



**Botanical Survey (including Sulphur Clover
Survey)**

of

Phases 2 – 6 and Relief Road

Haverhill

Suffolk

On Behalf of:

Persimmon Homes Suffolk

August 2019

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EXECUTIVE SUMMARY

James Blake Associates (JBA) was commissioned by Persimmon Homes Suffolk to carry out a botanical survey incorporating a search for Sulphur Clover (*Trifolium ochroleucon*), a Nationally Scarce species which had been previously recorded from the site, and a survey for other plant species and habitats of interest. The site is proposed for Phases 2 – 6 of a major residential development and a Relief Road to the north of Haverhill, Suffolk.

The site was surveyed on 12th June and 25th June 2019. Sulphur Clover was recorded in several locations on site in connection with a single hedgerow. Dwarf Spurge (*Euphorbia exigua*), a Near Threatened species, was also found on site.

Recommendations are given for the retention and management of habitat containing Sulphur Clover and other habitats of botanical interest which are the hedgerows and an area of scrub. The inclusion of species-rich wildflower grassland in the landscape design is recommended.

1. INTRODUCTION

Background to the study

- 1.1 JBA was instructed by Persimmon Homes Suffolk to carry out a botanical survey, incorporating a Sulphur Clover survey, of land proposed for Phases 2 – 6 and the Relief Road, Haverhill, Suffolk (Grid reference TL 6699 46894 taken from the centre of the site).

Site Description

- 1.2 The site is located north of Haverhill and to the west of A143 Haverhill Road (see Figure 1). Arable fields border most of the site with residential housing to the south. The wider landscape to the north is largely arable fields with scattered woodland. The River Stour lies approximately 1.8km east of the site and the Stour Brook is situated approximately 300m to the south. The site has no designated conservation status associated with it. However, Ann Suckling Way County Wildlife Site (CWS) is located adjacent to the northern boundary of the Relief Road and Norney Plantation CWS, an area of ancient replanted woodland, is situated approximately 50m north of the site boundary.
- 1.3 The site itself is comprised of four former arable fields separated by hedgerows. Trees and shrubs border the residential properties on the southern and western boundaries of the site. A public right of way runs through the middle of the site from northeast to southwest adjacent to a hedgerow.
- 1.4 The botanical survey was undertaken by Dr Alison Collins MCIEEM and Daniel Blake BSc (Hons) Qualifying CIEEM Ltd on 12th June and 25th June 2019. The weather was overcast with a temperature of 13°C and overcast with a temperature of 20°C on those dates respectively. This time of year is optimum for surveys for most flowering plants, including Sulphur Clover.
- 1.5 A Phase 1 survey of the site as part of a Preliminary Ecological Appraisal was carried out in December 2018 (JBA, 2019). This survey highlighted the previous records of Sulphur Clover on site and recommended that a botanical survey be undertaken to highlight the location of any rare or protected species, to identify any habitat or species of principal importance, and to recommend measures to safeguard any species of interest within the proposed development.

Aims and objectives

- 1.6 The aims of the survey were to find and map the locations of Sulphur Clover; to identify and map the location of any other rare or protected plant species, to identify any habitat or species of principal importance, to advise of the implications their presence would have on the development; and to suggest appropriate avoidance, mitigation, compensation and enhancement options in order to safeguard the botanical interest of the site by the development and deliver net gain.

Figure 1: Site location



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Definitions

- 1.7 Nationally scarce: Nationally scarce species are those which occur in 16–100 10 km squares in Great Britain.

- 1.8 Near threatened: A category on the IUCN Red List of Threatened Species which indicates that a taxon has been evaluated against the Red List criteria and does not qualify for Critically Endangered, Endangered or Vulnerable status now, but is close to qualifying for, or is likely to qualify for, a threatened category in the near future.
- 1.9 Species and habitats of principal importance in England: Section 40 of The Natural Environment and Rural Communities (NERC) Act 2006 places a legal obligation on public bodies in England to have regard to particular living organisms and types of habitat which are of the greatest conservation importance whilst carrying out their functions, whilst also having a general regard for protecting all biodiversity. Section 41 of that same Act of Parliament requires the Secretary of State to maintain and publish statutory lists of these features - a function carried out on his/her behalf by Defra and Natural England. The lists of these features are sometimes known as the 'Section 41 lists', or 'priority habitats' and 'priority species' lists.

