Habitats Regulations Assessment of the City of York Council Local Plan

Appendices C - J

October 2020

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C. Lower Derwent Valley and Skipwith Common Visitor Surveys

FOOTPRINT ECOLOGY

Visitor surveys at the Lower Derwent SPA/SAC and Skipwith Common SAC.

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Footprint Contract Reference: 489
Date: 14th December 2018
Version: Final
Recommended Citation: Liley, D. (2018). Visitor surveys at the Lower Derwent SPA/SAC and Skipwith Common SAC. Unpublished report by Footprint Ecology for City of York Council and Selby District Council.

Summary

This report has been commissioned by City of York Council and Selby District Council to further understand recreational use of the Lower Derwent SPA/SAC/Ramsar and Skipwith Common SAC. The work relates to the Local Plans for each of the two authorities and the implications of the housing development on the designated nature conservation interest.

Visitor surveys involved face-face interviews with visitors, direct counts of people and counts of vehicles parked around the two sites.

In total, 7 counts of parked cars were undertaken on the Lower Derwent SPA (focussing on the stretch between Wheldrake and Bubwith) and six counts at Skipwith Common. Each count involved driving to all parking locations in a short time window and counting the number of cars present at each. These counts revealed a low level of use at both sites, with the total at the Lower Derwent at any one time ranging from 1-11 (median 6) and at Skipwith Common a range of 0-12, median 3.

Surveyors undertook direct counts and interviews at four locations – three on the Lower Derwent and one at Skipwith Common. These were main car-parks/access points. The counts involved a tally of people passing while the surveyor was present. Data were collected for a total of 16 hours at each location, spread across daylight hours and split between weekdays and weekends.

The main car-park at Skipwith Common, on the Cornelius Causeway was the busiest location, with 1.9 groups of people and 1.8 dogs entering the site per hour. No people were recorded at all at one of the Lower Derwent car-parks (North Duffield Carrs). No dogs were recorded at Bank Island.

A total of 50 interviews were conducted, 42% of which were at Skipwith Common. Key findings included:

- Virtually all (92%) of interviews were with those who had undertaken a day trip/short visit directly from home that day
- The most frequently recorded activity across all survey points was dog walking (32% of interviewees). Walking (30% interviewees) and bird or wildlife watching (20%) were also frequently recorded activities.
- There were markedly different activities recorded at the different survey points. Dog walking was mostly at Skipwith Common, rather than the Lower Derwent and no dog walkers were interviewed at all at Bank Island, where walkers (44% of interviewees there) predominated.
- Around a third (32%) of all interviewees visited less than once a month. Dog walkers were the group who visited the most frequently, with 19% visiting daily or most days.

- Many visits were short, with 38% of interviewees spending less than an hour and the most common visit duration was 1-2 hours (40% interviewees).
- Most interviewees (44%) indicated that they visited equally all year round, particularly at Skipwith Common (67%). At the Lower Derwent survey points, while all year round was still the most common response, 21% tended to visit more in the winter and 24% tended to visit more in the summer.
- Nearly half (46%) of those interviewed had been visiting for at least 10 years. There was little in the way of clear differences between sites or activities.
- Overall, most (90%) of interviewees had travelled by car, with only small numbers arriving on foot (4%), by bicycle (4%) or by bus (1%). Cars were the main mode of transport at all survey points.
- Overall the scenery/variety of views was the most common given reason for the choice of site to visit that day, cited by 42% of interviewees (across both the Lower Derwent and Skipwith survey points).
- Close to home was also important (31%). Close to home was very clearly the most common single main reason, with 14% of interviewees stating that was the single main reason for underpinning site choice.
- Close to home featured much more strongly as a reason for site choice at Skipwith Common, where it was cited as frequently as the scenery/variety of views.
- Skipwith Common was also chosen by 7 interviewees because it was good for the dog yet this reason was not recorded for the Lower Derwent sites. The particular wildlife interest at the Lower Derwent was a draw for many.
- Visitors were more faithful to Skipwith Common compared to the Lower Derwent valley, where interviewees tended to visit a greater range of other sites. For example, 34% of the interviewees at Skipwith indicated that at least three-quarters of their weekly visits (for the given activity) took place there. By contrast, at the Lower Derwent the figure was 13% of interviewees.
- Visitor postcodes covered a wide area, including visitors from Cumbria and Nottingham. 40% of visitor postcodes were from the City of York and these were mostly people interviewed at Wheldrake Ings. 27% of the interviewees lived in Selby District, and these were mainly interviewed at Skipwith Common.
- Across all survey points and all interviewees, the median distance from home postcode to interview locations was 11.7km and 75% of interviewees had come from within 15.5km.
- The median distance from home postcode to interview location at Skipwith Common was 8.8km, compared to 11.2 at Wheldrake Ings and 13.2 at Bank Island.
- Visit rate per house declines with distance (i.e. people who live further away visit less), out to around 5km for both the Lower Derwent and

Skipwith Common. This would a differential impact of housing within a 5km radius of the two sites compared to that further away. Beyond 5km visit rates per dwelling appear to change little with distance, indicating the impact of new housing at 6km, 10km or 15km from the sites would be similar.

- A total of 50 routes were mapped, with a line showing the route taken by the interviewee. The mean route length as mapped was 3.04km (± 1SE of 0.28km), with a median of 2.5km. Routes ranged from 314m to 7.91km.
- At Bank Island and Wheldrake Ings the data show people moving along the river between the two survey points and at Wheldrake Ings the route to the hides is the key focus, with some visitors following the river bank and others walking directly across the field.
- At Skipwith the routes walked largely reflect the marked routes, including the 'Hidden Archeology' route and the Bombs and Lizards route that includes the Bomb Bays loop.

Overall the results show that the two sites are used for a variety of recreational activities, but the data suggest relatively low levels of use. There were some differences between the Lower Derwent and Skipwith Common. The Lower Derwent appears to draw people from a wider area predominantly for walking and for the wildlife. The sites are promoted as nature reserves and many interviewees were coming for that reason. Marked trails and hides provide the main routes, and are designed to minimise impacts. Potential issues from recreation at the site are predominantly from disturbance to birds and new housing is unlikely to exacerbate disturbance levels unless resulting in a very marked change in the quantum of housing or unless the housing is in very close proximity.

At Skipwith Common the data also suggest relatively low levels of use, however Skipwith Common was busier than the Lower Derwent. The site draws visitors for dog walking (an activity hardly recorded at the Lower Derwent) and some of the key issues at the site include disruption to the grazing as a result of dogs off leads and dog fouling. Dog walkers come from local villages and a marked or step increase in housing in those areas may result in increased recreation pressure at Skipwith. Possible mitigation measures are discussed.

Contents

Acknowledgements

This report has been commissioned by the City of York Council and Selby District Council. Our thanks to Alison Cooke and Nadine Rolls (both City of York Council) and to Ryan King (Selby District Council) for overseeing the commission, useful discussion and comments.

We are very grateful to Brian Lavelle (Yorkshire Wildlife Trust); Craig Ralston (Natural England) and Tango Fawcett (Escrick Park Estate) for permission to undertake the surveys and for useful comment on survey design and approach.

Survey work (interviews) were conducted by the following Footprint Ecology field surveyors: Marie Micol, Phil Rotheram and Ben Wray. Fieldwork logistics were overseen by Fenella Lewin (Footprint Ecology) and the route data were digitised by Damiano Weitowitz (Footprint Ecology).

1. Introduction

Overview

1.1 This report has been commissioned by City of York Council and Selby District Council to further understand recreational use of the Lower Derwent SPA/SAC/Ramsar and Skipwith Common SAC. The work relates to the Local Plans for each of the two authorities and the implications of the housing development on the designated nature conservation interest.

The Lower Derwent

1.2 The Lower Derwent Valley consists of a network of traditionally managed, species rich alluvial flood-meadows, pastures, waterways and woodland. The flood meadows represent a type of grassland now highly restricted in the UK.

1.3 The area of interest (see Map 1) stretches from the B1228 in the north to the village of Wressle in the south. There are various Sites of Special Scientific Interest (SSSIs), designated as nationally important for nature conservation. These include the Derwent Ings SSSI, Melbourne and Thornton Ings SSSI, River Derwent SSSI, Newton Mask SSSI and Breighton Meadows SSSI.

1.4 These sites also form part of the Natura 2000 network of European sites, designated as a Special Area of Conservation (SAC) for:

- H91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*)
- H6510 Lowland hay meadows (*Alopecurus pratensis, Sanguisorba officinalis*)
- S1355 Otter

1.5 The valley is also classified as SPA for its over-wintering and breeding waterbirds:

- A052(non-breeding) Eurasian Teal
- A050(non-breeding) Eurasian Wigeon
- A056(breeding) Northern Shoveler
- A151(non-breeding) Ruff
- A140(non-breeding) European golden plover
- Waterbird assemblage

1.6 The Lower Derwent is also a Ramsar site, for the following criteria:

- Species-rich alluvial flood-meadow habitat;
- Assemblage of wetland invertebrates (including a range of dragonflies and the leaf hopper *Cicadula ornate* for which the Lower Derwent valley is the only known site in Great Britain;
- Passage waterbirds (notably Whimbrel and Ruff);
- Wintering waterbird assemblage;
- Overwintering Teal and Wigeon.

1.7 The SPA boundary and the relevant SSSIs are shown in Map 1. The SAC boundary (not shown) matches the SPA boundary with the exception of the River itself, which is a separate SAC (the River Derwent SAC).

Skipwith Common

1.8 Skipwith Common comprises just under 300ha of heathland and wetland habitats. The wet heath is the most extensive of its type in the north of England and the site supports a notable flora including Marsh Gentian.

1.9 The site qualifies as an SAC for:

- H4010 Northern Atlantic wet heaths with Erica tetralix
- H4030 European dry heaths

1.10 The site is also of national importance for invertebrates, particularly moths, and its breeding bird assemblage which includes some notable species such as Nightjar.

Legislative context

1.11 The designation, protection and restoration of European wildlife sites is embedded in the Conservation of Habitats and Species Regulations 2017, which are commonly referred to as the 'Habitats Regulations.' These Regulations are in place to transpose European legislation set out within the Habitats Directive (Council Directive 92/43/EEC), which affords protection to plants, animals and habitats that are rare or vulnerable in a European context, and the Birds Directive (Council Directive 2009/147/EC), which originally came into force in 1979, and which protects rare and vulnerable birds and their habitats. These key pieces of European legislation seek to protect, conserve and restore habitats and species that are of utmost conservation importance and concern across Europe. European sites include Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) classified under the Birds Directive.

1.12 As such, European sites have the benefit of the highest level of legislative protection for biodiversity. Public bodies, including local planning authorities, have specific duties in terms of avoiding deterioration of habitats and species for which sites are designated or classified, and stringent tests have to be met before plans and projects can be permitted. Importantly, the combined effects of individual plans or projects must be taken into account. For local planning authorities, this means that the combined effect of individual development proposals needs to be assessed collectively for their cumulative impact.

1.13 The legislation requires public bodies to be proactive, not reactive. The overarching objective is to maintain sites and their interest features in an ecologically robust and viable state, able to sustain and thrive into the long term, with adequate resilience against natural influences. This requires public bodies to put measures in place to prevent deterioration of European sites, not to wait until there is harm occurring that needs to be rectified. Where European sites are not achieving their potential, the focus of attention by public bodies should be on restoration.

1.14 Public bodies are referred to as 'competent authorities' within the legislation. The duties set out within the Habitats Regulations in relation to the consideration of plans and projects are applicable in situations where the competent authority is undertaking or implementing a plan or project, or authorising others to do so. The assessment process for plans or projects is called a Habitats Regulations Assessment ('HRA').

Relevant Local Plans and the need for this work

1.15 The City of York Local Plan was submitted to the Planning Inspectorate in May 2018. The Plan covers the period from 2017 to 2032/33 and sets out provision to accommodate an annual provision of around 650 new jobs and a minimum annual provision of 867 new dwellings over the plan period.

