*Branta bernicla bernicla*), 7,506 individuals representing at least 2.5% of the wintering Western Siberia/Western Europe population (5-year peak mean, 1992/3-1996/7);
 - Ringed plover (*Charadrius hiaticula*), 552 individuals representing at least 1.1% of the wintering Europe/Northern Africa - wintering population (5-year peak mean, 1992/3-1996/7); and
 - Teal (*Anas crecca*), 4,400 individuals representing at least 1.1% of the wintering Northwestern Europe population (5-year peak mean, 1992/3-1996/7).

The area also qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl:

Over winter, the area regularly supports 53,948 individual waterfowl (5 year peak mean 1991/2 - 1995/6) including: gadwall (*Anas strepera*), teal, ringed plover, black-tailed godwit, little grebe (*Tachybaptus ruficollis*), great crested grebe (*Podiceps cristatus*), cormorant (*Phalacrocorax carbo*), dark-bellied brent goose, wigeon (*Anas penelope*), redshank (*Tringa tetanus*), pintail (*Anas acuta*), shoveler (*Anas clypeata*), red-breasted merganser (*Mergus serrator*), grey plover (*Pluvialis squatarola*), lapwing (*Vanellus vanellus*), dunlin (*Calidris alpina alpina*), curlew (*Numenius arquata*) and shelduck (*Tadorna tadorna*).

Solent and Southampton Water Ramsar (JNCC, 1998)

Ramsar Criterion 1

The site is one of the few major sheltered channels between a substantial island and mainland in European waters, exhibiting an unusual strong double tidal flow and has long periods of slack water at high and low tide. It includes many wetland habitats characteristic of the biogeographic region: saline lagoons, saltmarshes, estuaries, intertidal flats, shallow coastal waters, grazing marshes, reedbeds, coastal woodland and rocky boulder reefs.

Ramsar Criterion 2

The site supports an important assemblage of rare plants and invertebrates. At least 33 British Red Data Book invertebrates and at least eight British Red Data Book plants are represented on site.

Ramsar Criterion 5

Assemblages of international importance:

- Species with peak counts in winter: 51343 waterfowl (5-year peak mean 1998/99-2002/2003).

Ramsar Criterion 6

Species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):

- Species with peak counts in spring/autumn:



- Ringed plover, Europe/Northwest Africa, 397 individuals, representing an average of 1.2% of the GB population (5-year peak mean 1998/9-2002/3).
- Species with peak counts in winter:
 - Dark-bellied brent goose, 6456 individuals, representing an average of 3% of the population (5-year peak mean 1998/9-2002/3);
 - Eurasian teal, NW Europe, 5514 individuals, representing an average of 1.3% of the population (5-year peak mean 1998/9-2002/3); and
 - Black-tailed godwit, Iceland/W Europe, 1240 individuals, representing an average of 3.5% of the population (5-year peak)

Chichester and Langstone Harbours SPA (JNCC, 2001d)

During the breeding season;

Little Tern *Sterna albifrons*, 100 pairs representing up to 4.2% of the breeding population in Great Britain (5-year mean, 1992-1996)

Sandwich Tern *Sterna sandvicensis*, 158 pairs representing up to 1.1% of the breeding population in Great Britain (1998)

On passage;

Little Egret *Egretta garzetta*, 137 individuals representing up to 17.1% of the population in Great Britain (Count as at 1998)

Over winter;

Bar-tailed Godwit *Limosa lapponica*, 1,692 individuals representing up to 3.2% of the wintering population in Great Britain (5-year peak mean 1991/2 - 1995/6)

Little Egret *Egretta garzetta*, 100 individuals representing up to 20.0% of the wintering population in Great Britain (Count as at 1998).

This site also qualifies under **Article 4.2** of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:

On passage;

Ringed Plover *Charadrius hiaticula*, 2,471 individuals representing up to 4.9% of the Europe/Northern Africa - wintering population (5-year peak mean 1991/2 - 1995/6)

Over winter;

Black-tailed Godwit *Limosa limosa islandica*, 1,003 individuals representing up to 1.4% of the wintering Iceland - breeding population (5-year peak mean 1991/2 - 1995/6)

Dark-bellied Brent Goose *Branta bernicla bernicla*, 17,119 individuals representing up to 5.7% of the wintering Western Siberia/Western Europe population (5-year peak mean 1991/2 - 1995/6)

Dunlin *Calidris alpina alpina*, 44,294 individuals representing up to 3.2% of the wintering Northern Siberia/Europe/Western Africa population (5-year peak mean 1991/2 - 1995/6)

Grey Plover *Pluvialis squatarola*, 3,825 individuals representing up to 2.5% of the wintering Eastern Atlantic - wintering population (5-year peak mean 1991/2 - 1995/6)



Redshank *Tringa totanus*, 1,788 individuals representing up to 1.2% of the wintering Eastern Atlantic - wintering population (5-year peak mean 1991/2 - 1995/6)

Ringed Plover *Charadrius hiaticula*, 846 individuals representing up to 1.7% of the wintering Europe/Northern Africa - wintering population (5-year peak mean 1991/2 - 1995/6)

Assemblage qualification: A wetland of international importance.