2. METHODS

- 2.1 The site was surveyed by Dr Alison Collins MCIEEM and Daniel Blake BSc Qualifying CIEEM on 12th June and 25th June 2019.
- 2.2 The method of survey was to walk along both sides of the hedgerows, where possible, and record tree, shrub and ground flora species in the margins adjacent to the hedgerows. Plant species in the fields and in an area of scrub were noted.
- 2.3 The hedgerows were subject to a survey for their 'importance' under the Hedgerow Regulations (1997); a separate report has been produced which details the results of this survey (see JBA 2019c).
- 2.4 The survey was undertaken within the optimum time of year for surveying grassland flora. The weather prior to the surveys had been wet. However, the majority of species were readily identifiable and there were no constraints to the survey.

3. RESULTS

Sulphur Clover Survey

- 3.1 The results of the Sulphur Clover survey are shown in Appendix A. See Photographs 1 and 2 for Sulphur Clover on site.
- 3.2 The main extent of Sulphur Clover was located at the base of the hedgerow H2 on the south facing side; the species formed a dense clump about 17m long and 1m wide along the hedge base at its maximum extent. Isolated smaller clumps of Sulphur Clover, about 2m by 1m, were also found on the south facing side and on the north facing side of the same hedge as shown in Appendix A. See Appendix B for the numbering of hedgerows on site.
- 3.3 In summary, the Sulphur Clover on site was confined to the ground flora vegetation associated with a single hedgerow (H2; both sides of the hedge). Sulphur Clover was locally abundant and formed an extensive stand on the southern facing side of H2. This hedgerow should be retained in its entirety by the development with a buffer zone (at least 4m on each side) around the hedgerow which would encompass all the Sulphur Clover plants.

Botanical survey

- 3.4 The locations of habitats of botanical interest are shown in Appendix A.
- 3.5 The habitats of botanical interest on the site were identified as the hedgerows, including the ground flora at the base of the hedgerows, and an area of scrub. Most of the in-field vegetation was of little interest as it was formerly arable land which had developed a range of grasses and herbs tolerant of high nutrient levels in the soil, i.e. tall ruderal vegetation.

Hedgerows

- 3.6 The hedgerows on site were mostly species-rich with a reasonable diversity of both woody species and ground flora herbs. The structure of the hedges was variable; some hedgerows were tall with standard trees whilst others were low and gappy. All hedges were untrimmed, some with outgrowth of shrubs. All were associated with ditches.

- 3.7 Tree species present in hedges with trees were mainly Ash (*Fraxinus excelsior*) and Pedunculate Oak (*Quercus robur*). H6 and H7 were mainly composed of English Elm (*Ulmus procera*). Commonly encountered woody species included Blackthorn (*Prunus spinosa*), Field Maple (*Acer campestre*), Hawthorn (*Crataegus monogyna*), Field Rose (*Rosa arvensis*) and to a lesser extent, Hazel (*Corylus avellana*) and Grey Willow (*Salix cinerea*).
- 3.8 Climbing species included Bramble (*Rubus fruticosus*), Black Bryony (*Tamus communis*), Honeysuckle (*Lonicera periclymenum*), Ivy (*Hedera helix*) and Hop (*Humulus lupulus*).
- 3.9 Ground flora associated with the hedgerow margins mainly consisted of widespread and abundant species, such as Hedge Bedstraw (*Galium mollugo*), Hedge Woundwort (*Stachys sylvatica*), Bittersweet (*Solanum dulcamara*), Yarrow (*Achillea millefolium*), Common Knapweed (*Centaurea nigra*), Lady's Bedstraw (*Galium verum*), Selfheal (*Prunella vulgaris*), Ribwort Plantain (*Plantago lanceolata*), Red Clover (*Trifolium pratense*), White Clover (*T. repens*) and Hop Trefoil (*T. campestre*).
- 3.10 Bee orchid (*Ophrys apifera*) was found in the margins of Hedgerows H1 and H2; however, abundance was low, only a few spikes were seen.
- 3.11 Less desirable species found in hedgerow margins included Ragwort (*Senecio jacobea*), Common Nettle (*Urtica dioica*) and Creeping Thistle (*Cirsium arvense*).

Scrub

- 3.12 The area of scrub consisted of locally dense patches of woody species, including Hawthorn, Field Maple, Ash, Blackthorn, Dogwood, Bramble, Dog Rose (*Rosa canina*) and Buddleia (*Buddleja davidii*).
- 3.13 The ground flora was fairly species-rich and included Red Bartsia (*Odontites vernus*), Wild Carrot (*Daucus carota*), Fleabane (*Pulicaria dysenterica*), Teasel (*Dipsacus fullonum*), Oxeye Daisy (*Leucanthemum vulgare*), Hoary Willowherb (*Epilobium parviflorum*), Square-stalked Willowherb (*E. tetragonum*), Rosebay Willowherb (*Chamerion angustifolium*), Perforate St John's Wort (*Hypericum perforatum*), Bristly Oxtongue (*Helminthotheca echiodes*), Field Bindweed (*Convolvulus arvensis*), Ribwort Plantain, Common Knapweed, Selfheal, Red Clover, White Clover, Ragwort, Creeping Thistle and other species.