1.16 The HRA that accompanies the submission version of the Plan identified likely significant effects from recreation on the Lower Derwent Valley SPA relating to development in the vicinity, including Policy SS13/ST15 (which relates to the development of 3,399 dwellings in a new garden village near Elvington) and an allocation at Wheldrake (ST33, Station Yard) for 147 units. The HRA identified risks from recreational disturbance to the breeding and non-breeding bird species associated with the SPA. Following more detailed assessment, the HRA advised that adverse effects on integrity could be ruled

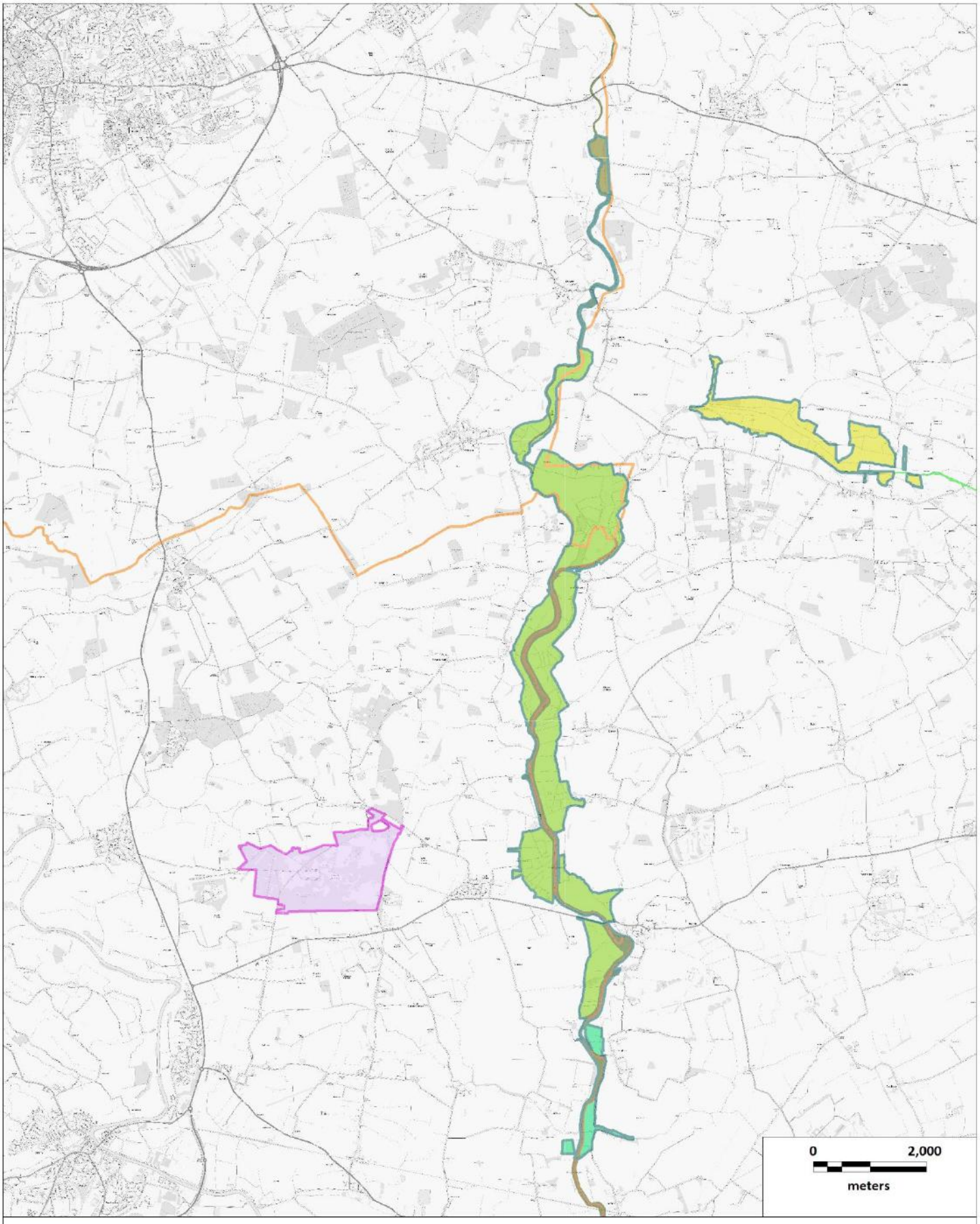
out through the provision of educational material and improved accessibility of alternative countryside destinations nearby.

1.17 Selby District Council is currently preparing a Sites and Policies Local Plan, 'PLAN Selby' which will deliver the strategic vision outlined in the Core Strategy (adopted in 2013). When PLAN Selby is adopted it will form part of the Local Plan for the district against which planning applications will be assessed. PLAN Selby will incorporate site allocations to promote the growth needs of the district and site specific designations and policies to manage other development proposals. HRA work to accompany Plan Selby has raised the issues of recreation pressure on Skipwith Common and the Lower Derwent Valley.

1.18 In light of these HRA findings and the scale of development in the area, the two authorities have jointly commissioned this work, which aims to:

- Provide evidence on current levels of use and patterns of access in the Lower Derwent Valley
- Understand the visitor origins and potential links with new development

Map 1: Lower Derwent and Skipwith Common and component SSSIs



2. Methods

Overview

2.1 Visitor surveys included the following:

- Face-face interviews and direct counts
- Car-park counts

2.2 Details of these different work areas are set out below.

Face-face interviews and direct counts

2.3 These were conducted by a surveyor positioned at an entry point and counted people passing and interviewed a selection of visitors.

2.4 The counts were in the form of a tally, recording numbers of groups, people, horses, cycles and dogs (entering, leaving or passing).

2.5 Face-face interviews were conducted with a random selection of visitors (the random selection was achieved by selecting the next person seen after completing the previous interview). Only one person per group was interviewed, and no unaccompanied minors were approached.

2.6 Surveys were conducted on tablets hosting SNAP survey software and the questionnaire (Appendix 1) was conducted verbally, with the surveyor recording the responses of the interviewee onto the tablet. At the end of the interview the group size, gender of interviewee, number of dogs in group and whether dogs were seen off lead were recorded.

2.7 Routes taken by respondents (or planned to be taken if they were just setting off) were recorded by drawing the visitor's route on a paper map linked by a unique reference number to the SNAP questionnaire. These routes were later digitised to give a polyline in GIS.

2.8 The interviews and counts took place at four locations (Map 3 and Table 1).

Table 1: Interview/count locations.

	Location	Description/ notes	Grid reference
1	Bank Island	NE car-park, next to NE office	SE6904 4470
2	Wheldrake Ings YWT car-park	YWT car-park next to Bailey Bridge	SE6940 4441
3	N. Duffield Carrs	NE car-park on north side of A163.	SE6971 3667
4	Skipwith Common	Main car-park on Cornelius Causeway	SE 6690 3772

2.9 Survey times covered: 0700-0900; 1000-1200; 1300-1500; 1700-1900 (by splitting the day into 2 hour blocks the surveyor is able to take comfort breaks yet data are collected from across daylight hours). Each location was surveyed such that each time period was covered on a weekday and weekend day at each location.

2.10 Effort was made to avoid adverse weather conditions. The surveys took place during a period of unsettled and changeable weather at the end a prolonged dry and very hot summer. Sixteen hours of survey work were undertaken at each survey point. There was no rain at all at Bank Island. At Wheldrake Ings there was some light rain for less than 30 minutes (over the 16 hours of survey) and at North Duffield Carrs there was some rain for less than an hour. At Skipwith Common it was dry for 7.5 hours out of the 16 and for 2 of the two-hour survey sessions there was continuous rain.

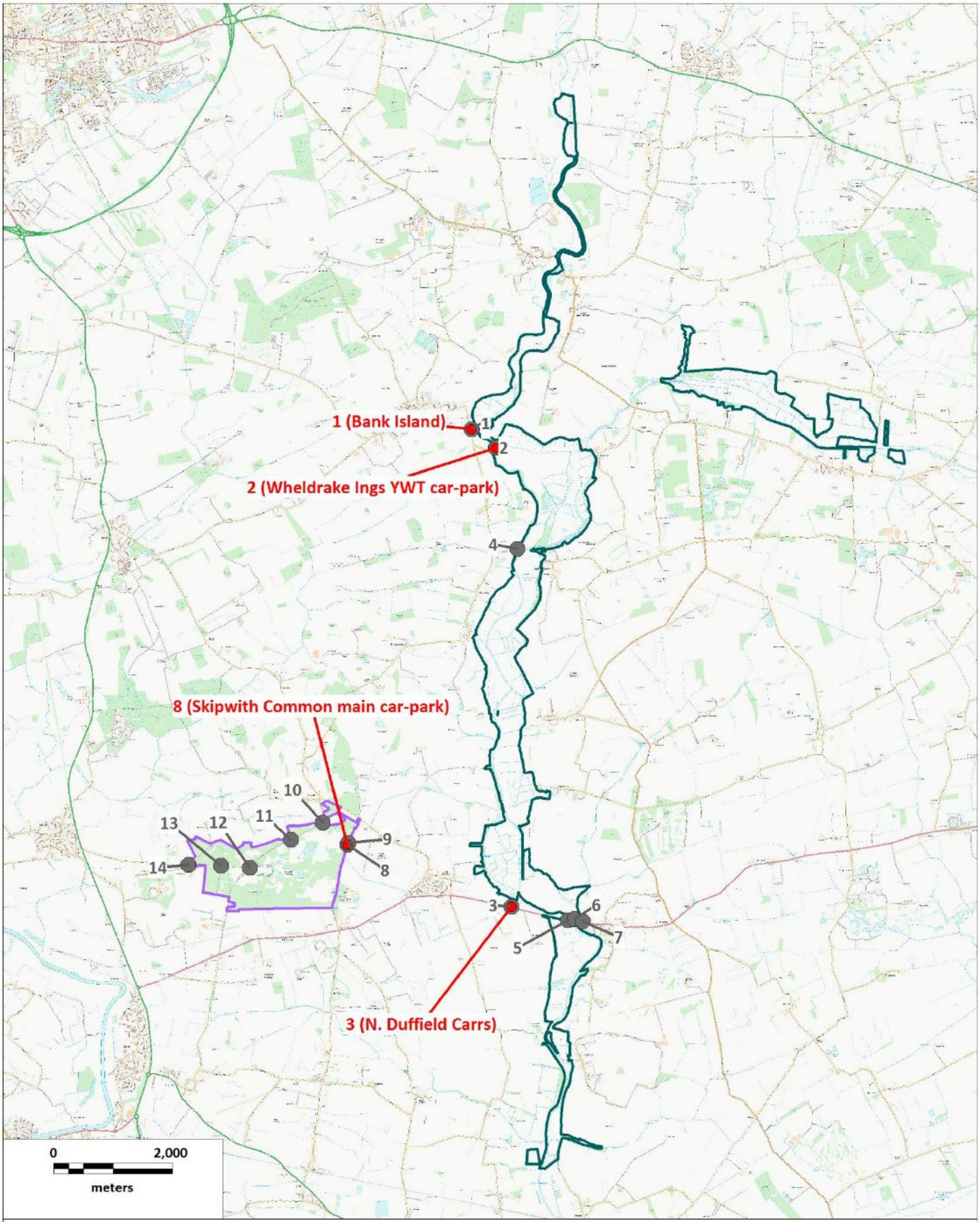
Car-park counts

2.11 Seven transects counting parked cars were undertaken for the Derwent Valley and six were undertaken at Skipwith Common (Table 2). These involved the recorder driving round the site and logging all parked vehicles at the various parking locations (shown in Map 2) including all lay-bys and other informal parking areas. It took around 45 minutes to visit all locations on each transect and the counts were a 'snapshot' in time, reflecting the number of vehicles present when the recorder entered the parking location. Direct of travel was varied between different transects.

Table 2: Dates and start times of transects counting all parked vehicles around the two sites.

Date	Route	Start Time	Day
13/07/2018	Derwent only	08:52	Friday
30/07/2018	Derwent & Skipwith	12:38	Monday
14/08/2018	Derwent & Skipwith	08:00	Tuesday
14/08/2018	Derwent & Skipwith	14:25	Tuesday
19/09/2018	Derwent & Skipwith	17:00	Wednesday
22/09/2018	Derwent & Skipwith	10:50	Saturday
22/09/2018	Derwent & Skipwith	17:30	Saturday

Map 2: Lower Derwent and Skipwith survey points



3. Car-park count results

3.1 The number of vehicles ranged counted on the Lower Derwent at any one time ranged from 1 to 11 (7 counts; Figure 1). The median number of vehicles counted was 6 and the mean 5.6. At Skipwith Common the range was similar, ranging from 0 to 12 (6 counts; Figure 1). The median number of vehicles counted was however lower at 2.5 and the mean 3.1. No campervans or commercial vehicles were counted at Skipwith.