The area qualifies under **Article 4.2** of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl

Over winter, the area regularly supports 93,142 individual waterfowl (5 year peak mean 1991/2 - 1995/6) including: Wigeon *Anas penelope*, Bar-tailed Godwit *Limosa lapponica*, Dark-bellied Brent Goose *Branta bernicla bernicla*, Ringed Plover *Charadrius hiaticula*, Grey Plover *Pluvialis squatarola*, Dunlin *Calidris alpina alpina*, Black-tailed Godwit *Limosa limosa islandica*, Redshank *Tringa totanus*, Little Grebe *Tachybaptus ruficollis*, Little Egret *Egretta garzetta*, Shelduck *Tadorna tadorna*, Curlew *Numenius arquata*, Teal *Anas crecca*, Pintail *Anas acuta*, Shoveler *Anas clypeata*, Red-breasted Merganser *Mergus serrator*, Oystercatcher *Haematopus ostralegus*, Lapwing *Vanellus vanellus*, Knot *Calidris canutus*, Sanderling *Calidris alba*, Cormorant *Phalacrocorax carbo*, Whimbrel *Numenius phaeopus*.
ak mean 1998/9-2002/3).

Chichester and Langstone Harbours Ramsar (JNCC, 1987)

Ramsar criterion 5

Assemblages of international importance: Species with peak counts in winter: 76480 waterfowl (5-year peak mean 1998/99-2002/2003)

Ramsar criterion 6 – Species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):

Species with peak counts in spring/autumn:

- Ringed plover *Charadrius hiaticula*, Europe / Northwest Africa 853 individuals, representing an average of 1.1% of the population (5-year peak mean 1998/9- 2002/3)
- Black-tailed godwit *Limosa limosa islandica*, Iceland/W Europe 906 individuals, representing an average of 2.5% of the population (5-year peak mean 1998/9- 2002/3)
- Common redshank *Tringa totanus totanus*, 2577 individuals, representing an average of 1% of the population (5-year peak mean 1998/9- 2002/3)

Species with peak counts in winter:

- Dark-bellied brent goose *Branta bernicla bernicla*, 12987 individuals, representing an average of 6% of the population (5-year peak mean 1998/9- 2002/3)
- Common shelduck *Tadorna tadorna*, NW Europe 1468 individuals, representing an average of 1.8% of the GB population (5-year peak mean 1998/9-2002/3)
- Grey plover, E Atlantic/W Africa -wintering 3043 individuals, representing an average of 1.2% of *Pluvialis squatarola* the population (5-year peak mean 1998/9-2002/3)



- Dunlin *Calidris alpina alpina*, W Siberia/W Europe 33436 individuals, representing an average of 2.5% of the population (5-year peak mean 1998/9-2002/3)

Species/populations identified subsequent to designation for possible future consideration under criterion 6. Species regularly supported during the breeding season:

Little tern *Sterna albifrons albifrons*, W Europe 130 apparently occupied nests, representing an average of 1.1% of the breeding population (Seabird 2000 Census).

River Itchen SAC (JNCC, 2015d)

There is one Annex I habitats present that are a primary reason for selection of this site:

- **3260** Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation.

There are two Annex II species that are primary reasons for selection of this site:

- **1044** Southern damselfly (*Coenagrion mercuriale*); and
- **1163** Bullhead (*Cottus gobio*).

There are four Annex II species present as a qualifying feature, but not a primary reason for site selection:

- **1092** White-clawed (or Atlantic stream) crayfish *Austropotamobius pallipes*;
- **1096** Brook lamprey *Lampetra planeri*;
- **1106** Atlantic salmon *Salmo salar*; and
- **1355** Otter *Lutra lutra*.

Solent Maritime SAC (JNCC, 2015e)

Annex I habitats that are a primary reason for selection of this site

1130 Estuaries

The Solent encompasses a major estuarine system on the south coast of England with four coastal plain **estuaries** (Yar, Medina, King's Quay Shore, Hamble) and four bar-built **estuaries** (Newtown Harbour, Beaulieu, Langstone Harbour, Chichester Harbour). The site is the only one in the series to contain more than one physiographic sub-type of estuary and is the only cluster site. The Solent and its inlets are unique in Britain and Europe for their hydrographic regime of four tides each day, and for the complexity of the marine and estuarine habitats present within the area. Sediment habitats within the estuaries include extensive estuarine flats, often with intertidal areas supporting eelgrass *Zostera* spp. and green algae, sand and shingle spits, and natural shoreline transitions. The mudflats range from low and variable salinity in the upper reaches of the estuaries to very sheltered almost fully marine muds in Chichester and Langstone Harbours. Unusual features include the presence of very rare sponges in the Yar estuary and a sandy 'reef' of the polychaete *Sabellaria spinulosa* on the steep eastern side of the entrance to Chichester Harbour.

1320 Spartina swards (Spartinion maritimae)

Solent Maritime is the only site for smooth cord-grass *Spartina alterniflora* in the UK and is one of only two sites where significant amounts of small cord-grass *S. maritima* are found. It is also one of the few remaining sites for Townsend's cord-grass *S. x townsendii* and holds extensive areas of common cord-grass *Spartina anglica*, all four taxa thus occurring here in close proximity. It has



additional historical and scientific interest as the site where *S. alterniflora* was first recorded in the UK (1829) and where *S. x townsendii* and, later, *S. anglica* first occurred.

