



Botany Survey Report 2015

Land at Wenny Road, Chatteris, Cambridgeshire

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Notice to Interested Parties

To achieve the study objectives stated in this report, we were required to base our conclusions on the best information available during the period of the investigation and within the limits prescribed by our client in the agreement.

No investigative method can completely eliminate the possibility of obtaining partially imprecise or incomplete information. Thus, we cannot guarantee that the investigations completely defined the degree or extent of e.g. species abundances or habitat management efficacy described in the report.

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0 EXECUTIVE SUMMARY

- 0.1 On behalf of Cannon-Kirk (UK) Ltd, Cambridge Ecology Ltd was commissioned by Savills to carry out a Botany survey of land at Wenny Road, Chatteris, Cambridgeshire. The survey was required to investigate the likely presence of vascular plants of conservation importance, which include protected species, on the land within and adjacent to the development site, which could potentially be affected by a proposed residential development at the site.
- 0.2 In order to ensure compliance to legislation pertaining to plants, a series of surveys were carried out from early April to September 2015. The botany survey followed recognised standard methods and was considered to provide a robust set of data, suitable to evaluate the presence of plants of conservation importance within the survey areas and identify any potential ecological constraints requiring particular attention.
- 0.3 The survey recorded two hundred and sixty species of vascular plants within the development site. None of these species were considered of high conservation importance at a national level. None of the species recorded were listed as species of principal importance as detailed on Section 41 of the NERC Act 2006 (as amended).
- 0.4 Nine species were considered to be of some botanical interest at a local level, these included: Common Spike Rush, Marsh Cudweed, Dog's Mercury, Tiny Mouse-tail, Water Dropwort, Harsh Downy Rose, White Stonecrop, Stone Parsley and two 'Field' Elms.
- 0.5 Of these only the Tiny Mouse-tail, was considered of national interest, of local/site interest were Harsh Downy Rose, Water Dropwort, Stone Parsley and Dog's Mercury.
- 0.6 The two mature 'Field' Elm trees were notable for their maturity and condition, considering the effect that Dutch Elm disease has had on this species in the UK.
- 0.7 The site was considered to be of district importance for its vascular plant species.
- 0.8 No non-native alien species (such as Japanese Knotweed) listed on Schedule 9 Section 14 of the Wildlife and Countryside Act 1981 (as amended) and Section 33 and 34 of the Environmental Protection Act (Duty of Care) Regulations 1991 (as amended) were found during the botany surveys.
- 0.9 The location of the nine species of botanical interest indicated that they were mainly associated with boundary features, such as hedgerows, water course, walls and pathways around the entire site.

- 0.10 It is recognised that the development proposals for the site, would result in a number of direct and indirect adverse impacts on the vascular plants.
- 0.11 Recommendations have been made that would aim to ensure a representative assemblage of vascular plants were maintained within the site, which would meet local and national planning policy guidance.
- 0.12 A long term (25 year) Ecological Management Plan (EMP) should be prepared for the site. The EMP would help to ensure the mitigation and enhancement measures described in this report would have the best chance of success. Thereby minimising the potential for the development proposals to have a permanent adverse effect on vascular plants within the site. The EMP should be prepared in-combination with the landscaping plan, to provide a mechanism by which the recommendations described in this report could be incorporated into the scheme design. The EMP would also provide details about the management procedures and measures necessary to ensure the habitats created and features incorporated are maintained in a favourable condition in the long term.

1 INTRODUCTION

Background to the study

- 1.1 On behalf of Cannon-Kirk (UK) Ltd, Cambridge Ecology Ltd was commissioned by Savills to carry out a botany survey of land at Wenny Road, Chatteris, Cambridgeshire. The survey was required to investigate the likely presence of plants, which include protected species, on the land within and adjacent to the development site, which could potentially be affected by a proposed residential development at the site.
- 1.2 An investigation of biological records carried out during the literature search as part of the Extended Phase 1 Habitat Survey (Cambridge Ecology 2014) showed that within the last 10 years, there had been no records of any particular plants in close proximity (within 2km) of the proposed development site. However, the results of the Extended Phase 1 Habitat Survey carried out in November 2014 identified habitats present within the proposed development site that had potential to support flowering plants.
- 1.3 There are a number of flowering plant species that are protected by European and UK legislation including those listed on Schedule 8 of the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2010. As a result, some species are protected from activities such as picking, cutting, uprooting, killing, collecting or destroying. Construction work can:
- kill or damage plants directly,
 - can make changes made to the soil, such as adding rubble or nutrients, which also affects plants.
 - Make changes to groundwater changes can make the soil too wet or dry.
- 1.4 The current UK BAP and Section 41 of the NERC Act 2006 list 152 flowering plant species. Therefore the presence of such species should be of material consideration during the planning process. The development site could provide habitat for UKBAP/NERC Act Section 41 flowering plant species of principal importance. Due to the time of year of the survey a detailed investigation of the site for flowering plants was not possible.
- 1.5 The development site does contain some areas and features (e.g. improved grassland, hedgerows, standing water and woodland suitable for flowering plants. Therefore a variety of habitats (e.g. deciduous woodland and wet ditches) had potential to support specialist plant species. In addition third party feedback from the scoping exercise highlighted the requirement for a stage 2 botany surveys.
- 1.6 Data received indicated that there was no UKBAP plants species or species listed as being of principal importance on Section 41 of the NERC Act 2006.

This would suggest that the area was of limited value for flowering plants of conservation value, perhaps due to the intensively farmed nature of the wider area, although the under-recording of flowering plants in this area may also take account of the few records.

- 1.7 Figure 1.1 shows the red line boundary of the Wenny Road site that formed the botany survey area.

Aims and objectives

- 1.8 The purpose of the 2015 botany survey was to confirm likely presence/absence of plants of conservation importance with the survey area. If plants of conservation importance were found to be present, the aim of the study would be to:

- identify the species of plants present.
- confirm the presence/absence of plants species of principal importance
- identify the likely distribution of important plant species within the survey area.
- identify the location of alien invasive species such as Japanese Knotweed *Fallopia japonica*.

- 1.9 The data gathered would be used to help inform and develop appropriate and proportionate mitigation measures, that may be necessary to ensure legal compliance pertaining to wildlife legislation in relation to plants and meet local and national planning policy requirements, such as the national Planning Policy Framework 2012 (NPPF 2012).

- 1.10 The key principles in the NPPF require that "*the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and delivering net gains in biodiversity where possible.*"

- 1.11 This report summarises the background to the study and details the results and key findings of the 2015 botany survey. The up-to-date data may then be used to provide guidance on the need for and design of any appropriate mitigation and enhancement measures. These measures may be necessary to minimise any potential adverse effects of the new development proposals on plants of conservation importance and help the design of any appropriate ecological enhancement measures such as habitat creation and site management for the benefit of plants.

Study Area and Development Proposals

- 1.12 The botany survey area was defined as the area within the red line boundary of the proposed development site as illustrated in Figure 1.1. Due to the size and nature of the development and the character of the surrounding habitats

an additional area to comprise a potential zone of influence was not considered necessary.

- 1.13 The area beyond the site boundary to the north and west was not included in the field survey because it comprised entirely of a built environment with residential properties and roads, and therefore of very limited ecological value and access to these areas was not possible. To the east and south the site was bordered by a main road, arable land and additional residential properties and therefore was also of very limited ecological value for plants.
- 1.14 For clarity in this report reference to the 'development site' comprises the red line boundary of the proposed development site. For this study the 'survey area' also includes the red line boundary of the proposed development site only, there is no additional area that would form a zone of influence.
- 1.15 The habitats present within the survey area are detailed in Extended Phase 1 Habitat Survey Report 2014 (Cambridge Ecology 2014). These habitats comprised improved grassland some of which is grazed by horse, hedgerow edges, wet and dry ditch edges, tall ruderal, scrub, and edges of the deciduous woodland belts.
- 1.16 The development site was located approximately 1 kilometre to the south east of Chatteris town centre and is bordered to the north and west by residential properties, part of Chatteris town and the west and south by the A142 road. Chatteris lies approximately 28km north of the city of Cambridge. The centre of the site is situated at Grid Ref TL 400 856. The total area of the development site covers an area of approximately 26 hectares (ha).
- 1.17 The land beyond the A142 on the east and southern boundary of the development site and in the wider area around Chatteris is primarily intensively farmed arable land. It was considered that this arable land and the associated drainage ditches, which were sparsely vegetated and heavily engineered, would be unlikely to be suitable for rare flowering plants.
- 1.18 Within the survey area the habitats comprised:
- Arable land
 - Dry/Wet Ditches
 - Ponds/Standing Water
 - Amenity/Improved grassland
 - Scattered Scrub
 - Scattered Trees/Parkland/Broadleaved Woodland
 - Hedgerows
 - Tall Ruderal
 - Bare ground and Buildings
- 1.19 The development site was primarily used for recreational dog walking and livestock grazing (mainly horses). There was also an active arable field.