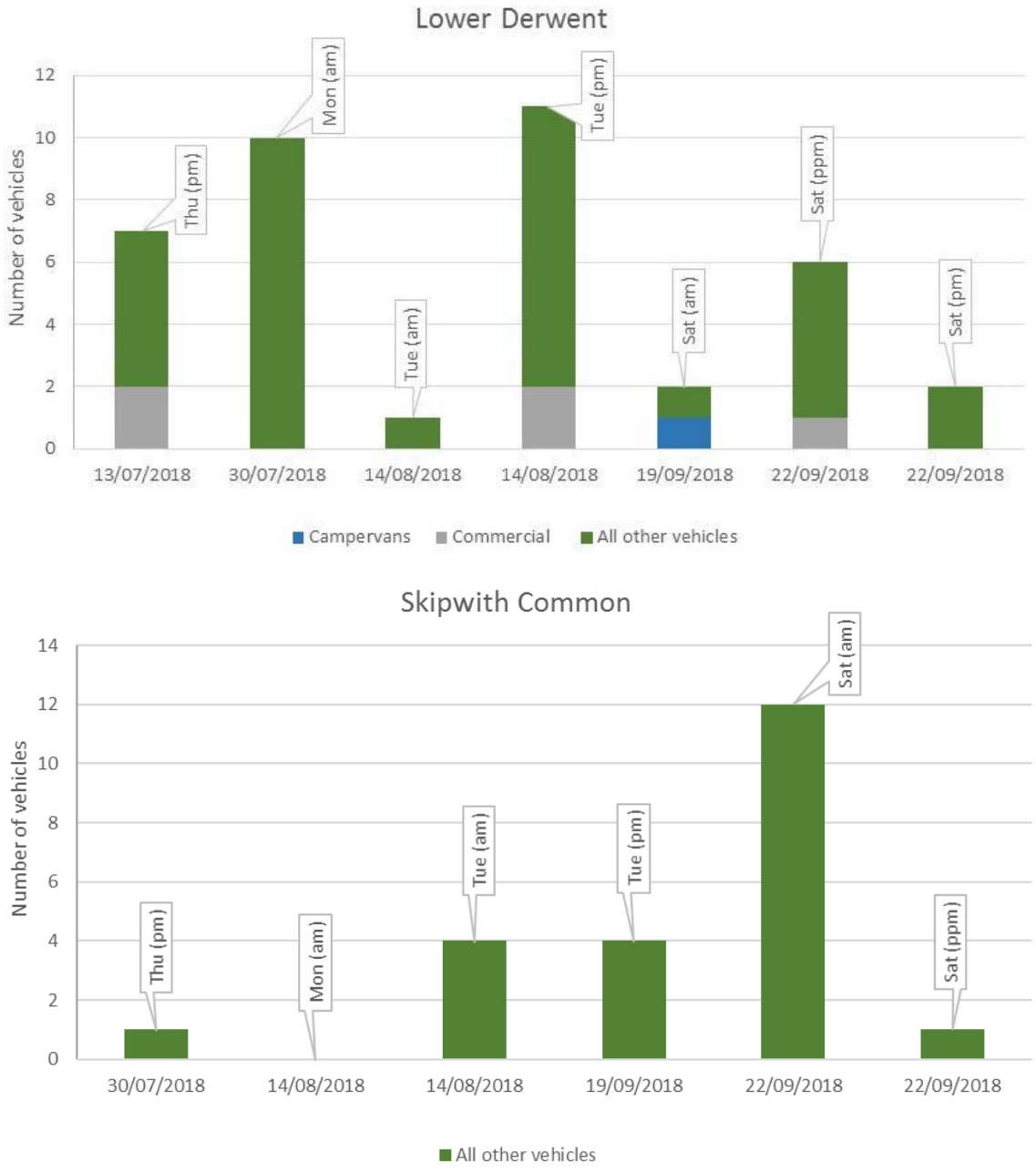
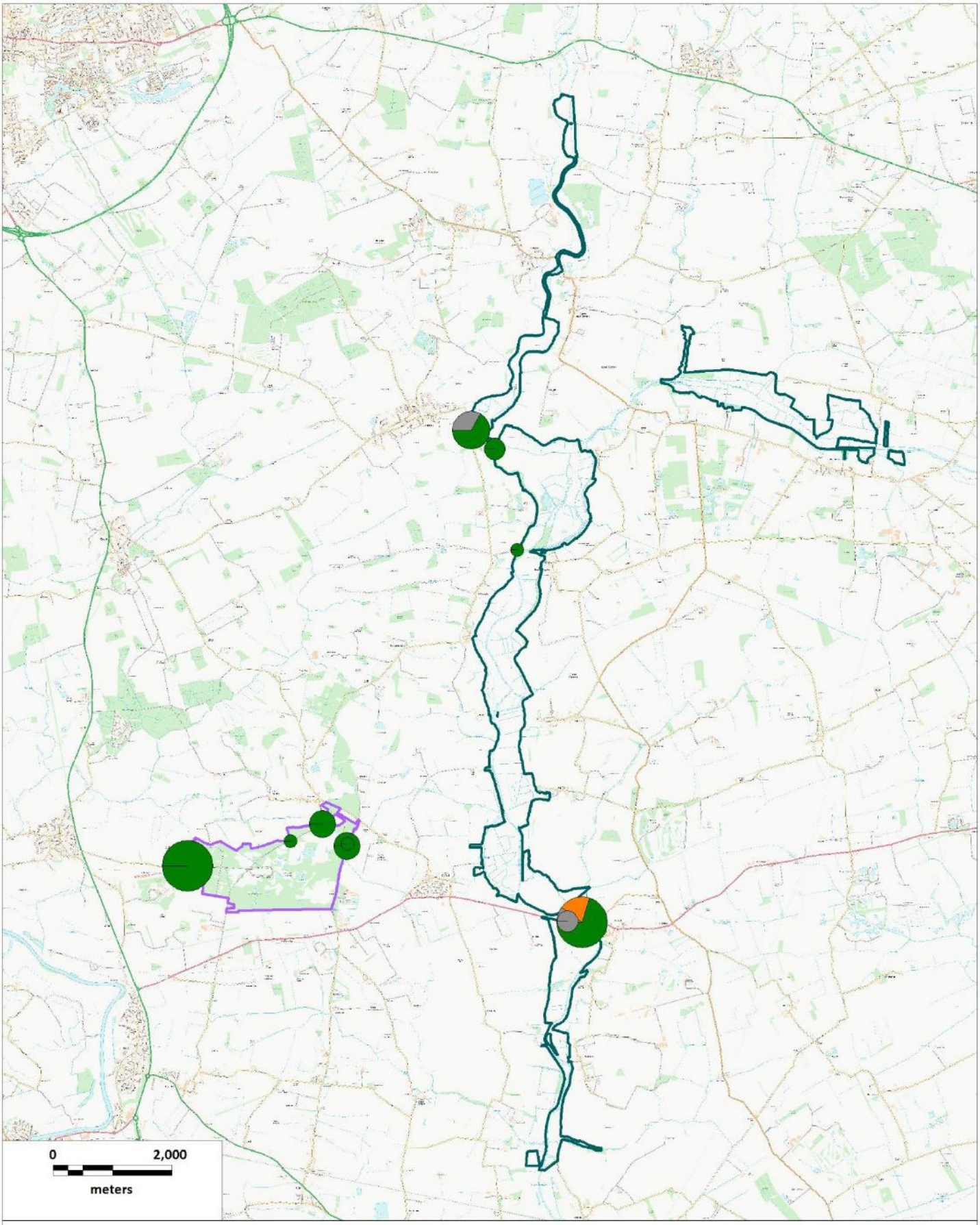


Figure 1: Car-park transect results by date and vehicle types

3.2 The results are shown spatially in Map 3. In order to allow direct comparison between locations, the map shows the total across the six counts where both Skipwith and the Lower Derwent were covered.

3.3 All locations were relatively quiet. The map shows that the only location where any campervans was recorded was Bubwith Bridge and also highlights that the only vehicles using the informal parking on the west of Bubwith Bridge were commercial vehicles. Commercial vehicles were logged separately as these were often thought to involve work vans or similar that had pulled over and did not necessarily involve people on recreational visits. The King Rudding Lane car-park was the car-park with the highest number of vehicles at Skipwith, notably however these were on two occasions (counts of 3 vehicles and 7 vehicles) while on the other four counts there were no vehicles recorded in this car-park.

Map 3: Lower Derwent and Skipwith car count results



4. Direct counts of people: tally counts

4.1 Tally counts were maintained by the surveyors when on-site conducting interviews. These tallies reflected the number of people entering or leaving at the survey point. Of the surveyed locations the Skipwith Common car-park was the busiest location, with just under half the groups counted across all survey points and over half the people (the relatively high total people compared to other sites is skewed by a geology group at Skipwith Common). Skipwith Common was also the site with the most dogs recorded – a total of 28, equivalent to 1.8 dogs per hour. No people were recorded at all at North Duffield Carrs[1]. No dogs were recorded at Bank Island.

Table 3: Tally data for numbers of groups, people, bicycles and dogs entering at each survey point. Entering means passing the surveyor heading into the site. Survey work was standard across all survey points (16 hours in total, 8 hours per day)

	Survey point	01-Sep	02-Sep	04-Sep	05-Sep	07-Sep	08-Sep	Total	Total per hr
Groups	Bank Island		8	3				11	0.7
	N Duffield Carrs		0		0			0	0
	Skipwith Main CP					14	17	31	1.9
	Wheldrake Ings	18		8				26	1.6
	Total	**18**	**8**	**11**	**0**	**14**	**17**	**68**	**4.3**
Total people	Bank Island		18	6				24	1.5
	N Duffield Carrs		0		0			0	0
	Skipwith Main CP					21	60	81	5.1
	Wheldrake Ings	32		13				45	2.8
	Total	**32**	**18**	**19**	**0**	**21**	**60**	**150**	**9.4**
Bicycles	Bank Island		1					1	0.1
	N Duffield Carrs		0		0			0	0
	Skipwith Main CP					1	0	1	0.1
	Wheldrake Ings	0		0				0	0
	Total	**0**	**1**	**0**	**0**	**1**	**0**	**2**	**0.1**
Total dogs	Bank Island		0	0				0	0
	N Duffield Carrs		0		0			0	0
	Skipwith Main CP					14	14	28	1.8
	Wheldrake Ings	5		1				6	0.4
	Total	**5**	**0**	**1**	**0**	**14**	**14**	**34**	**2.1**

[1] the surveyor did note a couple of vehicles briefly parking or turning round, however no one stepped out of their car and visited the site

5. Visitor interview results

Overview

5.1 A total of 50 interviews were conducted (Table 4). No interviews were conducted at all at Duffield Carrs, where visitor use appears to be particularly low. 21 interviews (42%) were conducted at Skipwith.

5.2 Virtually all (92%) of interviews were with those who had undertaken a day trip/short visit directly from home that day; 2% of interviews included people staying away from home with friends/family and 4% were on holiday or staying in a second home/mobile home. One of the interviews did not fit into any of these categories and involved an interviewee part of a geological field trip that was taking place at Skipwith Common.

Table 4: Number (%) of interviews by visit type and date (from Q1).

	Bank Island	Wheldrake Ings	Skipwith Common	Total
Day trip/short visit, travelling directly from home that day	9 (18)	17 (34)	20 (40)	46 (92)
Day trip/short visit, staying away from home with friends/family	0 (0)	1 (2)	0 (0)	1 (2)
Staying away from home, e.g. second home, mobile home/on holiday	0 (0)	2 (4)	0 (0)	2 (4)
Other	0 (0)	1 (2)	0 (0)	0 (0)
Total	**9 (18)**	**20 (40)**	**21 (42)**	**50 (100)**

5.3 The average interview duration was 9.9 minutes, with interviews ranging in length from 4.3 minutes to 23.6 minutes. In 15 interviews (30%) the gender of the interviewee was female; 35 interviews (70%) were with men. Group size (i.e. the total number of people with the interviewee, including the interviewee), ranged from 1 to 35 (the latter the geology field trip). Around half (48%) of interviewees were visiting on their own (i.e. group size of 1). A total of 17 interviewees (34%) had at least one dog with them and the number of dogs with the interviewees ranged from 1-2. The total number of

people in all the interviewed groups was 116 accompanied by 33 dogs; giving a mean of 2.3 people and 0.7 dogs with each interviewee.