1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae)

The Solent contains the second-largest aggregation of **Atlantic salt meadows** in south and south-west England. Solent Maritime is a composite site composed of a large number of separate areas of saltmarsh. In contrast to the Severn estuary, the salt meadows at this site are notable as being representative of the ungrazed type and support a different range of communities dominated by sea-purslane *Atriplex portulacoides*, common sea-lavender *Limonium vulgare* and thrift *Armeria maritima*. As a whole the site is less truncated by man-made features than other parts of the south coast and shows rare and unusual transitions to freshwater reedswamp and alluvial woodland as well as coastal grassland. Typical **Atlantic salt meadow** is still widespread in this site, despite a long history of colonisation by cord-grass *Spartina* spp.

Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site

- 1110 Sandbanks which are slightly covered by sea water all the time
- 1140 Mudflats and sandflats not covered by seawater at low tide
- 1150 Coastal lagoons * Priority feature
- 1210 Annual vegetation of drift lines
- 1220 Perennial vegetation of stony banks
- 1310 Salicornia and other annuals colonizing mud and sand
- 2120 "Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes")"

Annex II species present as a qualifying feature, but not a primary reason for site selection

- 1016 Desmoulin's whorl snail *Vertigo moulinsiana*

Solent and Dorset Coast pSPA (Natural England, 2016)

The proposal for Solent and Dorset Coast is to create a new SPA for internationally important populations of:

- Common tern *Sterna hirundo*
- Sandwich tern *Thalasseus sandvicensis*
- Little tern *Sternula albifrons*



Appendix D – Land at Newgate Lane, North Nutrient Balancing Calculations



Table 3: Calculating Total Nitrogen (TN) Load From Development Wastewater (Stage 1)

Step	Measurement	Value	Unit	Explanation
Development proposal.	Development types that would increase the population served by a wastewater system.	75.000	Residential dwellings	Number of dwellings.
1	Additional population.	180.000	Persons	Uses an average household size of 2.4 x number of dwellings.
2	Wastewater volume generated by development.	19800.000	L/day	Persons x 110 litres/day. Where relevant, deduct wastewater volume of population displaced by the proposed development.
3	Waste Water Treatment Works (WWTW) environmental limit for TN.	9.000	mg/l TN	Peel Common WwTW limit.
4	Deduct acceptable TN loading (@ 2 mg/l TN).	6.100	mg/l TN	90% of environmental limit. – 2 mg/l in accordance with NE guidance
5	TN discharged after WWTW.	120780.000	mg/TN/day	Step 2 x Step 4
6	Convert mg/TN to kg/TN per day.	0.121	Kg/TN/day	Divide by 1,000,000.
7	Convert kg/TN per day to kg/TN per year.	44.085	Kg/TN/yr	x365 days.
TN Load Wastewater 44.085 Kg/TN/yr				



Table 4: Calculating TN Load From Current Land use (Stage 2)

Step	Measurement	Farm type	Value	Unit	Explanation
1	Total area of existing land	Cereals No use	3.400 0.550	ha	Area of land lost to development
2	Nitrate loss.	Cereals No use	31.200 5.000	Kg/ha/yr	The existing land uses
3	Multiply total area by farm type nitrate loss	Cereals No use	106.080 2.750	Kg/TN/yr	Area x nitrate loss
TN Load – Current land use 108.830 Kg/TN/yr					

Table 5: Calculating TN Load From Future Land Uses (Stage 3)

Step	Measurement	Value	Unit	Explanation
1	Future urban land	3.370	ha	Area of development that will change from agricultural land to urban land use
2	Total nitrogen load from future urban area	48.191	Kg/TN/yr	area (ha) x 14.3 Kg/TN/yr (nitrogen leaching from urban land each year)
3	New SANG / open space	0.580	ha	Area of development that will change from agricultural land to SANG / open space
4	TN load from SANG / open space	2.900	Kg/TN/yr	area (ha) x 5 (nitrogen leaching from SANG / open space each year)
5	Combine TN load from future land uses	51.091	Kg/TN/yr	-
TN Load – Future land use 51.091 Kg/TN/yr				



Table 6: Calculating Net Change in TN from The Development (Stage 4)

Step	Measurement	Value	Unit	Explanation
1	Identify TN loads from wastewater	44.085	Kg/TN/yr	(Stage 1)
2	Calculate TN from land use - subtract TN load from future land uses (Stage 3) from existing land uses (Stage 2)	57.739	Kg/TN/yr	(Stage 2 - Stage 3)
3	Determine nitrogen budget - the difference between the TN load for the proposed development and the existing uses	-13.654	Kg/TN/yr	(Step 1 - Step 2)
4	Calculate and include 20% buffer (does not apply to neutral projects)	N/A	N/A	N/A
TN Budget -13.654 Kg/TN/yr				



Appendix E – Land at Newgate Lane, South Nutrient Balancing Calculations



Table 3: Calculating Total Nitrogen (TN) Load From Development Wastewater (Stage 1)