- 3.14 Of particular note was the presence of Dwarf Spurge (*Euphorbia exigua*) which is listed as Near Threatened (see Photo 3).
- 3.15 Bee Orchid was locally frequent in a small patch about 3m x 3m (i.e. at least 16 flowering spikes) and Pyramidal Orchid (*Anacamptis pyramidalis*) was found rarely (i.e. only 2 spikes seen) (see Photos 4 and 5.)

Fields

- 3.16 The flora of the fields was dominated by tall ruderal species, primarily Ragwort and Bristly Oxtongue. Other commonly found species included Common Knapweed, Ribwort Plantain, Cut-leaved Cranesbill (*Geranium dissectum*), Dandelion (*Taraxacum officinale*), Creeping Buttercup (*Ranunculus repens*), Salsify (*Tragopogon porrifolius*), Great Willowherb (*Epilobium hirsutum*), Scentless Mayweed (*Tripleurospermum inodorum*) and Broad-leaved Dock (*Rumex obtusifolius*).
- 3.17 Other herbs found less frequently included Fleabane, Red Bartsia and Wild Carrot.
- 3.18 Commonly found grass species included Cock's-foot (*Dactylis glomerata*), False Oat-grass (*Arrhenatherum elatius*), Perennial Ryegrass (*Lolium perenne*), Timothy-grass (*Phleum pratense*) and Yorkshire Fog (*Holcus lanatus*).

Species list

- 3.19 A full species list of all vascular plant species recorded during the survey can be found in Appendix C.

4. RECOMMENDATIONS

- 4.1 The survey has shown the presence of the Nationally Scarce Sulphur Clover on site. The hedgerow H2 where this species is present should be maintained intact by the development. The hedge and its margins (at least 4m from hedgerow base either side) must be managed sensitively to ensure the continued survival and ideally, expansion, of the cover of Sulphur Clover.
- 4.2 The hedgerows on site are a Priority Habitat. The hedgerows should be maintained intact as far as possible by the development, particularly those which are classified as 'important' under the Hedgerow Regulations 1997 (see JBA 2019c) and managed to conserve and enhance their ecological value.
- 4.3 An area of scrub supports a plant community of interest including Dwarf Spurge along with a variety of other herbaceous species, including Bee and Pyramidal Orchids. It is recommended that this area is retained by the development and managed appropriately to conserve and enhance its ecological value.
- 4.4 Other ecological surveys are currently being carried out by JBA; the importance of the habitats on site for breeding and wintering birds, bats and dormice will be provided when the surveys have been completed. A reptile survey (JBA, 2019b) found that there were no reptiles present on site. The master planning for the site should take the findings of all the ecological surveys into account.
- 4.5 It is recommended that wildflower grassland should be established in suitable areas of public open space where the current interest is low. Native sources of plant species should be used. This will help to increase the botanical diversity on site and will provide potential food sources and shelter for a range of wildlife.

5. CONCLUSIONS

- 5.1 The Nationally Scarce Sulphur Clover was recorded on site in association with hedgerow H2.
- 5.2 Dwarf Spurge, a Near Threatened species, was found in an area of scrub.
- 5.3 Habitats of botanical interest on site are the hedgerows and the area of scrub. Hedgerows are a Priority Habitat. It is recommended that the hedgerows and their margins and the scrub are retained intact by the development and managed appropriately in the long term to maintain and, where possible, enhance their botanical interest.
- 5.4 The findings of other ecological surveys (when available) should be viewed in conjunction with the findings of the botanical survey to give an integrated ecological assessment of the site to aid in masterplanning the design for the proposed developments to ensure that the development delivers biodiversity net gain.

PHOTOGRAPHS

1. Sulphur Clover (*Trifolium ochroleucon*) on site



2. Hedgerow H2 with locally abundant Sulphur Clover in the margin (greyish-blue plant in centre of photograph)



3. Near Threatened Dwarf Spurge (*Euphorbia exigua*) on site



4. Bee Orchid (*Ophrys apifera*) on site



5. Pyramidal Orchid (*Anacamptis pyramidalis*) on site



REFERENCES

JBA (2018) Phase 1 Habitat Survey of Relief Road, Haverhill, Suffolk. February 2018

JBA (2019a) Preliminary Ecological Appraisal of Haverhill Phases 2-6, Suffolk. January 2019