- 1.20 The development proposals for the site adjacent to Wenny Road, Chatteris, would consist of various residential properties.
- 1.21 Details of the number of buildings, their design and the layout of the scheme were not available at the time of preparing this report. However it would be expected that the results of this ecology survey (and other species specific surveys in the future) would help provide details that would influence the layout of the scheme and especially the landscaping and habitat creation.

Relevant Legislation and Policy

- 1.22 There are several pieces of legislation and government policy to be aware of with regard to carrying out and interpreting the results of Botany surveys, these include: the Wildlife and Countryside Act 1981 (WCA 1981); the Countryside and Rights of Way Act 2000 (CRoW Act 2000); the Conservation of Habitats and Species Regulations 2010; The Natural Environment and Rural Communities Act (2006); and National Planning Policy Framework 2012 (NPPF 2012).

2 METHODS

2015 Botany Survey

- 2.1 The botanical survey was carried out by Dr Alan Leslie, the Botanical Society of the British Isles (BSBI) Co-Recorder for Cambridgeshire (v.c. 29).
- 2.2 The site was visited monthly between late March and early September 2015. The dates of the surveys were 20 March, 18 April, 23 May, 25 June, 31 July, 6 August and 4 September 2015 the visits usually commencing mid-morning and continuing to mid-afternoon and were carried out in good weather conditions suitable for identifying plant species.
- 2.3 All plant species were identified and the location of notable plant species were recorded and plotted onto a site survey plan.
- 2.4 The plant nomenclature followed that used by Clive Stace in New Flora of the British Isles, third edition (CUP, 2010).
- 2.5 Observations were made from within the survey area, comprising the red-line boundary of the Wenny Road site (Figure 1.1).
- 2.6 The survey area was split up into seven separate compartments to differentiate the various parts of the survey area. Figure 2.1 shows the location of the different compartments.

Compartment 1

- 2.7 The two fields lying between Birch Fen Drove and the bypass. The larger southern field is a grassy meadow which in the latter part of the year was grazed by cattle; the northern field is arable (with a maize crop in 2015). Pond (Robin Knights Pond) in southern field.

Compartment 2.

- 2.8 The track (Birch Fen Drove) leading from Wenny Road to the bypass. Recently heavily cut back.

Compartment 3.

- 2.9 The largest meadow, bordering Wenny Road on the south side, with a narrow strip of estate woodland along the road. The meadow is grazed by tethered horses most of the year, the animals being regularly moved about the field. There are dog walkers' paths running round the area of meadow.

Compartment 4.

- 2.10 Meadow all heavily grazed by free running horses, with a strip of estate woodland along the north west side and an area of more open woodland/scrub along the south east side.

Compartment 5.

- 2.11 Meadow bordered by Birch Fen Drove on the south east side, in part by the estate woodland on the North West side and by hedges or fences to other compartments. The rough grassland was neither mown nor grazed in 2015. Dog walkers' paths run round the area.

Compartment 6.

- 2.12 Meadow bordered by gardens to the north, the bypass to the east, a deep drain to the south and development on the west side. The south west corner mostly close mown turf used as a recreation ground, the remaining section to the west of the drain rather rough ground with dumped or disturbed soil. East of the drain a rough grass meadow mostly uncut and ungrazed in 2015. Some dog walking paths are evident with areas of bramble growth.

Compartment 7.

- 2.13 Arable field with a maize crop in 2015. Bounded on the south east by the bypass and Birch Fen Drove, on the north in part by the deep drain and partly hedges, and on the west by hedges.

Site Evaluation

- 2.14 An initial evaluation of the ecological importance of the site was made by comparing the desk-study and field survey results against recognised criteria for establishing the presence of valued ecological receptors (any ecological feature that is sensitive to or has the potential to be affected by an impact).
- 2.15 The criteria used to determine the ecological value of the development site included the following:
- Species protected as 'European Protected Species' under regulation 41 of the Conservation of Habitats and Species Regulations 2010.
 - Species protected under Schedule 5 and Section 9 of the Wildlife and Countryside Act (1981 as amended).
 - Principal species and habitats – as listed under Section 41 of the Natural Environment and Rural Communities Act (NERC 2006).
 - Important species – as listed on the UK BAP priority species.
 - Important hedgerows – as defined by The Hedgerow Regulations 1997.

Limitations and Assumptions

- 2.16 Surveys were timed (March to September) to correspond with optimal periods when plants would be conspicuously visible and therefore their presence readily observed. Surveys were carried out wherever possible on days when general weather conditions were suitable to make observing, identifying and recording plants as effective as possible.

Botany Survey on land proposed for development at Wenny Road, Chatteris, Cambridgeshire

- 2.17 The survey findings are considered to be an accurate representation and assessment of the site's value to plants and are considered fully appropriate for informing the design of a mitigation strategy.
- 2.18 The surveys were considered to be robust and the results obtained fit for purpose.

3 RESULTS

2015 Botany Survey Results

- 3.1 Two hundred and sixty species of vascular plants were recorded within the development site during the 2015 survey.
- 3.2 Table 3.1 shows plant species recorded, their location in the survey area and their conservation status.
- 3.3 The indicative locations of those plant species recorded during the survey considered of note botanically rare shown in Figure 3.1

Table 3.1: Plants species recorded during the 2015 Botany Survey, their conservation status and location on site

Latin name	English name	Conservation Status	Location/Comment
Acer campestre	Field Maple	None	Cpt 1,2,3,4,5,6,7. Both planted and self-sown. Woodland and hedges.
Acer platanoides	Norway Maple	None	Cpt 3, 5. Self-sown. Woodland.
Acer pseudoplatanus	Sycamore	None	Cpt 3,4,6,7. Both planted and self-sown. Woodland.
Achillea millefolium	Yarrow	None	Cpt 3. Only found at the west end of this meadow.
Aesculus hippocastanum	Horse Chestnut	None	Cpt 3,4,5. Self-sown. Woodland.
Aethusa cynapium	Fool's Parsley	None	Cpt 2. Arable weed.
Agrostis capillaris	Common Bent	None	Cpt 1,3,5,6. Meadows.
Agrostis gigantea	Black Bent	None	Cpt 3,4,5,6. Meadows.
Agrostis stolonifera	Creeping Bent	None	Cpt 1,2,3,5,6,7. Meadows.
Alcea rosea	Common Hollyhock	None	Cpt 4. Woodland. Dumped/planted.
Allium ursinum	Ramson	None	Cpt 3. Woodland.
Alliaria petiolata	Garlic Mustard	None	Cpt 2,3,4,5,6,7. Woodland and hedges.
Alopecurus geniculatus	Marsh Foxtail	None	Cpt 1,6. Winter wet sites in meadows.
Alopecurus myosuroides	Slender Meadow Foxtail	None	Cpt 1,7. Arable weed.
Alopecurus pratensis	Meadow Foxtail	None	Cpt 1,2,3,4,5,6,7. Meadows and tracks.
Amaranthus bouchonii	Amaranthus	None	Cpt 6. Waste ground, on dumped soil.
Anagallis arvensis	Scarlet pimpernel	None	Cpt 2,7. Track and disturbed ground.
Anthoxanthum odoratum	Sweet Vernal Grass	None	Cpt 1,3. Meadows.
Anthriscus sylvestris	Cow Parsley	None	Cpt 1,2,3,4,5,6,7. Woodland and hedges.
Apium nodiflorum	Fool's Watercress	None	Cpt 5,6,7. Drain and winter wet sites.