Step	Measurement	Value	Unit	Explanation
Development proposal.	Development types that would increase the population served by a wastewater system.	115.000	Residential dwellings	Number of dwellings.
1	Additional population.	276.000	Persons	Uses an average household size of 2.4 x number of dwellings.
2	Wastewater volume generated by development.	30360.000	L/day	Persons x 110 litres/day. Where relevant, deduct wastewater volume of population displaced by the proposed development.
3	Waste Water Treatment Works (WWTW) environmental limit for TN.	9.000	mg/l TN	Peel Common WwTW limit.
4	Deduct acceptable TN loading (@ 2 mg/l TN).	6.100	mg/l TN	90% of environmental limit. – 2 mg/l in accordance with NE guidance
5	TN discharged after WWTW.	166676.400	mg/TN/day	Step 2 x Step 4
6	Convert mg/TN to kg/TN per day.	0.185	Kg/TN/day	Divide by 1,000,000.
7	Convert kg/TN per day to kg/TN per year.	67.597	Kg/TN/yr	x365 days.
TN Load Wastewater 67.597 Kg/TN/yr				



Table 4: Calculating TN Load From Current Land use (Stage 2)

Step	Measurement	Farm type	Value	Unit	Explanation
1	Total area of existing land	Cereals	4.600	ha	Area of land lost to development
		Lowland Grazing	1.400		
2	Nitrate loss.	Cereals	31.200	Kg/ha/yr	The existing land uses
		Lowland Grazing	13.000		
3	Multiply total area by farm type nitrate loss	Cereals	143.520	Kg/TN/yr	Area x nitrate loss
		Lowland Grazing	18.200		
TN Load – Current land use 161.720 Kg/TN/yr					

Table 5: Calculating TN Load From Future Land Uses (Stage 3)

Step	Measurement	Value	Unit	Explanation
1	Future urban land	4.730	ha	Area of development that will change from agricultural land to urban land use
2	Total nitrogen load from future urban area	67.639	Kg/TN/yr	area (ha) x 14.3 Kg/TN/yr (nitrogen leaching from urban land each year)
3	New SANG / open space	1.270	ha	Area of development that will change from agricultural land to SANG / open space
4	TN load from SANG / open space	6.350	Kg/TN/yr	area (ha) x 5 (nitrogen leaching from SANG / open space each year)
5	Combine TN load from future land uses	73.989	Kg/TN/yr	-
TN Load – Future land use 73.989 Kg/TN/yr				



Table 6: Calculating Net Change in TN from The Development (Stage 4)

Step	Measurement	Value	Unit	Explanation
1	Identify TN loads from wastewater	67.597	Kg/TN/yr	(Stage 1)
2	Calculate TN from land use - subtract TN load from future land uses (Stage 3) from existing land uses (Stage 2)	87.731	Kg/TN/yr	(Stage 2 - Stage 3)
3	Determine nitrogen budget - the difference between the TN load for the proposed development and the existing uses	-20.134	Kg/TN/yr	(Step 1 - Step 2)
4	Calculate and include 20% buffer (does not apply to neutral projects)	N/A	N/A	N/A
TN Budget -20.134 Kg/TN/yr				



Appendix F – Winter Bird Mitigation Strategy

Site:	Old Street, Stubbington
Client:	Fareham Land LLP and Bargate Homes
Job Number:	A117387
Survey Type(s):	Winter Bird Mitigation Strategy
File Location:	I:\Projects\Projects A117000 on\A117387 Land West of Newgate Lane\Reports

1.0 Introduction

WYG were commissioned by Fareham Land LLP and Bargate Homes to prepare a Winter Bird Mitigation Strategy, covering the proposed creation of a Winter Bird Mitigation area at Old Street, Stubbington. The purpose of this is to provide compensation for the partial loss of F15, a Low Use site within the Solent Wader and Brent Goose strategy which has been used historically by lapwing *Vanellus*.

The ownership and long-term management of the Winter Bird Mitigation Area as shown in Figure 1, will be secured via legal agreement.

1.1 Site Location

The site is located on land to the west of Old Street in the village Stubbington, Hampshire and is centred at Ordnance Survey National Grid Reference: SU 54133 02880. The survey area, hereafter referred to as 'the site', is shown on Figure 1 and comprises of two fields; the northern field is horse-grazed with semi-improved grassland, and the southern field is an abandoned arable field with tall ruderal vegetation and grassland, also grazed. Both fields have borders that are partially lined with trees and hedgerows.

1.2 Development Proposals

The proposals are to create a Winter Bird Mitigation Area measuring 5.0 ha maintained in perpetuity, to compensate for the loss of 11.84 ha of F15 across the proposed developments at Newgate Lane East, Land at Newgate Lane (South) and Land at Newgate Lane (North). Following these three developments, there would be 13.26 ha of F15 remaining.