Activities undertaken (Q2)

5.4 The most frequently recorded activity across all survey points was dog walking (32% of interviewees) (Figure 2). Walking (30% interviewees) and bird or wildlife watching (20%) were also frequently recorded activities.

5.5 There were markedly different activities recorded at the different survey points (Table 5). Dog walking was mostly at Skipwith Common rather than the Lower Derwent and no dog walkers were interviewed at all at Bank Island, where walkers (44% of interviewees there) predominated. None of the interviewees at Skipwith Common were visiting for bird or wildlife watching while this was the main activity for at least a third of interviewees at the Lower Derwent survey points. 'Other' activities (which did not fit with the standard categories on the questionnaire) accounted for 10% of interviewees overall and these included participating in a geology field trip, geocaching, fishing, stock-checking for the Yorkshire Wildlife Trust and participating in a non-native species survey.

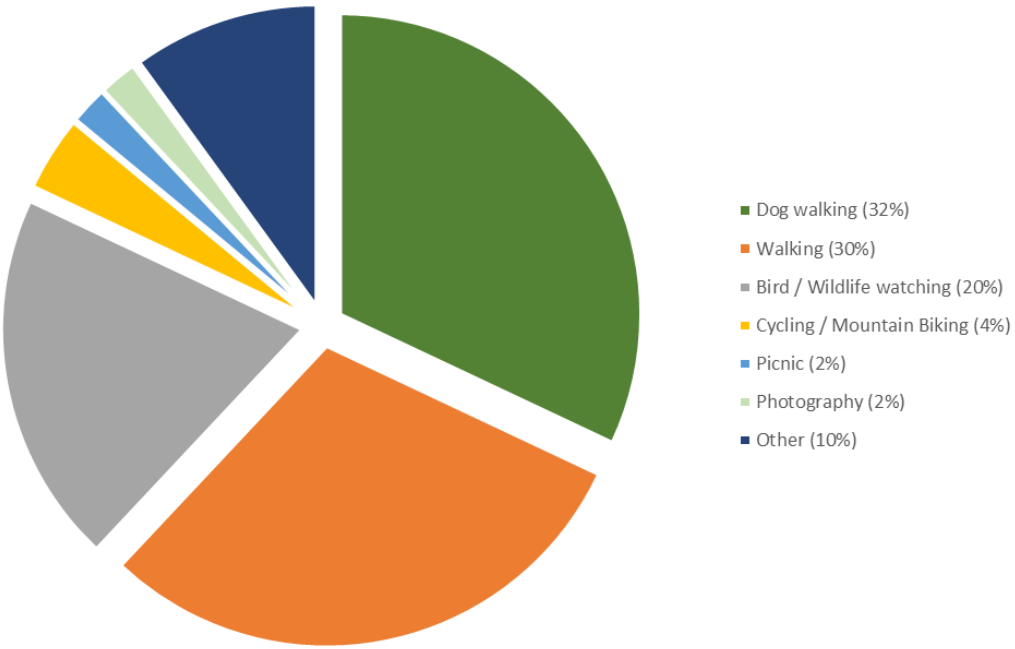


Figure 2: Activities undertaken (all 50 interviewees); from Q2.

Table 5: Number (column %) of interviewees by activity (from Q2) and survey point. The commonest activity in each column is shaded dark grey and the second most common pale grey.

Activity	Bank Island	Wheldrake Ings	Skipwith Common	Total
Dog walking	0 (0)	3 (15)	13 (62)	16 (32)
Walking	4 (44)	6 (30)	5 (24)	15 (30)
Bird / Wildlife watching	3 (33)	7 (35)	0 (0)	10 (20)
Other	0 (0)	3 (15)	2 (10)	5 (10)
Cycling / Mountain Biking	1 (11)	0 (0)	1 (5)	2 (4)
Other	1 (11)	0 (0)	0 (0)	1 (2)
Photography	0 (0)	1 (5)	0 (0)	1 (2)
Total	**9 (100)**	**20 (100)**	**21 (100)**	**50 (100)**

Temporal visiting patterns, frequency of visit, time of day etc. (Q3-7)

5.6 Around a third (32%) of all interviewees visited less than once a month (Table 6). Dog walkers were the group who visited the most frequently, with 19% visiting daily or most days.

Table 6: Numbers (row %) of interviewees and frequency of visit (Q3) by activity. Grey shading reflects the highest value in each row.

Activity	Daily	Most days (180+ visits)	1 to 3 times a week (40-180 visits)	2 to 3 times per month (15-40 visits)	Once a month (6-15 visits)	Less than once a month (2-5 visits)	First visit	Other	Total
Dog walking	2 (13)	1 (6)	5 (31)	1 (6)	1 (6)	4 (25)	2 (13)	0 (0)	16 (100)
Walking	0 (0)	2 (13)	0 (0)	1 (7)	1 (7)	8 (53)	3 (20)	0 (0)	15 (100)
Bird / Wildlife watching	0 (0)	2 (20)	2 (20)	1 (10)	1 (10)	1 (10)	1 (10)	2 (20)	10 (100)
Other	0 (0)	0 (0)	0 (0)	1 (20)	0 (0)	2 (40)	1 (20)	1 (20)	5 (100)
Cycling / Mountain Biking	0 (0)	0 (0)	0 (0)	1 (50)	0 (0)	1 (50)	0 (0)	0 (0)	2 (100)
Picnic	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (100)	0 (0)	1 (100)
Photography	0 (0)	0 (0)	0 (0)	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	1 (100)
Total	**2 (4)**	**5 (10)**	**7 (14)**	**6 (12)**	**3 (6)**	**16 (32)**	**8 (16)**	**3 (6)**	**50 (100)**

5.7 There were some differences between the Derwent Valley and Skipwith Common (Figure 3), with interviewees at Skipwith tending to visit more frequently (green shading reflects those visiting at least once a week) and more people on their first visit or 'other' visit frequency on the Lower Derwent valley. 'Other' responses here included one person visiting for the first time in 10 years and another visiting for the first time in many years.

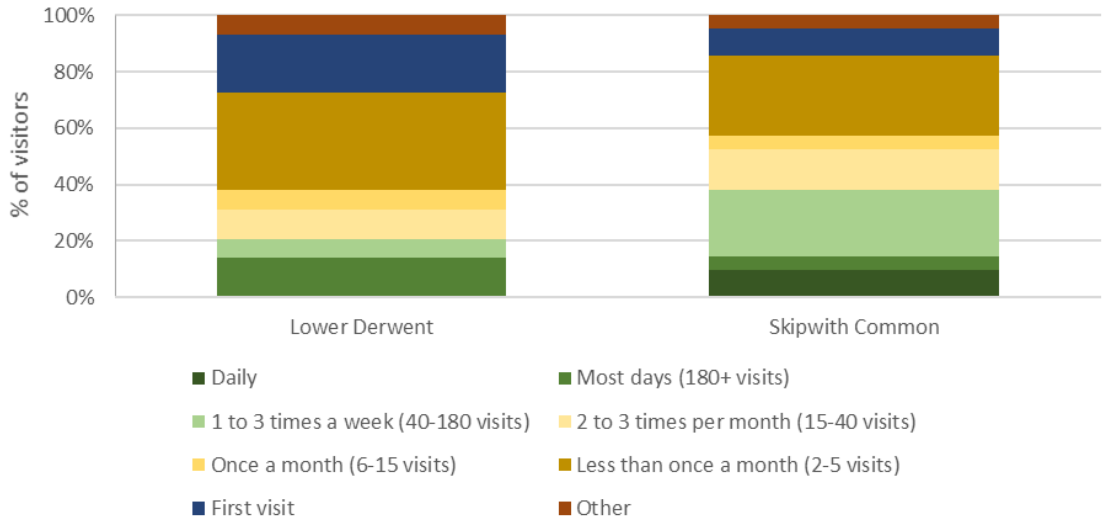


Figure 3: Frequency of visit (Q3) by European site.

5.8 Many visits were short, with 38% of interviewees spending less than an hour on the site (Table 7). The most common visit duration was 1-2 hours (40% interviewees). Comparing sites (Table 8), 1-2 hours was the most common visit duration at both the Lower Derwent and Skipwith Common, however the percentage visiting for a very short period (less than half an hour) was higher at Skipwith Common (24% of interviewees) compared to the Lower Derwent Valley (10% of interviewees).

Table 7: Numbers (row %) of interviewees and visit duration (Q4) by activity. Grey shading reflects the highest value in each row.

Activity	Less than 30 minutes	Between 30 minutes and 1 hour	1-2 hours	2-3 hours	4 hours +	Total
Dog walking	3 (19)	7 (44)	6 (38)	0 (0)	0 (0)	16 (100)
Walking	5 (33)	2 (13)	7 (47)	1 (7)	0 (0)	15 (100)
Bird / Wildlife watching	0 (0)	1 (10)	3 (30)	5 (50)	1 (10)	10 (100)
Other	0 (0)	0 (0)	2 (40)	3 (60)	0 (0)	5 (100)
Cycling / Mountain Biking	0 (0)	0 (0)	2 (100)	0 (0)	0 (0)	2 (100)
Picnic	0 (0)	1 (100)	0 (0)	0 (0)	0 (0)	1 (100)
Photography	0 (0)	0 (0)	0 (0)	1 (100)	0 (0)	1 (100)
Total	**8 (16)**	**11 (22)**	**20 (40)**	**10 (20)**	**1 (2)**	**50 (100)**

Table 8: Numbers (row %) of interviewees and visit duration (Q4) by site. Grey shading reflects the highest value in each row.

European site	Less than 30 minutes	Between 30 minutes and 1 hour	1-2 hours	2-3 hours	4 hours +	Total
Lower Derwent	3 (10)	6 (21)	10 (34)	9 (31)	1 (3)	29 (100)
Skipwith Common	5 (24)	5 (24)	10 (48)	1 (5)	0 (0)	21 (100)
Total	8 (16)	11 (22)	20 (40)	10 (20)	1 (2)	50 (100)

5.9 Nearly a third (32%) of interviewees didn't tend to visit at a particular time of day and 16% were on their first visit and therefore didn't have a typical time of day they visited. For those who did tend to visit at a particular time, mornings were the commonest given response, with just over a quarter (28%) of interviewees visiting before 10am in the morning (Table 9).

Table 9: Numbers (row %) of interviewees and time of day (Q5) that they tend to visit, by site. Grey shading reflects the highest value in each row. Interviewees could give multiple responses and the percentages, based on the number of interviews, can therefore total over 100.

European site	Early morning (before 7am)	Late morning (7am - 10am)	Midday (10am - 2pm)	Early afternoon (2pm - 4 pm)	Late afternoon (4pm-6pm)	Evening (after 6pm)	Varies / Don't know	First visit	Number interviewees
Lower Derwent	4 (14)	6 (21)	2 (7)	3 (10)	5 (17)	6 (21)	8 (28)	6 (21)	29 (100)
Skipwith Common	0 (0)	4 (19)	4 (19)	3 (14)	4 (19)	3 (14)	8 (38)	2 (10)	21 (100)
Total	**4 (8)**	**10 (20)**	**6 (12)**	**6 (12)**	**9 (18)**	**9 (18)**	**16 (32)**	**8 (16)**	**50 (100)**

5.10 Most interviewees (44%) indicated that they visited equally all year round (Table 10), but this was particularly the case at Skipwith Common where 67% visited equally all year round. At the Lower Derwent survey points, while all year round was still the most common response, there was more evidence of particular times of year being a focus, for example 21% tending to visit more in the winter and 24% in the summer.

Table 10: Numbers (row %) of interviewees and time of year (Q6) that they tend to visit. Grey shading reflects the highest two values in each row, with the darker shading highlighting the highest row value. Interviewees could give multiple responses and the percentages, based on the row totals, can therefore total over 100.

Activity	Spring (Mar-May)	Summer (Jun-Aug)	Autumn (Sept-Nov)	Winter (Dec-Feb)	Equally all year	First visit	Total
Lower Derwent	5 (17)	7 (24)	4 (14)	6 (21)	8 (28)	7 (24)	29 (100)
Skipwith Common	3 (14)	3 (14)	3 (14)	1 (5)	14 (67)	2 (10)	21 (100)
Total	**8 (16)**	**10 (20)**	**7 (14)**	**7 (14)**	**22 (44)**	**9 (18)**	**50 (100)**

5.11 Nearly half (46%) of those interviewed had been visiting for at least 10 years (Table 11). There was little in the way of clear differences between sites or activities (Table 12). Those undertaking 'other' activities were the group with the highest percentage (80%) visiting more than 10 years.