Botany Survey on land proposed for development at Wenny Road, Chatteris, Cambridgeshire

Latin name	English name	Conservation Status	Location/Comment
Arctium minus	Lesser Burdock	None	Cpt 2,4. Woodland and hedges.
Arctium x pubens	Lesser Burdock hybrid	None	Cpt 4. Woodland.
Arctium lappa	Greater Burdock	None	Cpt 6. Meadow.
Arrhenatherum elatius	False Oatgrass	None	Cpt 1,2,3,4,5,6,7. Meadows and tracks.
Artemisia vulgaris	Mugwort	None	Cpt 2,3,6. Meadows and tracks.
Arum italicum	Large Cuckoopint	None	Cpt 5,6. Woodland and waste ground. Probably bird-sown and/or dumped.
Arum maculatum	Cuckoopint	None	Cpt 1,2,3,4,5,6. Woodland and hedges.
Atriplex patula	Common Orache	None	Cpt 1,3,6. Tracks, arable weed and disturbed ground.
Atriplex prostrata	Early Orache	None	Cpt 1,4,6,7. Tracks, disturbed ground and arable weed.
Avena sativa	Wild Oat	None	Cpt 3. Woodland margin.
Ballota nigra	Black Horehound	None	Cpt 3. Meadow.
Barbarea vulgaris	Bittercress	None	Cpt 1,2,4,5,6,7. Arable weed, tracks, disturbed ground.
Bellis perennis	Common Daisy	None	Cpt 2,3,4,6. Meadows and tracks.
Betula pendula	Silver Birch	None	Cpt 4. Meadow. Native, but planted here.
Brassica napus	Rape	None	Cpt 1,2,3,6. Arable weed, tracks.
Brassica nigra	Black Mustard	None	Cpt 2. Track.
Bromus hordeaceus	Soft Brome	None	Cpt 1,2,3,5,7. Meadows.
Bromus racemosus	Bald Brome	None	Cpt 1. Arable weed.
Bromus sterilis	Barren Brome	None	Cpt 1,2,3,4,5,6,7. Woodland, meadows, tracks, arable weed, disturbed ground.
Bryonia dioica	White Bryony	None	Cpt 3,6. Hedges.
Buddleia davidii	Butterfly Bush	None	Cpt 6. Waste ground. Probably self-sown.
Callitriche sp.	Waterstartwort sp.	None	Cpt 1,4,6,7. Drain and ditches. Not seen in fruit.
Calystegia sepium	Hedge Bindweed	None	Cpt 1,2,5,6,7. Drain banks and hedges.
Calystegia sepium x silvatica	Hedge / Giant Bindweed hybrid	None	Cpt 6. Drain bank.
Calystegia silvatica	Giant Bindweed	None	Cpt 6. Drain bank.
Capsella bursa-pastoris	Shepherd's Purse	None	Cpt 1,2,3,6,7. Tracks and disturbed ground.
Cardamine hirsuta	Hairy Bittercress	None	Cpt 1,6. Disturbed ground.
Cardamine pratensis	Cuckoo Flower	None	Cpt 1,3,5. Mostly in winter wet sites in meadows.

Botany Survey on land proposed for development at Wenny Road, Chatteris, Cambridgeshire

Latin name	English name	Conservation Status	Location/Comment
<i>Carex hirta</i>	Hairy Sedge	None	Cpt 1,2,3,4. Winter-wet sites in meadows, tracks.
<i>Carex otrubae</i>	False Fox-sedge	None	Cpt 2,6. Drains and ditches.
<i>Carex pendula</i>	Pendulous Sedge	None	Cpt 5,6. Woodland and winter wet area.
<i>Cerastium fontanum</i>	Common Mouse-ear	None	Cpt 1,3,4,5. Meadows and tracks.
<i>Cerastium glomeratum</i>	Sticky Mouse-ear	None	Cpt 1,4. Meadows.
<i>Chelidonium majus</i>	Greater Celandine	None	Cpt 6. Waste ground on dumped soil.
<i>Chenopodium album</i>	Fat-hen	None	Cpt 1,2,3,4,5. Waste ground, tracks.
<i>Chenopodium rubrum</i>	Red Goosefoot	None	Cpt 1. Winter wet sites in meadow.
<i>Chenopodium polyspermum</i>	Many-seeded Goosefoot	None	Cpt 1,2,3,4,5,6,7. Winter wet sites, arable weed, tracks, waste ground.
<i>Cirsium arvense</i>	Creeping Thistle	None	Cpt 1,2,3,4,5,6,7. Meadows, tracks, waste ground.
<i>Cirsium vulgare</i>	Spear Thistle	None	Cpt 1,2,3,4,5,6,7. Meadows and tracks.
<i>Conium maculatum</i>	Hemlock	None	Cpt 3,6. Disturbed ground and drain banks.
<i>Convolvulus arvensis</i>	Field Bindweed	None	Cpt 1,2,6,7. Tracks, hedges, waste ground.
<i>Conyza canadensis</i>	Horseweed	None	Cpt 2. Track.
<i>Cornus sanguinea</i>	Common Dogwood	None	Cpt 2,6. Hedges.
<i>Cornus sericea</i>	Red twig Dogwood	None	Cpt 6. Hedge.
<i>Corylus sp.</i>	Dogwood sp.	None	Cpt 4,5,6. Woodland and hedges.
<i>Crataegus laevigata</i>	Midland Hawthorn	None	Cpt 1,3,5. Woodland and hedges. Including double red-flowered plants.
<i>Crataegus laevigata monogyna</i> x	Hawthorn Hybrid	None	Cpt 1,3,4,5. Woodland and hedges.
<i>Crataegus laevigata rhipidophylla</i> x	Hawthorn Hybrid	None	Cpt 5,6. Hedges. Probably planted.
<i>Crataegus monogyna</i>	Common Hawthorn	None	Cpt 1,3,4,5,6,7. Woodland, hedges and scrub.
<i>Crataegus monogyna rhipidophylla</i> x	Hawthorn Hybrid	None	Cpt 1,6. Hedges.
<i>Crataegus rhipidophylla</i> cf	Hawthorn Hybrid	None	Cpt 3. Hedge.
<i>Crepis capillaris</i>	Smooth Hawksbeard	None	Cpt 3. Meadow.
<i>Cynosurus cristatus</i>	Crested Dog's-tail	None	Cpt 1,2,3,6. Meadows and tracks.
<i>Dactylis glomerata</i>	Cock's-foot	None	Cpt 1,2,3,5,6,7. Meadows and tracks.

Botany Survey on land proposed for development at Wenny Road, Chatteris, Cambridgeshire

Latin name	English name	Conservation Status	Location/Comment
Daucus carota	Wild Carrot	None	Cpt 1,6,7. Meadows and drain banks.
Deschampsia cespitosa	Tufted Hairgrass	None	Cpt 3,5,6. Meadows.
Descurainia sophia	Flixweed	None	Cpt 2. Track.
Digitalis purpurea	Fox-glove	None	Cpt 4. Woodland.
Dipsacus fullonum	Teasel	None	Cpt 2,6. Track and disturbed ground.
Dracunculus vulgaris	Dragon Arum	None	Cpt 5. Woodland.
Dryopteris filix-mas	Common Fern	None	Cpt 3. Brick building.
Eleocharis palustris	Common Spike-rush	None	Cpt 6. Winter wet site.
Elytrigia repens	Couch-grass	None	Cpt 1,3,4,5,6,7. Meadows and tracks.
Epilobium ciliatum	Slender Willowherb	None	Cpt 2,5. Tracks and disturbed ground.
Epilobium hirsutum	Greater Willowherb	None	Cpt 1,2,3,5,6,7. Tracks, drain banks, waste ground.
Epilobium parviflorum	Smallflower Willowherb	None	Cpt 1,2,3,5,6. Tracks, drain banks, disturbed ground, arable weed.
Epilobium tetragonum	Square-stalked Willowherb	None	Cpt 2,5,6,7. Tracks, disturbed ground, arable weed.
Erophila verna	Common Whitlow-grass	None	Cpt 1. Meadow.
Euonymus europaeus	Spindle	None	Cpt 1. Hedge.
Euphorbia amygdaloides subsp. robbiae	Turkish Wood Spurge	None	Cpt 3. Edge of meadow. Dumped/planted.
Euphorbia helioscopia	Sun Spurge	None	Cpt 6. Disturbed ground.
Euphorbia lathyris	Caper Spurge	None	Cpt 6. Disturbed ground.
Fagus sylvatica	Common Beech	None	Cpt 3,4. Woodland.
Fallopia convolvulus	Black Bindweed	None	Cpt 2,5. Arable weed and hedges.
Festuca arundinacea	Tall Fescue	None	Cpt 5,7. Meadows.
Festuca rubra	Red Fescue	None	Cpt 1,3,4,5,6,7. Meadows.
Ficaria verna	Lesser celandine	None	Cpt 1,2,3,4,5. Woodland and tracks.
Fraxinus angustifolia	Narrow-leaved Ash	None	Cpt 5. Woodland. Planted.
Fraxinus excelsior	Ash	None	Cpt 1,2,3,4,5,6. Woodland and hedges.
Galanthus nivalis	Common Snowdrop	None	Cpt 2,3,4. Tracks and woodland. Planted or dumped.
Galium aparine	Goosegrass	None	Cpt 1,2,3,4,5,6,7. Woodland, tracks, waste ground etc.
Geranium dissectum	Cut-leaved Crane's-bill	None	Cpt 1,2,3,5,6,7. Tracks, arable weed, disturbed