2.0 Baseline

The site was subject to a series of ecological surveys and assessments as part of a proposed planning application (and subsequent appeal which was dismissed) in 2018 (ref: P/17/1451/OA). These were undertaken by Hampshire Ecological Services (HES) and WYG and comprise:

- Land west of Old Street, Stubbington: Ecological Appraisal Report (HES, 2017)
- Land west of Old Street, Stubbington: Wintering Bird Survey Report (HES, 2017)
- Land west of Old Street, Stubbington: Breeding Bird Survey Report (HES, 2017)
- Old Street, Stubbington: Bat Activity Report (WYG, 2017)
- Old Street, Stubbington: Bat Tree Assessment Report (WYG, 2017)
- Old Street, Stubbington: Dormouse Presence / Likely Absence Report (WYG, 2017)
- Old Street, Stubbington: Reptile Presence / Likely Absence Report (WYG, 2017)

Winter Bird Mitigation Strategy



A summary of the ecological baseline is given in Table 1.

Table 1: Survey completed and month conducted

Survey Type	Month Survey Conducted	Summary of Results
Ecological Appraisal	13 th April 2016	<p>The site consisted of two agricultural fields separated by hedgerows and a track (Marsh Lane). The northern field comprised horse-grazed semi-improved grassland while the southern field was arable land. The northern boundary of the site were agricultural fields; the eastern and southern boundaries were residential housing; and the western boundary was Titchfield Haven National Nature Reserve (NNR).</p> <p>The Ecological Appraisal also identified an active badger sett consisting of 9 holes at the western site boundary of the southern field.</p>
Wintering Bird Survey	Ten wintering bird survey visits were carried out between the 22 nd December 2015 and 30 th March 2016.	<p>A total of 34 bird species were recorded during the surveys within the site. Six amber list Birds of Conservation Concern, one of which (bullfinch) is also a UK BAP species were noted. The remaining amber list species are black-headed gull, common gull, dunnock, great black-backed gull and stock dove. eight red listed species were noted, of which five were UK BAP species (herring gull, house sparrow, lapwing, song thrush and starling). Other red list species include fieldfare, mistle thrush and redwing.</p> <p>The majority of the species recorded at the site were typical of farmland and improved grassland habitat. No significant numbers of wintering birds were recorded during the surveys and all species occurring on site are either common or fairly common within Hampshire and the surrounding area.</p>
Breeding Bird Survey	Five breeding bird survey visits were carried out between 26 th April and 24 th June 2016.	<p>A total of 37 bird species were recorded during the surveys within the site. Three amber list species (Dunnock, Reed Bunting and Stock Dove) and seven red list species (Cuckoo, House Sparrow, Lapwing, Linnets, Mistle Thrush, Skylark and Starling) were thought to likely be breeding on site. However, no birds were confirmed to be breeding on site during the surveys.</p>



		<p>One Schedule 1 species was recorded (Cetti's Warbler) during the surveys. The species was noted along the western boundary hedgerow.</p> <p>The majority of the species present are typical of semi-improved grassland and farmland habitat.</p> <p>No significant numbers of notable species were recorded during the surveys.</p>
Bat Activity Surveys	Activity surveys were conducted on the following days - 12 th July, 31 st August 4 th October 2017.	At least six, but up to 7 species of bat were recorded using the habitats across the site during the surveys. The site was considered to be of importance of up to <i>District, local or parish level</i> for foraging and commuting bats.
Bat Tree Assessment	11 th September 2017	All trees present within the site boundaries were assessed as providing negligible or low suitability to support roosting bats.
Dormouse Presence / Likely Absence	27 th July, 16 th August, 8 th September and 6 th October 2017.	During the survey conducted on 6 th October, a dormouse and dormouse nest was recorded within a nest tube located within the northern hedgerow boundary of the northern field.
Reptile Presence/ Likely Absence Survey	8 ^h September – 26 th September 2017	A low population of slow worms, grass snake and common lizard were recorded on-site, distributed around the boundaries of the southern field.

An updated site visit on 28th October 2020 confirmed that there had been no significant change in the site conditions since the surveys undertaken in 2017. The northern field remains horse grazed. The southern field remains a partially overgrown arable field which is not subject to grazing by horses. Therefore it is considered that there will be no significant change to the populations of notable and protected species identified on site and, taking into account the proposals for the site, these conclusions remain valid for the purposes of assessing potential impacts.

3.0 Proposed Mitigation

The purpose of the mitigation is to compensate for the loss of loss of 11.84 ha of Low Use Site (F15) identified in the Solent Wader and Brent Goose Strategy (SWBGS) (Solent WBGS, 2019). The SWBGS identifies a network of sites which lie outside the coastal European sites but which support the functionality and integrity of these sites (for example through providing high-tide foraging habitat). F15 is identified as a Low Use Site for supporting at least 13 lapwing during winter of 2014-15. It is part of the network of functionally linked habitat for the Solent and Southampton Water Special Protection Area (SPA) and Ramsar Site which is designated for supporting populations of European importance of breeding terns and overwintering waterfowl. As detailed in the SWBGS, Low Use Sites are those with the potential to be used by waders or brent geese and provide alternative options and resilience for the network.



As per the strategy, while Low Use sites have records of birds the numbers involved are low enough to ensure there is only a negligible risk of not successfully offsetting the loss of a Low Use site through enhancements of the wider network. Nevertheless, all Low Use sites have the potential to be used by waders and brent geese and the unmitigated loss of these sites would in combination negatively affect the long term resilience of the network.