Table 11: Number (row %) of interviewees and length of time that they have been visiting (Q7) by site. Grey shading reflects the highest value in each row.

Activity	First visit	less than or c. 6 months	less than or c. 1 year	less than or c. 3 years	less than or c. 5 years	less than or c.10 years	more than 10 years	Total
Lower Derwent	6 (21)	1 (3)	2 (7)	0 (0)	2 (7)	4 (14)	14 (48)	29 (100)
Skipwith Common	2 (10)	0 (0)	0 (0)	2 (10)	3 (14)	5 (24)	9 (43)	21 (100)
Total	**8 (16)**	**1 (2)**	**2 (4)**	**2 (4)**	**5 (10)**	**9 (18)**	**23 (46)**	**50 (100)**

Table 12: Number (row %) of interviewees and length of time that they have been visiting (Q7) by activity. Grey shading reflects the highest value in each row.

Activity	First visit	less than or c. 6 months	less than or c. 1 year	less than or c. 3 years	less than or c. 5 years	less than or c.10 years	more than 10 years	Total
Dog walking	2 (13)	0 (0)	1 (6)	2 (13)	2 (13)	2 (13)	7 (44)	16 (100)
Walking	3 (20)	1 (7)	0 (0)	0 (0)	1 (7)	5 (33)	5 (33)	15 (100)
Bird/Wildlife watching	1 (10)	0 (0)	1 (10)	0 (0)	1 (10)	1 (10)	6 (60)	10 (100)
Other	1 (20)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	4 (80)	5 (100)
Cycling / Mountain Biking	0 (0)	0 (0)	0 (0)	0 (0)	1 (50)	0 (0)	1 (50)	2 (100)
Picnic	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (100)
Photography	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (100)	0 (0)	1 (100)
Total	**8 (16)**	**1 (2)**	**2 (4)**	**2 (4)**	**5 (10)**	**9 (18)**	**23 (46)**	**50 (100)**

Mode of transport (Q8)

5.12 Overall, most (90%) of interviewees had travelled by car, with only small numbers arriving on foot (4%), by bicycle (4%) or by bus (1%). The majority of survey effort was focussed at car-parks, however both Skipwith Common and the Lower Derwent valley have low levels of housing near the entry points and therefore few people within easy walking or cycling distance. Cars were the main mode of transport at all survey points (Figure 4). The interviewee that had travelled by bus was part of the geology fieldtrip at Skipwith Common and the bus was on hire rather than public transport.

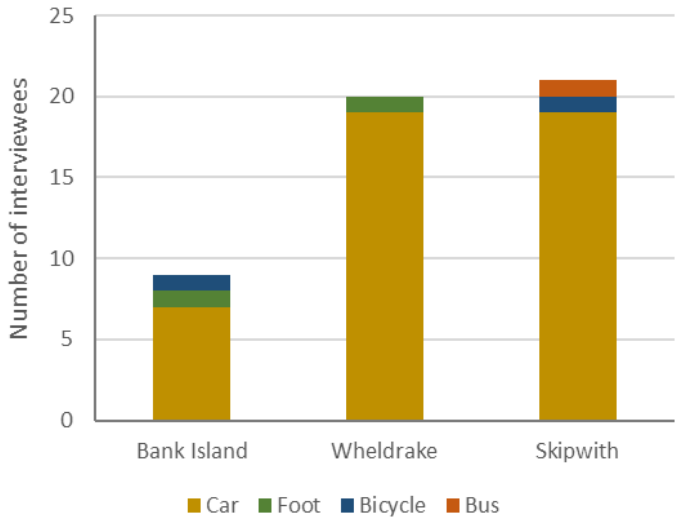


Figure 4: Numbers of interviewees by mode of transport (Q8) and survey point.

5.13 Group size for those arriving by car ranged from 1 (i.e. the interviewee visiting on their own) to 4, and the mean car-occupancy was 1.8 people per vehicle for the Lower Derwent and 1.6 for Skipwith Common.

Reasons for site choice (Q13)

5.14 Reasons for site are summarised in Figure 5. Interviewees were asked why they chose to visit the specific location where interviewed, rather than another local site, with answers categorised by the surveyor using pre-determined categories which were not shown to the interviewee. One main reason was identified, and multiple 'other' reasons could be recorded. Overall the scenery/variety of views was the most common given reason, cited by 42% of interviewees (across both the Lower Derwent and Skipwith survey points). Close to home was also important and given by 31%. Close to home was however very clearly the most common single main reason, with 14% of interviewees stating close to home was the single main reason for underpinning their choice of site.

5.15 There were some differences between the two European sites. Close to home featured much more strongly as a reason at Skipwith Common, where it was cited as frequently as the scenery/variety of views. Skipwith Common was chosen by 7 interviewees because it was good for the dog yet this reason was not recorded for the Lower Derwent sites. The particular wildlife interest at the Lower Derwent was a draw for many, and further details that were recorded highlighted species such as Osprey and Wood Sandpiper that visitors were keen to see.

5.16 25 interviewees (50%) gave other reasons for their choice, and these were varied, including recommendations on the Selby District website, recommendations on a geo-caching app, "for a survey", volunteering, passing en route to Selby Hospital, "free to fish", and for at least three interviewees there was an element of exploration, either exploring the local area, looking for somewhere to picnic etc. The geology group at Skipwith Common were (unsurprisingly) drawn by the geological interest of the site.

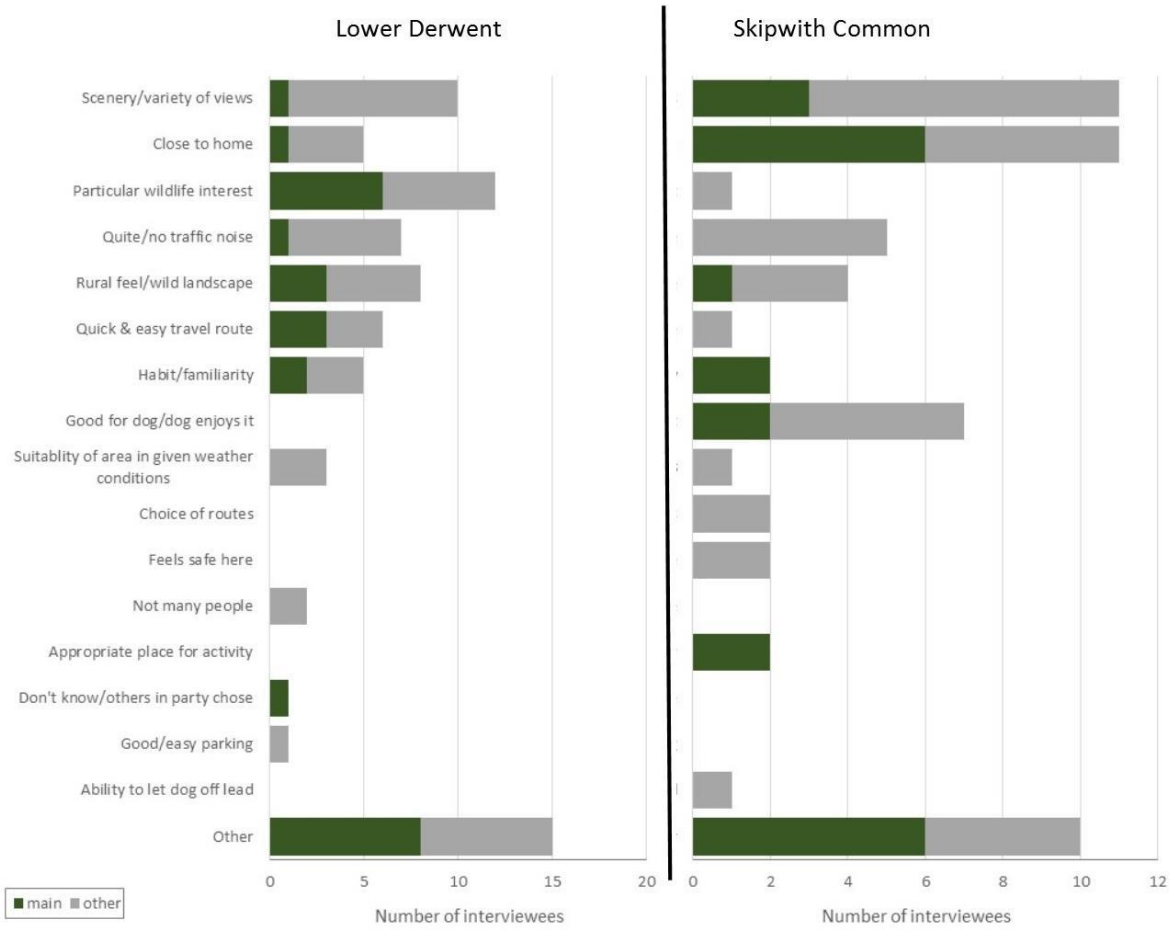


Figure 5: Reasons for site choice (Q13).

Use of other sites (Q14–15)

5.17 It is to be expected that people will tend to visit a range of greenspace sites for recreation. Very few (4%) of interviewees stated that all their visits (for the activity they were undertaking when interviewed) took place at the site where interviewed (Table 13). There were some potential differences between European sites, with 34% of the interviewees at Skipwith indicated that at least three-quarters of their weekly visits (for the given activity) took place there. By contrast, at the Lower Derwent the figure was 13% of interviewees. At the Lower Derwent over half of interviewees (55%) indicated less than 25% of their visits were to the site – while for Skipwith the equivalent total was a third (33%) of interviewees. These results suggest slightly more faithful visitors at Skipwith Common.

5.18 Other sites visited are listed in Table 15. The question asked the interviewee which one site they would have visited instead and a wide range of locations were listed, very few more than once. The table includes all named alternatives that could be attributed to a particular location.

Table 13: Table 14: Number (row %) of interviewees and proportion of weekly visits (Q14) by European site. Grey shading reflects the highest two value in each row.

European site	All take place here	75% or more	50-74%	25-49%	less than 25%	Not sure/don't know/first visit/no response	Total
Lower Derwent	1 (3)	3 (10)	3 (10)	1 (3)	16 (55)	5 (17)	29 (100)
Skipwith Common	1 (5)	6 (29)	0 (0)	4 (19)	7 (33)	3 (14)	21 (100)
Total	**2 (4)**	**9 (18)**	**3 (6)**	**5 (10)**	**23 (46)**	**8 (16)**	**50 (100)**

Table 15: Other sites visited (Q15) by European site.