Botany Survey on land proposed for development at Wenny Road, Chatteris, Cambridgeshire

Latin name	English name	Conservation Status	Location/Comment
			ground.
Geranium molle	Dove's-foot Crane's-bill	None	Cpt 2,3,6. Meadows and tracks.
Geranium robertianum	Herb Robert	None	Cpt 6. Hedge.
Geranium rotundifolium	Round-leaved Crane's-bill	None	Cpt 2,3. Tracks.
Geum urbanum	Herb Bennett	None	Cpt 2,3,4,5. Woodland and tracks.
Glechoma hederacea	Ground-ivy	None	Cpt 1,2,3,4,5,7. Woodland, hedges, tracks, meadows.
Glyceria fluitans	Floating Sweet-grass	None	Cpt 1,3,6. Drains and winter wet areas.
Gnaphalium uliginosum	Marsh Cudweed	None	Cpt 1,5. Winter wet areas.
Hedera helix	Common Ivy	None	Cpt 1,2,3,5,6. Woodland and hedges.
Hedera hibernica	Atlantic Ivy	None	Cpt 4,5. Woodland.
Helianthus annuus	Common Sunflower	None	Cpt 6. On dumped soil.
Helminthotheca echioides	Bristly Ox-tonogues	None	Cpt 1,2,3,4,5,6,7. Meadows, arable weed, tracks, disturbed ground.
Heracleum sphondylium	Common Hogweed	None	Cpt 1,2,3,5,6,7. Meadows and tracks.
Holcus lanatus	Yorkshire Fog	None	Cpt 1,2,3,4,5,6,7. Meadows and tracks. Native.
Hordeum distichon	Two-rowed Barley	None	Cpt 3. Wood margin.
Hordeum murinum	False Barley	None	Cpt 2,3,4,6. Meadows, tracks and disturbed ground.
Hordeum secalinum	Meadow Barley	None	Cpt 1,2,3,4,5,6,7. Meadows.
Hyacinthoides x massartiana	Hybrid Bluebell	None	Cpt 4,6. Woodland and waste ground. Planted or dumped.
Ilex aquifolium	Common Holly	None	Cpt 3,4,7. Bird-sown.
Iris foetidissima	Stinking Iris	None	Cpt 3,4,5,6. Woodland, hedges and scrub.
Juglans regia	English Walnut	None	Cpt 1,3,5,6. Woodland, hedges and meadow.
Juncus articulatus	Jointed Rush	None	Cpt 1,6. Pond and winter wet sites.
Juncus bufonius	Toad Rush	None	Cpt 1,2,5. Winter wet sites.
Juncus effusus	Soft Rush	None	Cpt 1,5,6. Winter wet sites.
Juncus inflexus	Hard Rush	None	Cpt 1,5,6,7. Drain banks and winter wet sites.
Lactuca serriola	Prickly Lettuce	None	Cpt 2,3,4,6. Tracks, hedges and disturbed ground.
Lamiastrum galeobdolon subsp. argentatum	Variiegated Yellow Archangel	None	Cpt 5. Woodland. Planted or dumped.
Lamium album	White Dead-nettle	None	Cpt 1,2,3,4,5,6,7. Woodland, meadows, tracksides, disturbed

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Latin name	English name	Conservation Status	Location/Comment
			ground.
Lamium purpureum	Red Dead-nettle	None	Cpt 1,2,3,5,6. Tracks, arable weed, disturbed ground.
Lapsana communis	Common Nipplewort	None	Cpt 2,6. Tracks.
Lathyrus pratensis	Meadow Vetchling	None	Cpt 2. Track.
Lemna gibba	Gibbous Duckweed	None	Cpt 6,7. Drain.
Lemna minuta	Least Duckweed	None	Cpt 1,2. Pond and ditch.
Lepidium coronopus	Creeping Watercress	None	Cpt 2,4,5,7. Winter wet sites, tracks.
Lepidium draba	Hoary Cress	None	Cpt 6. Disturbed ground.
Lolium boucheanum x	Hybrid Ryegrass	None	Cpt 5. Meadow.
Lolium perenne	Perennial ryegrass	None	Cpt 1,2,3,4,5,6. Meadows and tracks.
Lonicera periclymenum	Common Honeysuckle	None	Cpt 6. Hedge.
Lunaria annua	Annual Honesty	None	Cpt 5. Woodland.
Luzula campestris	Field Wood-rush	None	Cpt 1. Meadow.
Lythrum salicaria	Purple loosestrife	None	Cpt 6. Drain.
Malus domestica	Apple	None	Cpt 6. Hedge. Perhaps bird-sown.
Malva sylvestris	Common Mallow	None	Cpt 2,3,6. Meadows and track.
Matricaria discoidea	Pineapple Mayweed	None	Cpt 2,3,5,6. Tracks, arable weed and disturbed ground.
Matricaria recutita	Chamomile	None	Cpt 2,7. Tracks and arable weed.
Mercurialis annua	Annual Mercury	None	Cpt 6. Disturbed ground.
Mercurialis perennis	Dog's Mercury	None Indicative of ancient woodland	Cpt 3. Woodland.
Muscari armeniacum	Grape Hyacinth	None	Cpt 5. Woodland.
Myosotis arvensis	Field Forget-me-not	None	Cpt 6. Meadow.
Myosurus minimus	Tiny Mousetail	County significance	Cpt 1. Cattle-poached area in meadow.
Narcissus cv.	Daffodil	None	Cpt 2,3,4,5. Woodland and track.
Nasturtium officinale s.l.	Watercress	None	Cpt 1,7. Drain and winter wet sites.
Nasturtium microphyllum	One-rowed Watercress	None	Cpt 6. Drain.
Odontites verna		None	Cpt 2. Track.
Oenanthe aquatica	Water Dropwort	None	Cpt 1. Pond.
Papaver lecoqii	Yellow-juiced Poppy	None	Cpt 7. Arable weed.
Papaver somniferum	Opium Poppy	None	Cpt 2,6. Track and disturbed ground
Pastinaca sativa	Wild Parsnip	None	Cpt 3. Meadow.

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Latin name	English name	Conservation Status	Location/Comment
Persicaria amphibia	Amphibious Bistort	None	Cpt 1. Winter wet site.
Persicaria lapathifolium	Pale Persicaria	None	Cpt 3,5,6. Tracks, winter wet sites, disturbed ground.
Persicaria maculosa	Redshank	None	Cpt 1,2,5,6. Tracks, winter wet sites, disturbed ground.
Phleum bertolonii	Smaller Cat's-tail	None	Cpt 2,3. Meadows and tracks.
Phleum pratense	Timothy	None	Cpt 2,4,5,6. Meadows and tracks.
Plantago lanceolata	Ribwort Plantain	None	Cpt 1,2,3,6,7. Meadows, tracks, disturbed ground
Plantago major	Greater Plantain	None	Cpt 1,2,3,4,5,6,7. Tracks, winter wet sites, arable weed.
Poa annua	Annual Meadowgrass	None	Cpt 1,2,3,4,5,6. Tracks, disturbed ground.
Poa pratensis	Smooth Meadowgrass	None	Cpt 3,4. Meadows.
Poa trivialis	Rough Meadow Grass	None	Cpt 1,2,3,4,5,6,7. Woodland, meadows, tracks etc.
Polygonum aviculare s.l.	Knotgrass	None	Cpt 2,3,4,5,6. Tracks, arable weed, winter wet sites.
Potamogeton sp.	Pondweed sp.	None	Cpt 7. Drain. Grass-leaved species.
Potentilla anserina	Silverweed	None	Cpt 6. Disturbed ground.
Potentilla reptans	Creeping Cinquefoil	None	Cpt 6. Meadow.
Primula veris	Cowslip	None	Cpt 4. Woodland.
Primula veris x vulgaris	False Oxlip	None	Cpt 4. Woodland.
Prunus avium	Wild Cherry	None	Cpt 4,5,6. Woodland and hedges.
Prunus cerasifera	Cherry Plum	None	Cpt 4,5,6. Woodland, hedges and drain bank.
Prunus domestica	Plum	None	Cpt 1,3. Hedges.
Prunus laurocerasus	English Laurel	None	Cpt 6. Hedge.
Prunus padus	Bird Cherry	None	Cpt 5,6. Meadow and hedges.
Prunus spinosa	Blackthorn	None	Cpt 1,2,3,4,5,6,7. Hedges and scrub.
Pyracantha cv.	Firethorn sp.	None	Cpt 5,6. Woodland and scrub.
Quercus cerris	Turkey Oak	None	Cpt 1,3,4,5,6,7. Woodland and meadows.
Quercus robur	English Oak	None	Cpt 1,2,3,4,5,6,7. Woodland and hedges.
Ranunculus acris	Meadow Buttercup	None	Cpt 1,3,4,5,6,7. Meadows.
Ranunculus bulbosus	Bulbous Buttercup	None	Cpt 1,3,5. Meadows.
Ranunculus sceleratus	Celery-leaved Buttercup	None	Cpt 1,2,6,7. Drain banks and winter wet sites.