Typically, mitigation for the loss of Low Use Sites is through the payment of a financial contribution of £35,610 which is secured via Section 106 agreement to enhance, manage and monitor the wider Solent Wader and Brent Goose Network. This funding is to be managed by the respective local authority and used to support schemes across the network, including in neighbouring authorities. Due to the lack of an established strategy within Fareham Borough, Natural England have requested further information to demonstrate a clear link between impact and mitigation, i.e. detail of how the financial contribution would be used to enhance the wider network.

This strategy sets out the creation and management of a Winter Bird Mitigation Area which will enhance the wader and brent goose network.

3.1 Objectives

Based on the findings of the previously undertaken bird surveys, and the impact of the associated developments, objectives are:

- To create suitable foraging habitat for overwintering waders (in particular) lapwing; and
- To provide secondary biodiversity benefits such as for breeding farmland birds including lapwing.

3.2 Site Selection

Following the surveys in 2016 and 2017, it was concluded that the site had negligible importance for wintering birds (substantiated by the fact it is not currently included within the wader and brent goose network), therefore the provision of habitat in this location would constitute enhancement of the wader and brent goose network.

The proposed mitigation area will measure 5.0 ha and is larger than many existing Low Use sites within the wader and brent goose network in Fareham Borough. For example, F06, F12, F17J, F23, F29, F32, F48J, F79, F80 and F81 all measure less than 5.0 ha and are similarly bounded by mature tree and hedgerow margins.

The location of the mitigation area is appropriate, lying immediately adjacent to the SPA. Furthermore, two lapwing were recorded on site in March 2016 within the proposed mitigation area during surveys in support of application P/17/1451/OA (Hampshire Ecological Services, 2017). This gives high confidence that with the provision of suitable habitat the mitigation area will be used.



3.3 Management Principles

According to Sheldon *et al.* (2004)¹ a study of lapwing found 50% of birds and flocks during winter were found on crops, stubble and bare tillage, compared to 25% on pasture. Primarily foraging takes place at night for earthworms, with a resulting need for clear foraging areas which are provide between stubble and short crops. Therefore it is proposed that the mitigation area is managed primarily for crops. This also provides variation from the predominant grassland habitat within the SPA. It has also been found that timing of tillage is an important factor in site selection by lapwing, with a preference for spring tillage (autumn tillage typically results in earlier crop growth which reduces predator visibility).

Lapwing require areas of bare ground or short vegetation from mid-March to June and will nest on spring sown cereals. Typically once the you have hatched they will take their young to nearby grassland to forage (preferably grazed).

Therefore, management will consist of overwintered stubble, followed by spring barley as the primary crop. This has the added benefit of providing suitable nesting habitat during spring and summer. It is proposed that management comprises a four-year rotation, with a break crop comprising a grassland ley every fourth year. This will avoid build-up of crop parasites and allow the soil biomass to recover.

A 6m uncultivated margin will be maintained around the periphery of the arable areas. This will provide potential nesting and foraging habitat for birds during summer, and provide habitat for invertebrates and reptiles (recorded on site). The provision of this margin will also avoid potential damage or disturbance of boundary woodland and hedgerow habitats which are known to support reptiles, hazel dormice, bats and badgers.

3.4 Impacts to On-Site Biodiversity

As set out in Section 2, the site predominately supports semi-improved grassland and arable habitats with non-significant populations of wintering and breeding birds, foraging and commuting activity by up to six species of bat, presence of hazel dormice within site boundary hedgerows and a low population of reptiles. It is predicted that the proposed management will result in a qualitative gain for on-site biodiversity as discussed in Table 2.

Table 2: Impacts to On-site Biodiversity

Feature	Impact	Rationale
Wintering Birds	Beneficial	The primary aim of the proposals is to create overwintering foraging habitat for wading birds (in particular lapwing). In addition to waders, the provision of overwinter stubble and uncultivated margins will provide foraging opportunities for other farmland birds. According to RSPB guidance on overwinter stubble, spring barley stubble, which is proposed, is the

¹ Sheldon, R., Bolton, M., Gillings, S. and Wilson, A. (2004), Conservation management of Lapwing Vanellus on lowland arable farmland in the UK. *Ibis*, 146: 41-49.

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		most attractive type of stubble for birds (preferable to wheat or winter barley ²).
Breeding Birds	Beneficial	The majority of the potential breeding birds identified were associated with boundary features which will be unaffected by the proposals. In addition the proposed spring barley cropping (and grass ley break crop) will provide potential habitat for ground nesting birds, although it is acknowledged that the mature tree boundaries may limit uptake. The uncultivated margins will provide foraging habitat for a wide range of farmland species in the form of seeds and invertebrates.
Bats	Beneficial	It is anticipated that the proposals, in particular the provision of uncultivated (but managed) field margins will increase the availability of invertebrate prey for bats.
Badger	Neutral	A badger sett is present at the western boundary of the site. The provision of a 6m uncultivated margin will avoid damage to the sett during management operations. Badgers currently forage within the southern field and the provision of uncultivated margins will maintain suitable foraging habitat (in addition to the managed fields).
Hazel dormice	Neutral	The provision of a 6m uncultivated margin will protect hazel dormouse habitat from damage or disturbance during management operations.
Reptiles	Beneficial	The provision of a 6m uncultivated field margin (which will be managed) will increase habitat suitability for reptiles by providing habitat variation for refuge, basking and foraging.