Site name	Lower Derwent	Skipwith Common
Askham Bog	2	1
Balby		1
Bayford Common	1	
Bishops Wood	1	2
Blacktoft Sands	1	
Blackwoods	1	
Brayton Baff		1
Bubwith		1
Castle Howard	1	1
Dalby Forest	1	
Donnington	2	
Eastrington Ponds		1
Esrick Park Estate	3	
Filey		1
Flamborough Head	1	
Harrogate		1
Millington Dale		1
North Cave Wetlands	1	
North Duffield Carrs		1
Pocklington		1
River Foss	1	
Skipwith	1	
Strensall Common		1
Westfield	1	1

Site name	Lower Derwent	Skipwith Common
Wheldrake Ings	1	
Wheldrake Woods	2	
York		1
Total	**22**	**16**

Visitor origins (Q18)

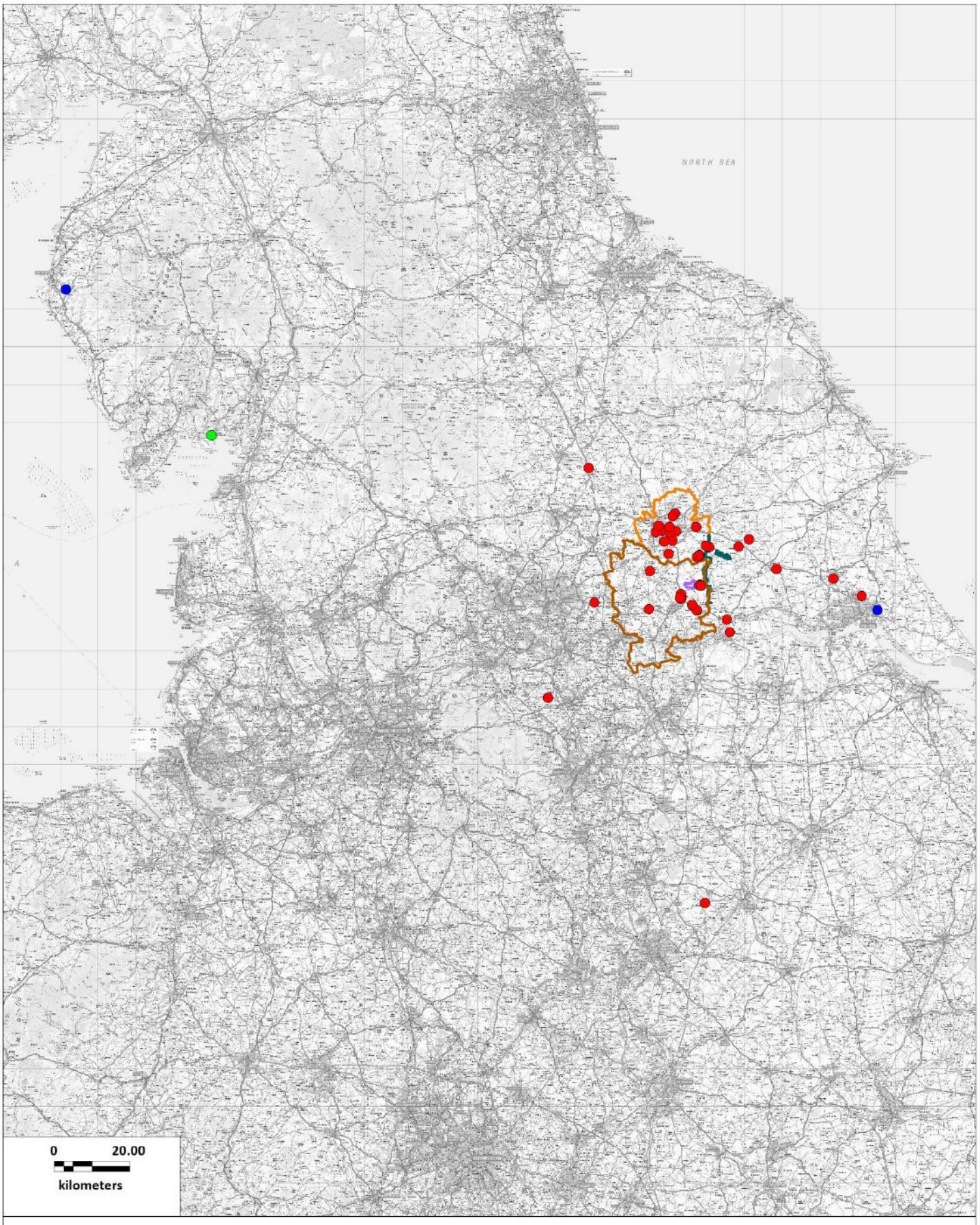
5.19 A total of 48 interviewee postcodes could be accurately mapped, with the full postcode given in the interview matching the standard national postcode database. A total of 2 (4%) of interviews were therefore not assigned to a home postcode.

5.20 Postcode data are mapped in Maps 4-7. Map 4 shows all visitor postcodes, and it can be seen that there they cover a wide area, including visitors from Cumbria and near Nottingham. Two of the more distant postcodes (from Hull and from Cumbria) reflected interviewees staying away from home, for example on holiday.

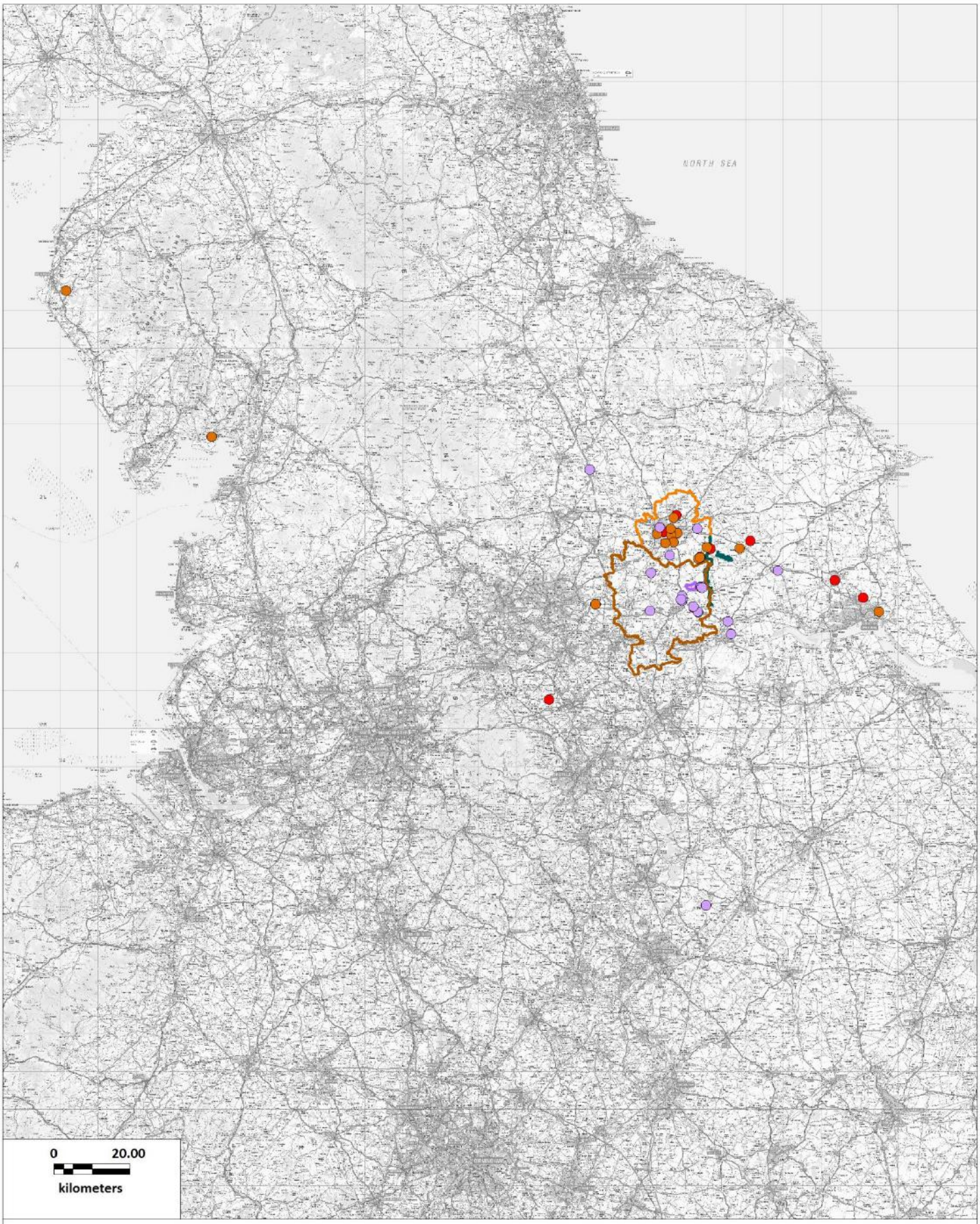
5.21 Map 5 shows the postcode data by survey point and the two relevant local authority boundaries are shown. 19 interviewee postcodes (40%) were within the City of York and these were mostly people interviewed at Wheldrake Ings (13 interviewees), with 3 interviewees from York at Bank Island and 3 at Skipwith Common). There were 14 interviewees (27%) from Selby District, and these were mainly interviewed at Skipwith Common where 12 interviewees were from Selby. Only 1 interviewee at both Wheldrake and Bank Island were from Selby District.

5.22 Maps 6 and 7 show a smaller geographic area (7 interviewee postcodes lie outside the area covered in the map). Map 6 shows postcodes by activity, and a notable cluster of local dog walkers is evident around Skipwith Common, including residents of Barlby, Osgodby, North Duffield, Cliffe and Hemingborough. Map 7 shows the same data, with shading reflecting frequency of visit. This highlights how little very regular use of the two sites there is, with for example daily visitors to Skipwith originating from North Duffield and Barlby only. None of the cluster of interviewees at Wheldrake who visit the Lower Derwent visit daily and only 2 visit most days.