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Latin name	English name	Conservation Status	Location/Comment
Ranunculus repens	Creeping Buttercup	None	Cpt 1,2,3,4,5,6,7. Meadows and tracks. Nat
Ranunculus trichophyllus cf.	Thread-leaved Watercrowfoot	None	Cpt 1. Winter wet sites, pond.
Ribes sanguineum	Flowering Currant	None	Cpt 3. Edge of meadow.
Rosa canina	Dog-Rose	None	Cpt 1,2,3,4,5,6,7. Hedges, scrub, meadows.
Rosa canina x obtusifolia	Rose Hybrid	None	Cpt 1,5,6. Hedges.
Rosa canina x caesia	Rose Hybrid	None	Cpt 1,2,5. Hedges and meadow.
Rosa tomentosa	Harsh Downy Rose	None	Cpt 7. Hedge.
Rubus armeniacus	Giant Blackberry	None	Cpt 3,4,6. Hedges and meadow margins.
Rubus babingtonianus	Bramble sp	None	Cpt 1,2,3,5,6,7. Hedges and tracks.
Rubus conjugens	Bramble sp.	None	Cpt 1,2. Hedges and track.
Rubus eleganti spinosus	Bramble sp.	None	Cpt 6. Edge of meadow.
Rubus idaeus	Raspberry	None	Cpt 1. Hedge.
Rubus cf. pruinosis	Bramble sp.	None	Cpt 2. Track and hedge.
Rubus ulmifolius	Bramble sp.	None	Cpt 1,2,3,4,5,6,7. Hedges, woodland, scrub, waste ground.
Rumex acetosa	Sheep's Sorrel	None	Cpt 1,3,5,6. Meadows.
Rumex conglomeratus	Clustered Dock	None	Cpt 1,3,4,5,6,7. Winter wet sites, drain banks.
Rumex conglomeratus x obtusifolius	Dock Hybrid	None	Cpt 6. Drain bank.
Rumex crispus	Curly Dock	None	Cpt 1,2,3,5,6,7. Tracks, arable weed, disturbed ground. Na
Rumex crispus x obtusifolius	Dock Hybrid	None	Cpt 1,5,6. Drain banks, disturbed soil, arable margin.
Rumex crispus x sanguineus	Dock Hybrid	None	Cpt 5,6. Meadows.
Rumex obtusifolius	Broad-leaved Dock	None	Cpt 1,3,4,5,6,7. Meadows, tracks, disturbed ground and arable margins.
Rumex sanguineus	Bloody Dock	None	Cpt 1,2,3,4,6,7. Woodland, meadows, tracks etc.
Salix alba	White Willow	None	Cpt 1. Meadow.
Sambucus nigra	Elder	None	Cpt 1,2,3,4,5,6. Woodland and hedges.
Scorzoneroide autumnalis	Autumn Hawkbit	None	Cpt 1,2,3,5,6. Meadows and tracks.
Sedum album	White Stonecrop	None	Cpt 3. Top of brick wall.
Senecio erucifolius	Hoary Ragwort	None	Cpt 1,2,4,6,7. Meadows and tracks.
Senecio jacobaea	Ragwort	None	Cpt 1,3,4,5,6,7. Meadows.

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Latin name	English name	Conservation Status	Location/Comment
Senecio vulgaris	Common Groundsel	None	Cpt 1,2,3,6,7. Tracks, arable weed, disturbed ground.
Silene latifolia subsp. alba	White Campion	None	Cpt 2. Track.
Sinapis arvensis	Charlock	None	Cpt 1,2,3,6,7. Tracks, arable weed, disturbed ground.
Sison amomum	Stone Parsley	None	Cpt 6,7. Field borders.
Sisymbrium officinale	Hedge Mustard	None	Cpt 1,2,3,4,6,7. Tracks, disturbed ground.
Solanum nigrum	Black Nightshade	None	Cpt 2,3,4. Tracks, disturbed ground.
Solanum dulcamara	Bittersweet Nightshade	None	Cpt 1,2,5,7. Drain banks and hedges.
Sonchus arvensis	Field Sow-thistle	None	Cpt 2,3,6. Tracks and disturbed ground.
Sonchus asper	Prickly Sow-thistle	None	Cpt 1,2,3,4,5,6,7. Tracks, arable weed, disturbed ground.
Sonchus oleraceus	Common Sow-thistle	None	Cpt 1,2,3,4,5,6. Tracks, arable weed, disturbed ground.
Sorbus aria	Whitebeam	None	Cpt 4. Woodland.
Sparganium erectum	Branched Bur-reed	None	Cpt 1,6,7. Drain and pond.
Stachys sylvatica	Hedge Woundwort	None	Cpt 1,2,3,4,5,6. Woodland, tracks, hedges.
Stellaria media	Common Chickweed	None	Cpt 1,2,3,4,5,6. Tracks, disturbed ground, winter wet sites.
Tanacetum parthenium	Feverfew	None	Cpt 3,6. Tracks, waste ground.
Taraxacum officinale	Common Dandelion	None	Cpt 1,2,4,5,6,7. Meadows and tracks.
Thlaspi arvense	Field Pennycress	None	Cpt 2. Track.
Tilia x europaea	Common Lime	None	Cpt 3. Woodland.
Tilia platyphyllos	Large-leaved Lime	None	Cpt 3. Woodland.
Tragopogon pratensis	Goat's-beard	None	Cpt 5,6,7. Meadows and disturbed ground.
Trifolium campestre	Hop Trefoil	None	Cpt 3. Meadow.
Trifolium dubium	Lesser Trefoil	None	Cpt 1,3,4,5. Meadows.
Trifolium pratense	Red Clover	None	Cpt 1,6. Meadows.
Trifolium repens	White Clover	None	Cpt 2,3,4,5,6. Meadows and tracks.
Tripleurospermum inodorum	Scentless Mayweed	None	Cpt 4,5,6. Arable weed, disturbed ground, winter wet sites.
Trisetum flavescens	Yellow Oat-grass	None	Cpt 3,6. Meadows.
Triticum aestivum	Bread Wheat	None	Cpt 2,3. Tracks and wood margins.
Tulipa gesneriana	Tulip	None	Cpt 2,3,6. Waste ground and woodland.