Consideration has also been given to quantitative biodiversity gain using the Biodiversity Metric 2.0. Pre and post-development habitats have been quantified in accordance with the Biodiversity Metric 2.0 Calculation Tool and Technical Supplement³.

The proposals will result in the loss of 1.39 ha of grassland (modified grassland) from the northern field and 3.14 ha of cropland (cereal crops other) from the southern field. Modified grassland is the UKHab equivalent to poor semi-improved grassland (as assessed in the Ecological Appraisal). Cereal crops other has been selected to represent the southern field which is former arable land which has not been recently cultivated (and is now grazed). This is considered appropriate as all cropland habitats (with the exception of those managed specifically for wildlife such as under a stewardship

² RSPB (undated). Buffer Strips on Cultivated Land Advisory Sheet. Available at: <https://www.rspb.org.uk/globalassets/downloads/documents/farming-advice/buffer-strips-on-cultivated-land-advisory-sheet-england-tcm9-207688.pdf> Accessed 25th October 2020.

³ Natural England, (2019). The Biodiversity Metric 2.0 auditing and accounting for biodiversity Technical Supplement Beta Edition

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scheme, or traditional orchards) are assigned low distinctiveness. Alternatively, the field could be assessed as sparsely vegetated land (ruderal/ephemeral), however this too is of low distinctiveness.

In accordance with the Technical Supplement, both habitats are assigned a condition score of 1 (poor) with no condition assessment required. Both also score 1 for connectivity (due to low distinctiveness) and 1 for strategic significance.

These habitats therefore have a value of 9.06 biodiversity units, all of which will be lost.

The proposals will result in the creation of 3.82 ha of cropland (cereal crops winter stubble) and 0.71 ha of cropland (arable field margins tussocky). Both habitats are assigned medium distinctiveness and in accordance with the Technical Supplement, both habitats are assigned a condition score of 1 (poor) with no condition assessment required. Both also score 1 for connectivity (due to low distinctiveness), 1 for strategic significance, 0.965 for time to target condition (1 year) and 1 for difficulty of creation.

This results in a post-development value of 17.49 biodiversity units, a significant gain of 8.43 units or 93%.

4.0 Management Actions

There will be two sets of management actions, covering the cropping regime, and management of uncultivated margins. It should be noted that specific timings for operations such as sowing and harvesting will be subject to weather and growing conditions. These areas are shown in Figure 1.

4.1 Cropping Regime

The cropping regime will consist of three years of spring barley followed by a year of grass clover ley as a break crop and to improve soil organic matter. Spring barley should be sown between mid-February and mid-March to allow a lengthy period for foraging winter birds and to complete works before any potential egg-laying by ground-nesting species such as lapwing.

Following this any cultivation should attempt to avoid any nests (located through observation. If a series of operations are necessary then these should be timed to take place within one week so that birds can re-nest following any failures.

Following harvesting in late Summer / early Autumn, fields will be left as over winter stubble. This will not include spraying at this stage which would reduce value for birds.

The grass ley should be sown in Spring (again ideally before mid-march to avoid potential disruption of ground-nesting birds). Management will predominately be through cutting for hay or silage. This will comprise a first cut in late July / August (following majority of breeding bird activity) and a second cut in late September (to achieve a winter sward height of 50-60mm). Alternatively, low-intensity grazing could be conducted following the first cut.

4.2 Margins

Margins of 6m width will be maintained around the periphery of the cropped areas. These will be maintained in accordance with RSPB stewardship guidance for rough grass margins.

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After Year 1, margins will be cut no more than once every five years in autumn. To maintain habitat variation, cuts of the margins in the northern and southern fields will be separated by one year.

The 3m of the margin adjacent to the cropped areas will be cut annually in autumn to maintain diversity within each area for invertebrates and reptiles.

Spraying or fertilising must be avoided within the margins to avoid dominance of undesirable species such as thistles and docks.

4.3 Monitoring

Long-term monitoring is proposed which is proportionate to the impact (partial loss of a Low Use site) and takes into account the negligible risk of not successfully offsetting the loss of a Low Use site through enhancements of the wider network (per the Solent Wader and Brent Goose Strategy).

It is proposed that long-term monitoring is undertaken using remote camera surveys. These will take place annually for Years 1 – 5 followed by every 10 years from Years 10 to 80. Two cameras will be deployed for a period of five days each month from October to March, one in the north of the mitigation area and one in the south. Cameras will be set to take photographs at 30 minute intervals. These will subsequently be checked by an ornithologist to confirm the presence or absence of SPA qualifying bird species. Results will be reported to the Owner and LPA.

This will be supplemented by monitoring of the implementation of the above management operations. This will comprise annual site visits during winter in Years 1-10 followed by visits every 5 years from Years 10 – 80 to monitor compliance.

Timing of Actions

Table 4 sets out the timing of on-site management and monitoring operations.