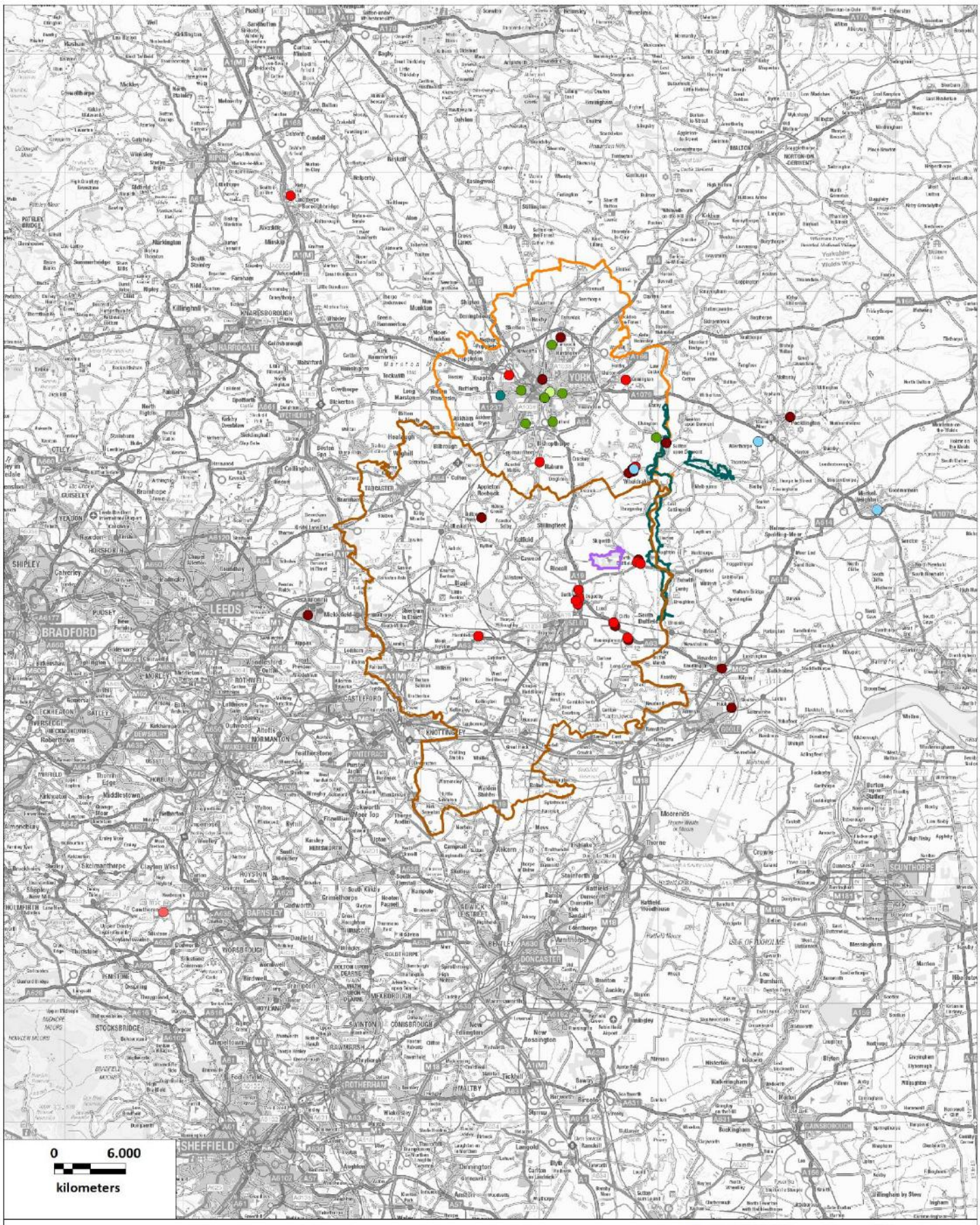
Map 4: All postcodes by visitor type



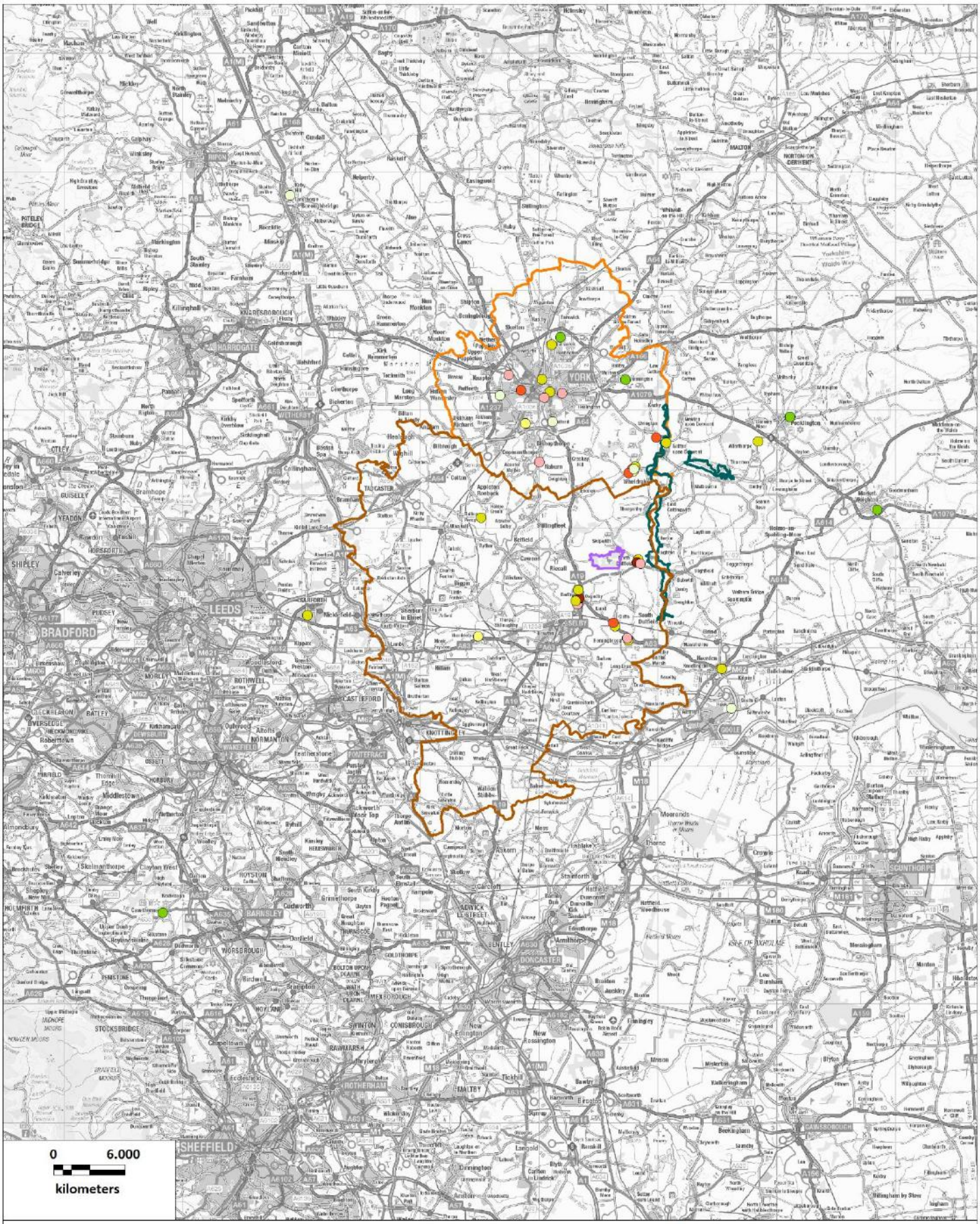
Map 5: All postcodes by survey point



Map 6: Postcodes by activity (note 7 postcodes outside map window)



Map 7: Postcodes by frequency of visit (note 7 postcodes outside map window)



5.23 The straight-line distance ('as the crow-flies') from the interviewee's home postcode to the survey point was calculated for each of the 48 interviewee postcodes and the data are summarised in Table 16. It can be seen that across all the data the mean distance was 20.8km and the median was 11.7km; i.e. 50% of interviewees had come from a radius of 11.7km around the survey points. The mean is so much higher than the median as there are a few large values that skew the data. The third quartile (75th percentile) was 15.5km; 75% of interviewees lived within this distance of the survey points.

5.24 Looking at particular subsets of the data, given in Table 16, it can be seen that if holiday makers and those staying with friends and family are excluded (i.e. the data are limited to day visitors from home only), the median is much lower at 10.9km and 75% of visitors came from a radius of 13.9km. Dog walkers are local, with a median distance of 5.7km. Comparing between survey points, Skipwith Common (median 8.8km) is lower than Wheldrake Ings (median 11.2km) and Bank Island (median 13.2km).

Table 16: Summary statistics for the straight-line distance between the home postcode and survey point for different groups of interviewees. Shading and dark lines separate different types of grouping. N is the sample size (number of valid postcodes) and Q3 is the 75th percentile.

Variable/type of interviewee	N	Distance (km)				
		Mean (+ 1SE)	Min	Median	Q3	Maximum
All interviewees with valid postcode	48	20.78 (± 4.81)	1.39	11.69	15.53	181.83
Day visitors from home only	44	12.53 (± 1.78)	1.39	10.87	13.85	55.00
Dog walkers	15	12.24 (± 3.61)	1.39	5.66	14.80	47.47
Wheldrake Ings	19	26.83 (± 11.03)	1.58	11.16	14.42	181.83
Bank Island	9	22.04 (± 5.89)	2.99	13.23	38.78	55.00
Skipwith Common	20	14.49 (± 4.02)	1.39	8.80	15.53	84.07

5.25 In Table 17 we show the number of interviewees within different distance bands (concentric rings) drawn around the outside of the two European sites2. We also give the number of residential properties in each band, extracted from 2017 postcode data. Clearly the home postcodes of interviewees will reflect where there are houses present and in general it would be expected that people who live further away would visit less. In

[2] The distance bands were drawn separately around Skipwith Common SAC and the Lower Derwent SPA

Table 17 we also calculate the number of visits per residential property. The data are summarised visually in Figure 6.

5.26 It can be seen that the amount of housing around the Lower Derwent SPA rises steadily across successive distance bands, and the high levels of housing in the outer bands (beyond 8km) reflect the location of York and Selby. The SPA is long and thin and the buffers extend over a wide area. Compared to Skipwith Common (note the different axis scales in the Figure) the Lower Derwent has many more houses within a kilometre, this is due to the scale of the site and a range of small settlements spread over a wide area, including Thorganby, Melbourne, Wheldrake and Bubwith. Around Skipwith there are relatively few properties in the initial bands and the marked peak between 5 and 6km reflects the location of Selby.

5.27 The interviews per property are low or zero for both sites in the first distance band. This is likely to be a reflection of the low amount of housing in the first band and the location of that housing in relation to the survey points. The plots suggest a decline in visit rate with distance but there is some considerable scatter, potentially an artefact of the small sample sizes. We have fitted the same trendline to both graphs, with the fitted line commencing after 1km. These plots suggest people living within 5km are much more likely to visit than those further away and that beyond 5km there is little difference in visit rate with distance, i.e. we would anticipate that a fixed amount of development at 5km, 10km or 15km would have a relatively similar effect on visit rates.

Table 17: Number of current residential properties and interviewees by 500m distance band.

Distance from SPA/SAC	Lower Derwent			Skipwith		
	Number of interviewees	Number of residential properties	Interviews per property	Number of interviewees	Number of residential properties	Interviews per property
0-1000	2	2617	0.00076	0	181	0
1000-2000	5	1111	0.0045	3	869	0.00345
2000-3000	0	1674	0	2	1858	0.00108
3000-4000	2	2038	0.00098	2	906	0.00221
4000-5000	0	2805	0	1	1759	0.00057
5000-6000	0	5588	0	1	6071	0.00016
6000-7000	2	6676	0.0003	1	5419	0.00018
7000-8000	0	7956	0	0	1900	0
8000-9000	2	16814	0.00012	1	1943	0.00051
9000-1000	1	23557	0.00004	1	2261	0.00044

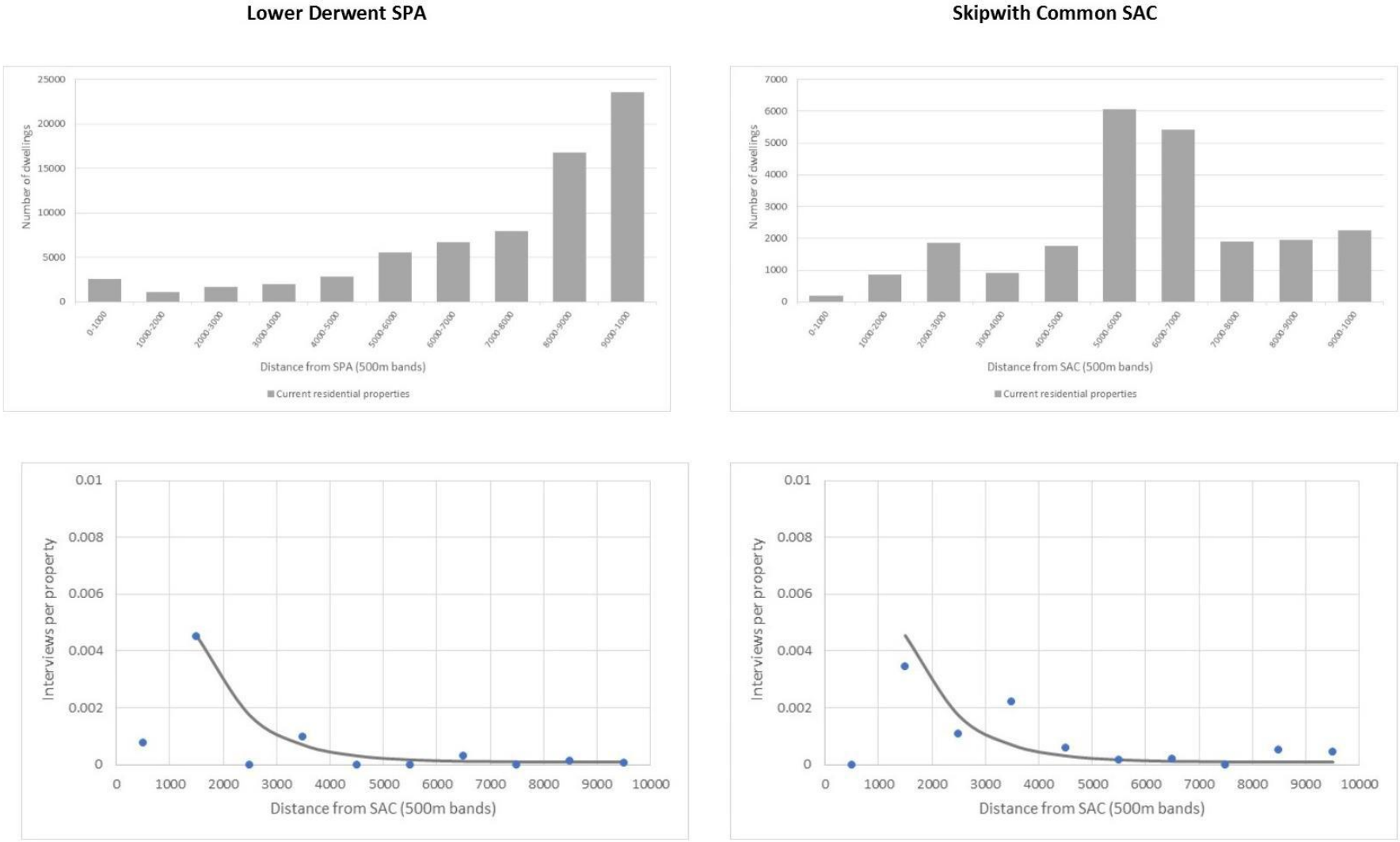


Figure 6: Levels of current housing per 1km distance band (upper graphs) and interviews per property in relation to distance (lower grpahs). Interviews per property is calculated by dividing the number of interviewees who originated in each 1km band by the number of residential properties in the band. Trendline fitted manually by eye. Lower Derwent $Y=0.02e^{-0.001x} + 0.0001$. r2 = 0.887; Skipwith Common: $Y=0.02e^{-0.001x} + 0.0001$. r2 = 0.852.

Visitor routes during their visit (Q9-12)

5.28 For 37 interviewees (74%) the route they took was either reflective of their normal route, they were on their first visit or didn't have a typical route (Q9). Of those whose route was not reflective of a typical route, 10 interviewees (20%) indicated it was much shorter than normal and 3 interviewees (6%) indicated their route was much longer than normal.