Latin name	English name	Conservation Status	Location/Comment
<i>Tussilago farfara</i>	Coltsfoot	None	Cpt 2. Track.
<i>Typha latifolia</i>	Bulrush	None	Cpt 1,6,7. Drain and pond.
<i>Ulmus glabra</i>	Wych Elm	None	Cpt 4,5. Woodland.
<i>Ulmus hollandica</i> x	Huntingdon Elm	None	Cpt 2,3,4,6. Woodland and hedges.
<i>Ulmus minor</i>	Narrow-leaved Elm	None	Cpt 1,2,3,4,5. Woodland and hedges.
<i>Ulmus procera</i>	English Elm	None	Cpt 1,2,3,4,5,6,7. Woodland and hedges.
<i>Urtica dioica</i>	Stinging Nettle	None	Cpt 1,2,3,4,5,6,7. Woodland, tracks, hedges, disturbed ground, drain banks.
<i>Veronica arvensis</i>	Wall Speedwell	None	Cpt 1,3,6. Meadows, arable weed, disturbed ground.
<i>Veronica catenata</i>	Pink Water-speedwell	None	Cpt 1,2,7. Winter wet sites, drain and pond.
<i>Veronica chamaedrys</i>	Germander Speedwell	None	Cpt 3. Meadow.
<i>Veronica hederifolia</i> s.l.	Ivy-leaved Speedwell	None	Cpt 1,3,6. Woodland, disturbed ground.
<i>Veronica persica</i>	Common Field Speedwell	None	Cpt 1,2,4,6. Disturbed ground, arable weed, tracks.
<i>Veronica serpyllifolia</i>	Thyme-leaved Speedwell	None	Cpt 4. Woodland.
<i>Vicia sativa</i> subsp. <i>segetalis</i>	Common Vetch	None	Cpt 1,2. Tracks.
<i>Vicia tetrasperma</i>	Smooth Tare	None	Cpt 1,2,3,5,6,7. Meadows, tracks and arable weed.
<i>Vinca major</i>	Broad Bean	None	Cpt 2,6. Woodland and tracks.
<i>Viola odorata</i>	Sweet Violet	None	Cpt 3. Woodland.

Compartment 1

- 3.4 This has a permanent pond with a reasonably diverse flora although it is severely cattle-poached on its open side, and otherwise heavily shaded by an oak tree and scrub. The most notable species here is considered to be *Oenanthe aquatica*, although the grazing by cattle prevents it flowering. Other species present include *Veronica catenata*, *Lemna minuta*, *Juncus articulatus*, *Sparganium erectum*, *Typha latifolia*, *Glyceria fluitans*, *Ranunculus cf. trichophyllus*, and *Ranunculus scleratus*. Some of these are also found in a few winter wet areas along the drove hedge, accompanied by *Gnaphalium uliginosum* and *Chenopodium rubrum*. The drier areas have extensive colonies of *Luzula campestris* not found in any of the other meadows. The bare, damp muddy ground on which the annual *Myosurus minimus* was found could have been created by the periodic presence of cattle in this field which could poach the ground near the field gate. This is a rare and declining plant in the British Isles, very local in Cambridgeshire although locally abundant on the Ouse Washes.

- 3.5 The hedge separating the two fields is notable for having several plants of *Rosa canina x obtusifolia* and there are more plants of this hybrid in other compartment hedges.

Compartment 2.

- 3.6 Birch Fen Drove had recently been extensively cleared prior to the survey (especially in its mid and southern sections), opening it up to both hedge lines. This meant that many plants grew on the cleared or disturbed ground, some such as *Ranunculus scleratus* and *Juncus bufonius* benefiting from the deep ruts created by machinery. The banks of the drove have a fenland bramble flora including *Rubus ulmifolius*, *R. babingtonianus*, *R. conjugens* and *R. cf. pruinosis*.

Compartment 3.

- 3.7 The woodland along the Wenny Road is essentially composed of planted trees. The ground flora is poor but is notable for a small colony of *Mercurialis perennis*, a rare plant in Fenland, although common enough elsewhere in woodland. One area had been used to dump garden waste and this roadside margin woodland also contained various arable crop plants that have probably blown off passing vehicles (e.g. *Avena sativa*, *Triticum aestivum*, *Brassica napus*). Probable garden aliens here included *Galanthus nivalis*, *Allium ursinum* and *Viola odorata*. A proportion of the hawthorns in this roadside stretch are a densely double, red-flowered variant which is usually assigned to *Crataegus laevigata*. The hawthorns around the surveyed site are in general a very mixed variety, most of which will have originally been planted. They demonstrate what is gradually being found now in Fenland and in other hedges in the county - a mixture of plants showing the influence of *C. monogyna*, *C. laevigata* and *C. rhipidophylla* in varying proportions. The one bush of apparently typical *C. rhipidophylla* on the north margin of the roadside woodland is unusual as this normally only manifests its presence in hybrids.

- 3.8 The old brick wall surrounding the former Manor grounds is notable for a colony of *Sedum album*. At the base of the wall are plants of *Euphorbia amygdaloides subsp. robbiae* and *Ribes sanguineum*, both garden plants. The meadow itself has few broad-leaved species of interest but a good range of grasses including *Alopecurus pratensis*, *Agrostis capillaris*, *A. gigantea*, *A. stolonifera*, *Anthoxanthum odoratum*, *Arrhenatherum elatius*, *Bromus hordeaceus*, *Bromus sterilis*, *Cynosurus cristatus*, *Dactylis glomerata*, *Deschampsia cespitosa*, *Elytrigia repens*, *Festuca rubra*, *Hordeum murinum*, *Hordeum secalinum*, *Lolium perenne*, *Phleum bertolonii*, *Poa annua*, *Poa pratensis*, *Poa trivialis* and *Trisetum flavescens*. There are some winter wet sites along the border with Birch Fen Drove, with local populations of *Glyceria fluitans* and *Carex hirta*.

- 3.9 The two most notable plants in this compartment are the two mature Elm trees, *Ulmus minor* standing right at the edge of the meadow by the gap leading into Compartment 5. These were considered to be very healthy (free

of Dutch Elm disease), flower very freely and have burred trunks and branches and otherwise deep sinuous ridged bark.

Compartment 4.

- 3.10 The band of woodland along the north-western edge resembles that along the Wenny Road, with the oaks a mixture of the native *Quercus robur* and the introduced Turkey Oak (*Q. cerris*). There is a rich mixture of elms and *Tilia platyphyllos*. Most of the ivy is the introduced large-leaved variant of *Hedera hibernica* ('Hibernica' of gardens). This area has a poor native woodland flora. They are not really significant and include cowslips, foxgloves, hollyhocks and garden bluebells. The main meadow section is heavily grazed grassland with a few winter wet areas mostly along the northern margin.

Compartment 5.

- 3.11 The continuation of the estate woodland has more garden aliens, especially along the backs of the adjacent gardens, including the Dragon Arum (*Dracunculus vulgaris*), the *Arum italicum* and the *Lamiastrum galeobdolon* subsp. *argentatum*. *Prunus padus* is in the woodland and on to the open part of the meadow, where one young plant was already flowering although only 3ft tall. The woodland also has more recent ornamental ash, *Fraxinus angustifolia*.
- 3.12 The meadow is much rougher grassland than in compartment 3 as it has not been grazed or mown recently, but has a great abundance of *Alopecurus pratensis*, as well as most of the grasses noted in Compartment 3 but lacking the *Anthoxanthum*, *Cynosurus* and *Trisetum*. There are several winter wet sites along the Birch Fen Drove side of the field and one deep winter wet rut in particular holds a surprising diversity with a very small area including a lot of *Gnaphalium uliginosum*, *Persicaria species*, *Chenopodium polyspermum* and other annual species.
- 3.13 Occasional plants of *Cardamine pratensis* are scattered in this meadow as they are in compartment 3, but nowhere is it abundant. Areas towards the margins of the field have a range of docks and at least three hybrids (*R. crispus* x *obtusifolius*, *R. conglomeratus* x *obtusifolius* and *R. crispus* x *sanguineus*: the first is generally common, but the latter two are more rarely recorded, although perhaps overlooked).

Compartment 6.

- 3.14 A rather mixed area, the main part to the east of the deep drain being very coarse unmown and ungrazed grassland poor in both grass and broad-leaved species, although there are some winter wet sites near the north end of the drain which hold marshy ground plants such as *Eleocharis palustris*, *Alopecurus geniculatus* and *Juncus articulatus*, plus the probable garden origin (but native) *Carex pendula*. The drain itself and its banks do not have a particularly rich aquatic flora, although right at the eastern end there is a

grass-leaved pondweed (*Potamogeton* sp.) Most of the mounded banks along the drain have become very overgrown with thistles, nettles and brambles and young scrub. The northern part of the area to the west of the drain is more varied in having areas of waste ground and both older and very recent areas with dumped and disturbed soil. These areas produce a wide diversity of weeds (such as *Amaranthus bouchonii*), as well as garden aliens (sunflowers, tulips, bluebells, opium poppies and more *Arum italicum*). The cultivated brambles *R. armeniacus* and *R. elegantispinosus* have taken over large areas. Other bird-sown shrubs (including several walnuts, *Juglans regia*) are also invading the open areas on both side of the drain. The southern section to the west of the drain is close mown grassland with little of interest in it, although the hedge along the south edge has a varied collection of hawthorns (*Crataegus*) and the margin adjacent to the parking area behind nearby houses has a large population of *Sison amomum*, an uncommon umbellifer in Fenland where it is usually associated with the clay fen 'islands'.