JBA (2019b) Reptile survey of Phases 2 – 6 and Relief Road, Haverhill, Suffolk June 2019

JBA (2019c) Hedgerow Survey of Phases 2 – 6 and Relief Road, Haverhill, Suffolk August 2019

Web references

Suffolk Local BAP: <https://www.suffolkbis.org.uk/biodiversity/speciesandhabitats>

6. APPENDICES

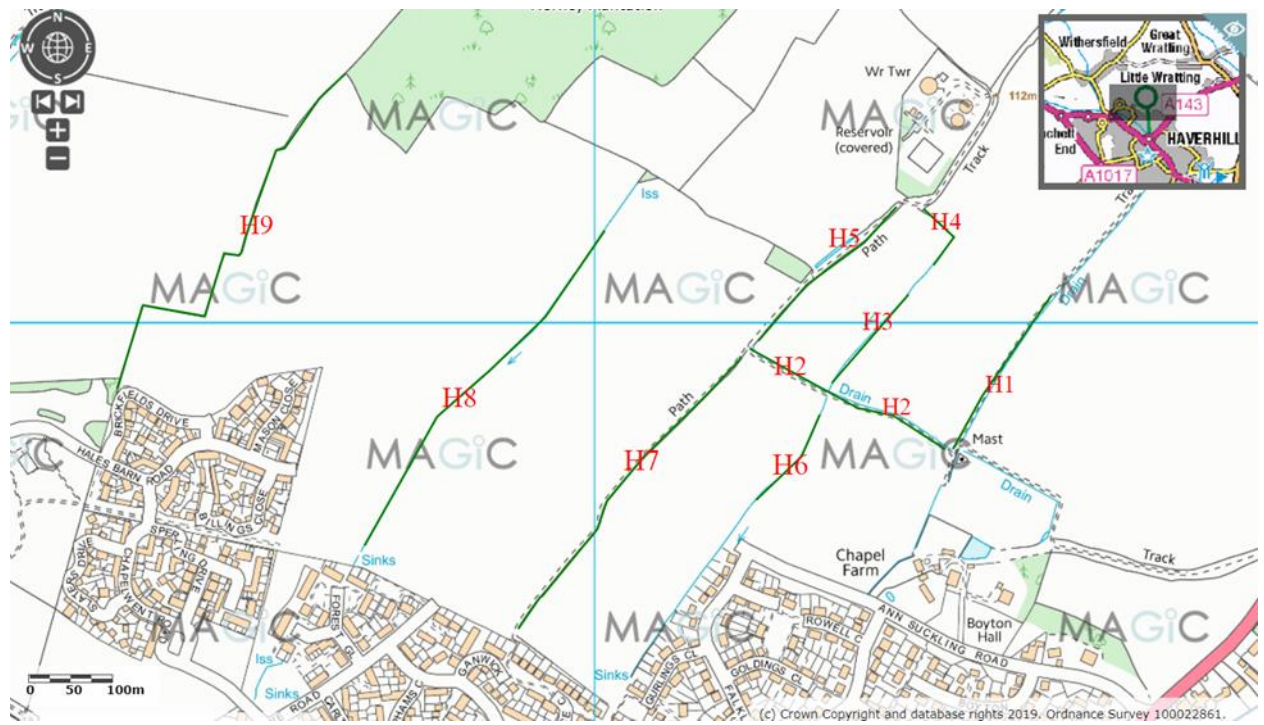
Appendix A: Indicative locations of Sulphur Clover (*Trifolium ochroleucon*) and habitats of interest on site



KEY:

- Red line: Site boundary
- Yellow dots: Sulphur Clover location (indicative)
- Light green lines: Hedgerow
- Mid green area: Scrub