Table 4: Timing of operations

Timing	Operation	Year
Mid-February / Mid-March	Prepare seedbed (plough or harrow to 120-200mm).	Annually
	Sow spring barley via drilling.	Years 1-3, 5-7 etc.
	Broadcast sow ryegrass and clover ley (c. 18kg/ha).	Years 4, 8 etc.
	Consolidate seed bed via rolling if required.	Annually
Late July / August	Cut grassland to 150 mm in height.	Years 4, 8 etc.
	Introduce grazing at low density if required.	
August	Harvest spring barley.	Years 1-3, 5-7 etc.
	Leave as stubble.	

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Late September	Cut grassland to 60 mm in height.	Years 4, 8 etc.
Late September	Cut 3m of margin adjacent to crops to 150 mm in height.	Annually
Late September	Cut entire northern field margin to 150 mm in height.	Years 5, 10, 15 etc.
Late September	Cut entire southern field margin to 150 mm in height.	Years 6, 11, 16 etc.
October to March	Site visit to monitor compliance.	Years 1-10 then 15, 20, 25 etc.
October to March	Remote camera monitoring (5 days per month).	Years 1-5 then 10, 20, 30 etc.

Quality Control

Version:

1

FINAL

Prepared by:

John Simper MCIEEM

Senior Ecologist

Checked and Verified By:

David West CEnv MCIEEM

Associate Ecologist

Version:	Date:	Updated by:	Verified by:	Description of changes:

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Figure 1: Winter Bird Mitigation Plan



Appendix G – Natural England Correspondence

West, David

From: Jones, Rachel <Rachel.Jones2@naturalengland.org.uk>
Sent: 23 October 2020 16:18
To: david.west
Subject: RE: Winter Bird Mitigation for F15

⚠ CAUTION: This email originated from an external sender. Verify the source before opening links or attachments.



Hi David

Thank you for your email and details provided on this mitigation scheme.

It is noted that 13.26 ha of F15 will remain. However, to offset the loss of F15 that is coming forward as a result of the proposed development, a mitigation scheme is proposed on land immediately adjacent to Titchfield Haven NNR, which is designated Solent and Southampton SPA and Ramsar site. This land will be managed to enhance the continued ecological function of the wader network and support the adjacent NNR.

We advise that a detailed costed management and monitoring plan is agreed with Natural England and the competent authority in due course. The mitigation land should be delivered in advance of any loss and managed by a suitable third party (such as LPA or NGO partner (or similar stable management body such as Land Trust)) in perpetuity. These details should be included within the Appropriate Assessment and secured with any planning permission. Provided this is the case, it is Natural England's view that this would be a suitable offsetting project for the partial loss of F15.

Please let me know if you need any further information at this stage.

Kind regards
Rachel

Rachel Jones
Senior Advisor Sustainable Development
Thames Solent team
Natural England
07717 808691

During the current coronavirus situation, Natural England staff are working remotely to provide our services and support our customers and stakeholders. All offices and our Mail Hub are closed, so please send any documents by email or contact us by phone or email to let us know how we can help you. See the latest news on the coronavirus at <http://www.gov.uk/coronavirus> and Natural England's regularly updated operational update at <https://www.gov.uk/government/news/operational-update-covid-19>.

www.gov.uk/natural-england



From: david.west <david.west@wyg.com>
Sent: 20 October 2020 12:06
To: Jones, Rachel <Rachel.Jones2@naturalengland.org.uk>
Subject: Winter Bird Mitigation for F15

Hi Rachel

As discussed, please see attached proposed mitigation area at Old Street, Stubbington. This comprises 5.0 ha, intended to compensate for the loss of 11.84 ha of F15 across the proposed developments at Newgate Lane East, Land at Newgate Lane (South) and Land at Newgate Lane (North). Following these three developments, there would be 13.26 ha of F15 remaining.

As you know, this site was subject to detailed ecological surveys as part of a planning application P/17/1451/OA, and subsequent appeal in 2018. It was concluded that the site had negligible importance for wintering birds, therefore the provision of habitat in this location would constitute enhancement of the wader and brent goose network. The location of the mitigation area is appropriate, lying immediately adjacent to the SPA. Furthermore, two lapwing were recorded on site in March 2016 within the proposed mitigation area during surveys in support of application P/17/1451/OA (Hampshire Ecological Services, 2017). This gives high confidence that with the provision of suitable habitat the mitigation area will be used.

According to Sheldon et al. (2004) a study of lapwing found 50% of birds and flocks during winter were found on crops, stubble and bare tillage, compared to 25% on pasture. Therefore it is proposed that the mitigation area is managed primarily for crops. This also provides variation from the predominant grassland habitat within the SPA. It has also been found that timing of tillage is an important factor in site selection by lapwing, with a preference for spring tillage (autumn tillage typically results in earlier crop growth which reduces predator visibility). Therefore, management will consist of overwintered stubble, followed by spring barley as the primary crop. This has the added benefit of providing suitable nesting habitat during spring and summer. It is proposed that management comprises a four-year rotation, with a break crop comprising a species-rich grassland ley every fourth year. This will avoid build-up of crop parasites and allow the soil biomass to recover.

Legal details are being drawn up at the moment but for the time-being would you mind confirming that this would be an appropriate form of compensation for the partial loss of the functionally linked land at F15? I can then forward this information to the case officer at Fareham Borough Council to inform them of our proposals.

Kind regards

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WYG will be rebranding as Tetra Tech at the start of 2021

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