Compartment 7.

- 3.15 The weed flora of the arable field has limited interest bar the presence of *Papaver lecoqii* and the prostrate variant of *Atriplex patula* (widespread in Cambridgeshire arable fields). Of more interest is the *Rosa tomentosa* on the border with Birch Fen Drove. This is a rare plant in the fens in general.

4 EVALUATION

- 4.1 The results indicated that none of the plant species found during the botany surveys were listed on recognised national conservation designations. However, a number of species were noteworthy in a district/county context.
- 4.2 Therefore the site was considered to be of district importance for its assemblage of plant species.
- 4.3 These species included, Common Spike Rush, Marsh Cudweed, Dog's Mercury, Tiny Mouse-tail, Water Dropwort, Harsh Downy Rose, White Stonecrop, Stone Parsley and two 'Field' Elms (Narrow-leaved Elm) that were considered to be very fine specimens considering the effect that Dutch Elm disease has had on this species in the UK.
- 4.4 The Common Spike Rush, is a widespread perennial that prefers damp grasslands, marshes and the margins of ponds and streams. There was one location for this species on the site.
- 4.5 The Marsh Cudweed is a widespread perennial that prefers clay or sandy soils, in dry places, often in short turf or bare areas such as paths There were two locations for this species on the site.
- 4.6 The Dog's Mercury is a rare plant in Fenland in general because it is typically found in woodland (as it is at this location), where it is common. There were two locations for this species on the site.
- 4.7 The Tiny Mouse-tail is an annual species that is a rare and declining plant in the British Isles, very local in Cambridgeshire although locally abundant on the Ouse Washes. There was one location for this species on the site.
- 4.8 The Water Dropwort is a perennial herb of still or slow-moving water, usually occurring on deep, silty, often eutrophic, substrates in shallow ponds and ditches, often where water fluctuates in depth. This species has declined throughout its British range but particularly in the east. There was one location for this species on the site.
- 4.9 The Harsh Downy Rose is a deciduous shrub, which prefers calcareous to mildly acidic soils and is found on woodland edges and in hedgerows. This species is uncommon in the UK, but probably under recorded as it can be difficult to identify, especially in areas where hybrids are found. There was one location for this species on the site.
- 4.10 The White Stonecrop is a creeping perennial that grows on open, dry sites, such as limestone rocks, walls, roofs, paths and gravel. This species is an archaeophyte, which is a plant species which is non-native to a geographical region, but which was an introduced species in "ancient" times, rather than being a modern introduction. It occurs occasional throughout Britain and there has been a marked increase in the frequency of this species since the 1960's. There was one location for this species on the site.

- 4.11 The Stone Parsley is a biennial of sticky clay and better drained neutral to calcareous soils, found mainly in hedgerows, on banks, rough scrubby grassland, waysides and disturbed waste ground. It occurs locally in counties south of Yorkshire. In Cambridgeshire it is uncommon; there was only one location for this species on the site.
- 4.12 The location of these species is showing in Figure 3.1
- 4.13 There were no signs of non-native alien species such as Japanese Knotweed (*Fallopia japonica*), that is, those listed on Schedule 9 Section 14 of the Wildlife and Countryside Act 1981 (as amended) and Section 33 and 34 of the Environmental Protection Act (Duty of Care) Regulations 1991 (as amended).
- 4.14 It was considered that if some form of management did not commence in the meadows of compartment 5 and 6 these areas would quickly turn into scrub, if horse grazing in compartment 3 and 4 ceased, a similar effect would result; the present grazing in compartment 3 is considered to be maintaining the turf and open aspect of this area.
- 4.15 To maintain and possibly enhance the diversity of vascular plants at the site the drain in compartment 6 should have the vegetation on the banks cut regularly and the hedgerows along the Birch Fen Drove should also be managed periodically, preferably without the use of a flail which damages the hedgerow bushes and allow disease to enter the open wounds on the branches. The pond and winter wet areas in compartment 1 in particular should be sensitively management to maintain their botanical interest.
- 4.16 Without on-going management the various compartments the diversity of the flowering plants would be expected to change quickly.

5 RECOMMENDATIONS

- 5.1 The botany survey indicated that most of the botanical interest was associated with boundary features, such as hedgerows, water course, walls and pathways. Therefore in order to maintain as much plant biodiversity as practically possible during site preparation and construction works within the site, it is recommended that a buffer zone around the periphery of the site boundary should be retained, where hedgerows, plants water courses are left un-touched by the construction works associated with the development of the site.
- 5.2 To increase biodiversity of the new development, it is recommended that native plant species be planted as part of any landscaping plan for the site.
- 5.3 The botany survey did not find any alien invasive plant species listed on Schedule 9 Part 2 of the Wildlife & Countryside Act 1981 (as amended). However, as the site is close to residential areas and it has been observed that garden waste has been dumped in various locations; various non-native garden plants have been observed. Therefore, it is recommended that prior to any construction works and/or site/vegetation clearance activities commence, the site is checked to ensure that no alien invasive species had arrived in the intervening time.
- 5.4 As part of the development proposals for the site the development of a long term (25 year) ecological management plan (EMP) that included management prescriptions for the various habitats in the different compartments would help maintain and possibly enhance the diversity of vascular plants at the site.
- 5.5 The EMP for the development site would provide a mechanism by which the recommendations described here could be incorporated into the scheme design. The EMP would also provide details about the management procedures and measures necessary to ensure the habitats created and features incorporated are maintained in a favourable condition in the long term.

6 KEY POINTS AND FINDINGS

- 6.1 Between early April and the end of September 2015 monthly (involving six visits) botany surveys took place within the red line boundary of the proposed development site. The survey followed recognised methods and was considered to provide a robust set of data, suitable to evaluate the presence of vascular plants within the survey areas and identify any potential ecological constraints associated with these plants.
- 6.2 The 2015 botany survey recorded two hundred and sixty species of vascular plants within the development site.
- 6.3 None of these species were considered of high conservation importance at a national level.
- 6.4 None of the species recorded were listed as species of principal importance as detailed on Section 41 of the NERC Act 2006 (as amended).
- 6.5 Nine species were considered to be of some botanical interest at a local level, these included: Common Spike Rush, Marsh Cudweed, Dog's Mercury, Tiny Mouse-tail, Water Dropwort, Harsh Downy Rose, White Stonecrop, Stone Parsley and two 'Field' Elms.
- 6.6 Therefore as a result of the presence of an assemblage of 260 plant species, with nine species of botanical interest (although not specifically listed as being of conservation significance) the site was considered to be of district importance for its plant species.
- 6.7 No non-native alien species listed on Schedule 9 Section 14 of the Wildlife and Countryside Act 1981 (as amended) and Section 33 and 34 of the Environmental Protection Act (Duty of Care) Regulations 1991 (as amended such as Japanese Knotweed) were found during the botany surveys. Therefore the site was considered to be current free of these species.
- 6.8 The location of the nine species of botanical interest has been recorded. This indicated that they were mainly associated with boundary features, such as hedgerows, water course, walls and pathways around the entire site.
- 6.9 It is recognised that the development proposals for the site, would result in a number of direct and indirect adverse impacts on the vascular plants.
- 6.10 Recommendations have been made that would aim to ensure a representative assemblage of vascular plants were maintained within the site, which would meet local and national planning policy guidance.
- 6.11 Mitigation and enhancement measures that would aim, where possible to maintain existing suitable habitat; improve connectivity between different habitats and enhance other habitats in the survey area. These measures

would be necessary in order to offset the potential effect of habitat loss as a result of the proposed development.