Appendix B. Location and numbering of hedgerows on site



Appendix C: Full Plant Species List

Species encountered in survey				
Species	Scientific name	Hedgerows including headland/margins	Scrub	In-field
Field maple	<i>Acer campestre</i>	✓	✓	
Yarrow	<i>Achillea millefolium</i>	✓	✓	
Pyramidal orchid	<i>Anacamptis pyramidalis</i>	✓	✓	
False oat grass	<i>Arrhenatherum elatius</i>	✓	✓	✓
Buddleia	<i>Buddleja davidii</i>		✓	
Sedge	<i>Carex sp.</i>	✓	✓	
Common knapweed	<i>Centaurea nigra</i>	✓	✓	✓
Creeping thistle	<i>Cirsium arvense</i>	✓	✓	✓
Spear thistle	<i>Cirsium vulgare</i>	✓	✓	✓
Field bindweed	<i>Convolvulus arvensis</i>	✓	✓	✓
Dogwood	<i>Cornus sanguinea</i>	✓	✓	
Hazel	<i>Corylus avellana</i>	✓		
Hawthorn	<i>Crataegus monogyna</i>	✓	✓	
Cock's foot	<i>Dactylis glomerata</i>	✓	✓	✓
Wild carrot	<i>Daucus carota</i>	✓	✓	✓
Teasel	<i>Dipsacus fullonum</i>	✓	✓	
Great Willowherb	<i>Epilobium hirsutum</i>	✓	✓	✓
Hoary Willowherb	<i>Epilobium parviflorum</i>		✓	
Square-stalked Willowherb	<i>Epilobium tetragonum</i>		✓	
Field horsetail	<i>Equisetum arvense</i>		✓	
Spindle	<i>Euonymus europaeus</i>	✓		
Dwarf spurge	<i>Euphorbia exigua</i>		✓	
Ash	<i>Fraxinus excelsior</i>	✓	✓	
Cleavers	<i>Galium aparine</i>	✓		
Hedge bedstraw	<i>Galium mollugo</i>	✓	✓	
Lady's bedstraw	<i>Galium verum</i>	✓		
Cut-leaved cranesbill	<i>Geranium dissectum</i>	✓	✓	✓
Ground ivy	<i>Glechoma hederacea</i>	✓		
Ivy	<i>Hedera helix</i>	✓		
Bristly oxtongue	<i>Helminthotheca echioides</i>	✓	✓	✓
Hogweed	<i>Heraclium sphondylium</i>	✓	✓	✓
Yorkshire fog	<i>Holcus lanatus</i>		✓	✓

Hop	<i>Humulus lupulus</i>	✓		
Perforate St John's-wort	<i>Hypericum perforatum</i>	✓	✓	
Meadow vetchling	<i>Lathyrus pratensis</i>	✓		
Oxeye daisy	<i>Leucanthemum vulgare</i>	✓	✓	
Wild privet	<i>Ligustrum vulgare</i>	✓		
Perennial rye-grass	<i>Lolium perenne</i>	✓	✓	✓
Honeysuckle	<i>Lonicera periclymenum</i>	✓		
Crab apple	<i>Malus sylvestris</i>	✓		
Spear Mint	<i>Mentha spicata</i>			✓
Red bartsia	<i>Odontites vernus</i>	✓	✓	✓
Bee orchid	<i>Ophrys apifera</i>	✓	✓	
Common poppy	<i>Papaver rhoeas</i>	✓		
Ribwort plantain	<i>Plantago lanceolata</i>	✓	✓	✓
Greater plantain	<i>Plantago major</i>	✓	✓	✓
Cowslip	<i>Primula veris</i>	✓		
Blackthorn	<i>Prunus spinosa</i>	✓	✓	
Selfheal	<i>Prunella vulgaris</i>	✓	✓	✓
Common fleabane	<i>Pulicaria dysenterica</i>		✓	✓
Pedunculate oak	<i>Quercus robur</i>	✓		
Meadow buttercup	<i>Ranunculus acris</i>	✓	✓	
Field rose	<i>Rosa arvensis</i>	✓		
Bramble	<i>Rubus fruticosus</i>	✓	✓	
Broad-leaved dock	<i>Rumex obtusifolius</i>	✓	✓	✓
Grey willow	<i>Salix cinerea</i>	✓	✓	
Elder	<i>Sambucus nigra</i>	✓		
Ragwort	<i>Senecio jacobea</i>	✓	✓	✓
Bittersweet	<i>Solanum dulcamara</i>	✓		
Hedge woundwort	<i>Stachys sylvatica</i>	✓	✓	✓
Dandelion	<i>Taraxacum officinalis</i>	✓	✓	✓
Goatsbeard	<i>Tragopogon pratensis</i>	✓	✓	
Salsify	<i>Tragopogon porrifolius</i>	✓		✓
Scentless mayweed	<i>Tripleurospermum inodorum</i>			✓
Hop trefoil	<i>Trifolium campestre</i>	✓	✓	
Sulphur clover	<i>Trifolium ochroleucon</i>	✓		
Red clover	<i>Trifolium pratense</i>	✓	✓	✓
White clover	<i>Trifolium repens</i>	✓	✓	✓
Sow thistle	<i>Sonchus sp</i>			✓
Black bryony	<i>Tamus communis</i>	✓		
Common nettle	<i>Urtica dioica</i>	✓	✓	✓

English elm	<i>Ulmus procera</i>	✓		
Ivy-leaved speedwell	<i>Veronica chamaedrys</i>	✓		
Smooth tare	<i>Vicia tetrasperma</i>	✓	✓	