- 6.12 In addition, it was recommended to maintain a watching brief to ensure the site's status in terms of alien invasive species was kept up to date. This would ensure that legal compliance pertaining to alien invasive species was maintained in the lead up to and during any potential construction works.
- 6.13 A long term (25 year) Ecological Management Plan (EMP) should be prepared for the site. The EMP would help to ensure the mitigation and enhancement measures described in this report would have the best chance of success. Thereby minimising the potential for the development proposals to have a permanent adverse effect on vascular plants within the site. The EMP should be prepared in-combination with the landscaping plan, to provide a mechanism by which the recommendations described in this report could be incorporated into the scheme design. The EMP would also provide details about the management procedures and measures necessary to ensure the habitats created and features incorporated are maintained in a favourable condition in the long term.

7 BIBLIOGRAPHY

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8 FIGURES

Figure 1.1.: Red line boundary of the proposed development site.

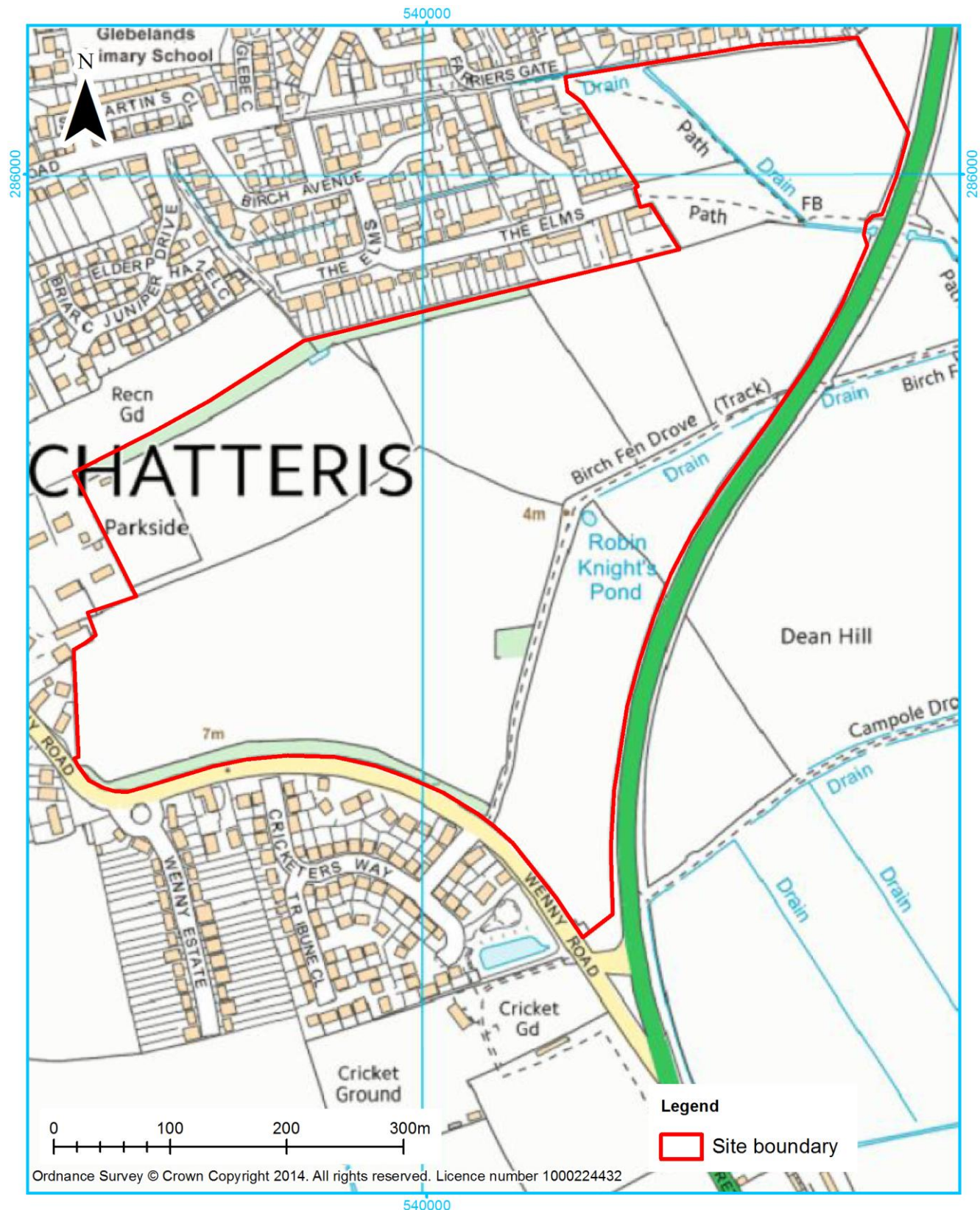


Figure 2.1.: Location of different compartments used to differentiate the areas across the development site during the botany survey

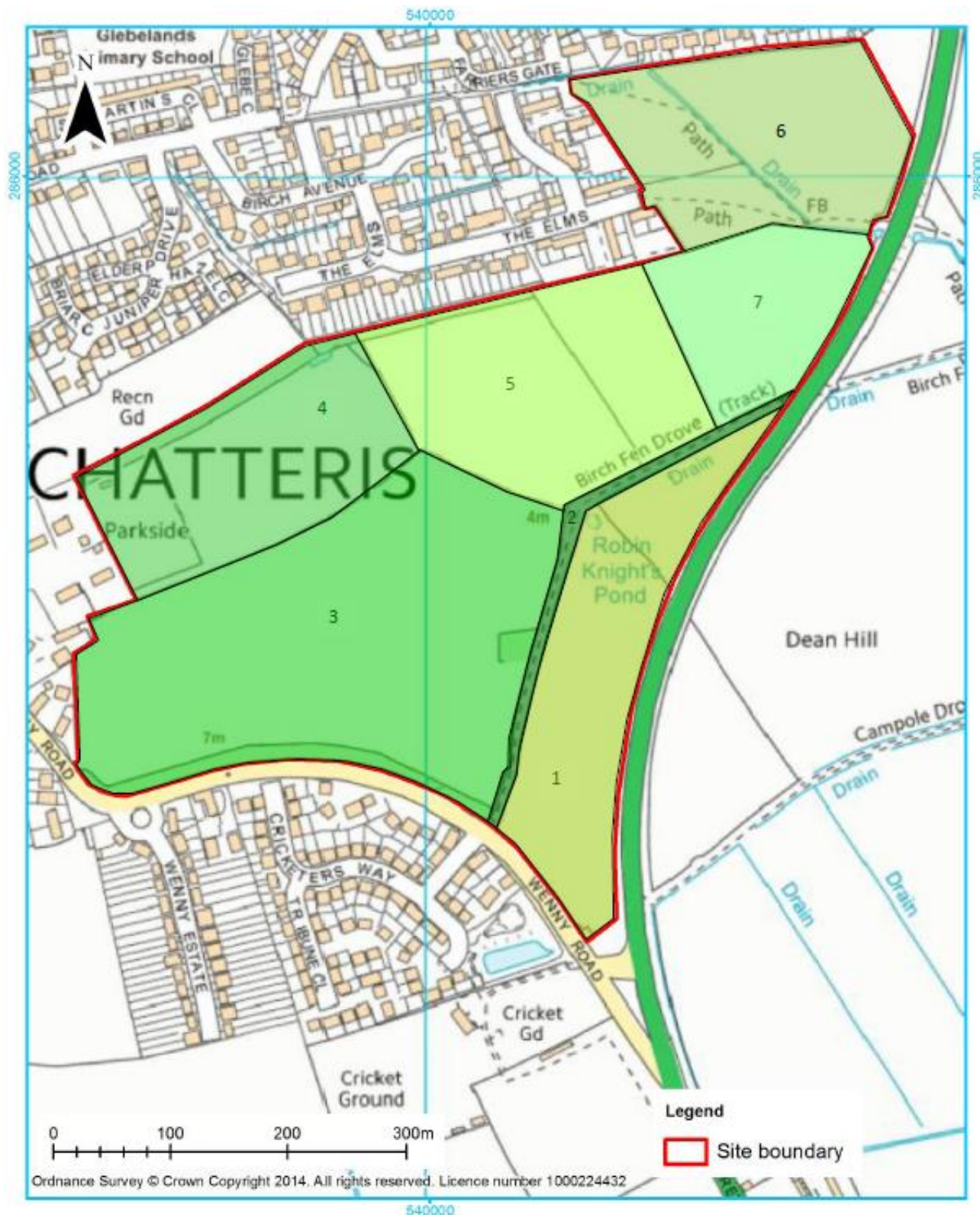


Figure 3.1.: Indicative location (red circles) of sightings of notable species of plants during the 2015 botany survey.