5.29 Around a third (16 interviewees, 32%) of those interviewed were following a marked trail, this was particularly the case at Wheldrake Ings where 10 interviewees (i.e. 50% of those interviewed there) were following a marked route. Across all sites 6 interviewees (12%) were unsure and 28 interviewees (56%) were not following a marked route.

5.30 A range of factors influenced the interviewees' choice of routes (Figure 7). Across all sites, previous knowledge/experience was the most commonly cited reason, however it was particularly cited at Skipwith Common given by 11 interviewees. Following a marked trail and viewpoints/features were particularly important at the Lower Derwent compared to Skipwith. Other factors included the most direct route to the hides, the presence of particular species and the "time of year meaning it was allowed to walk on the grass" on the Lower Derwent. At Skipwith Common other reasons cited included doing a circular route, there being "no tarmac on the other path" and the location of geo-caches. For a few interviewees at both sites other reasons included just wanting to explore, an element of just following a path to see where it went, reflecting the relatively high proportion of infrequent and first-time visitors.

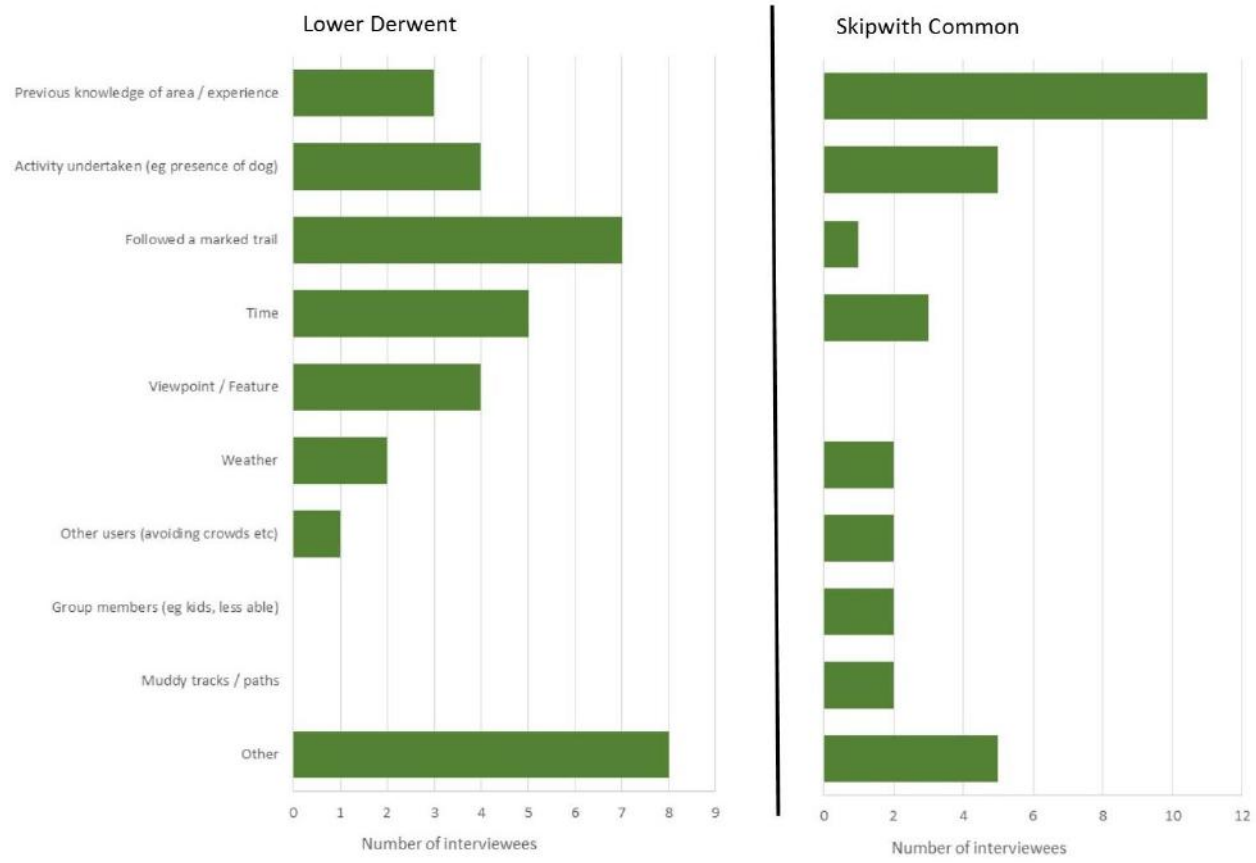


Figure 7: Factors influencing choice of route (Q12). Note interviewees could give multiple responses.

5.31 A total of 50 routes were mapped, with a line showing the route taken by the interviewee. The mean route length as mapped was 3.04km (± 1SE of 0.28km), with a median of 2.5km. Routes ranged from 314m to 7.91km. Route length data are summarised by survey point in Figure 8. The median route length was highest at Wheldrake Ings (4.10km) and lowest at Skipwith Common (2.34km), the differences were not however significant (Kruskal-Wallis H=1.17, 2 d.f., p=0.557).

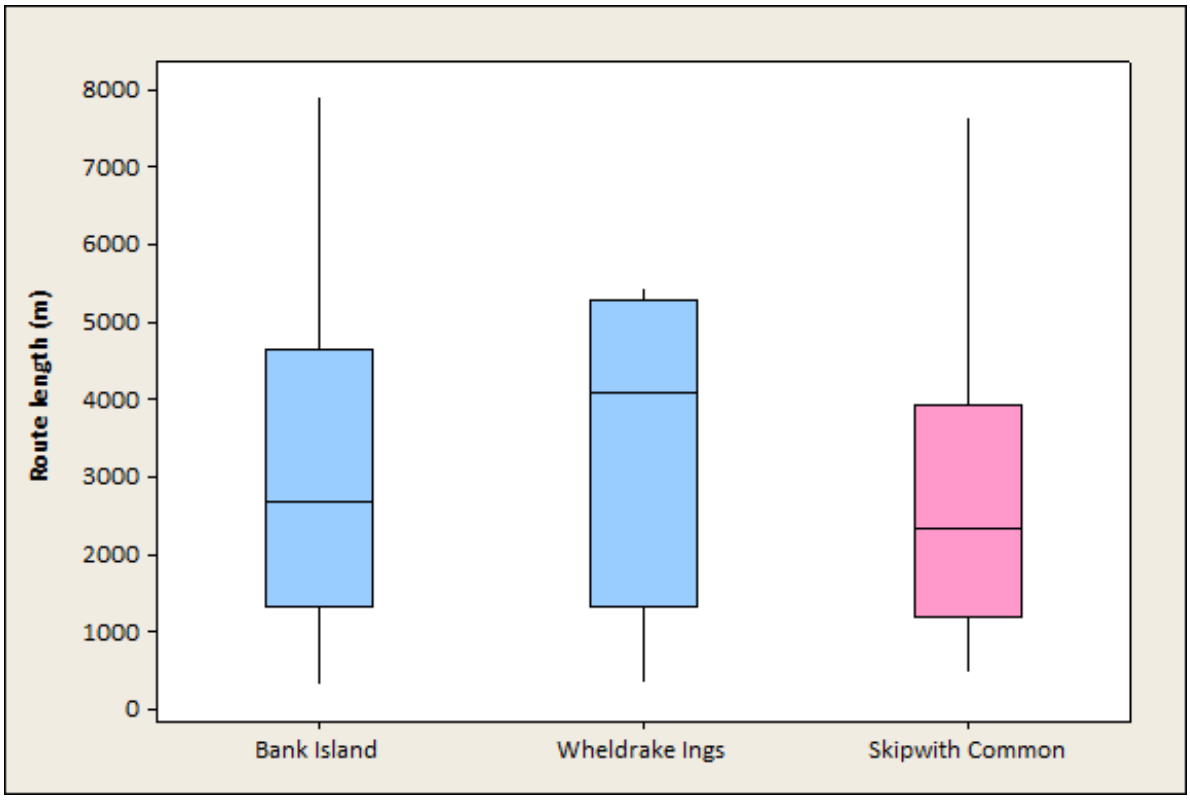
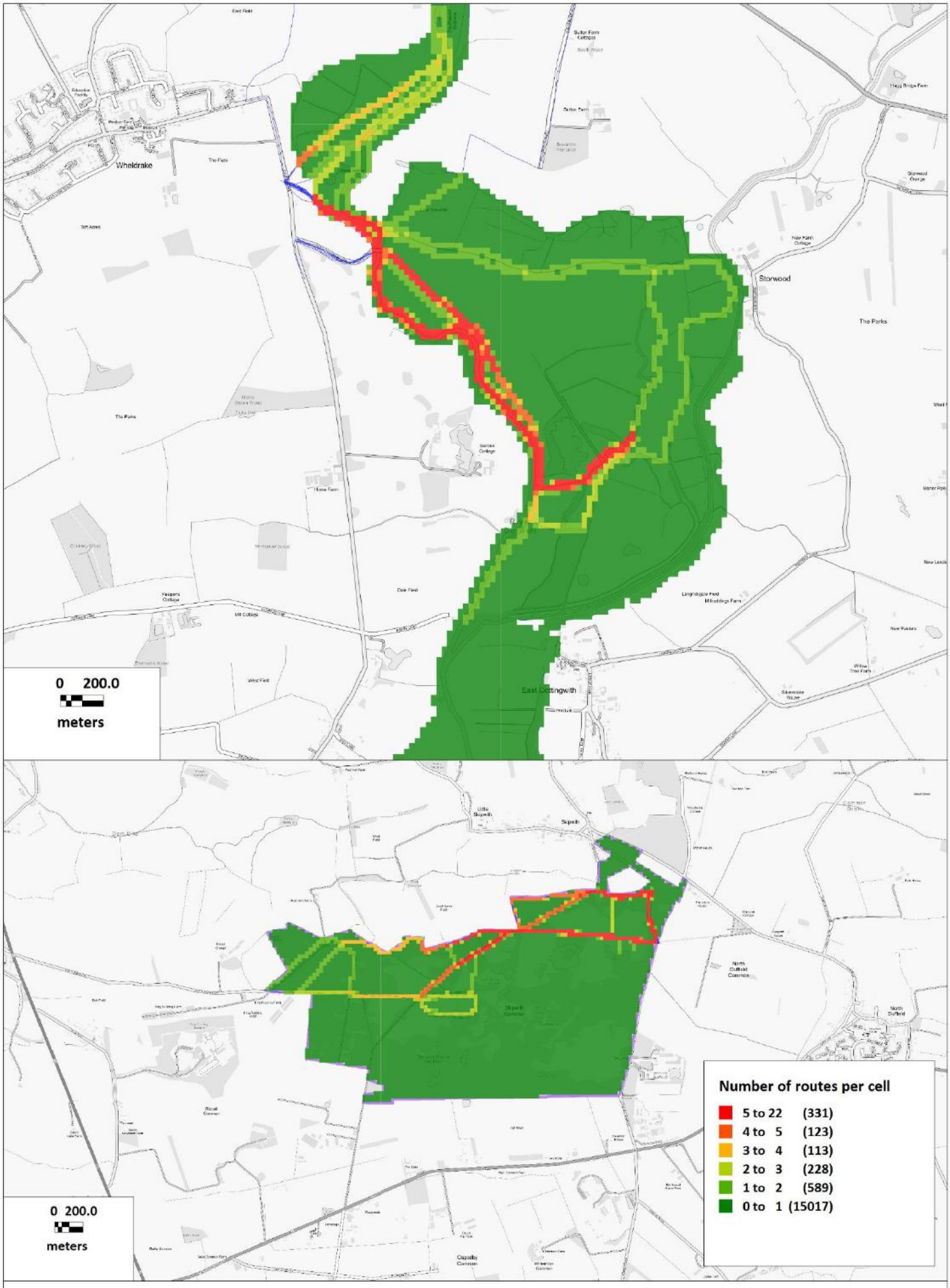


Figure 8: Box plot showing route lengths for all interviewees at each survey point. Blue shading reflects the two Lower Derwent sites. Horizontal lines show the median, boxes show the inter-quartile range and whiskers reflect the limit of the data.

5.32 The mapped routes are shown in Map 8, where we have shown route density within the two European sites based on a 25m grid. It is often challenging for interviewees to describe where they have walked, even if shown a map and the routes are therefore approximate but give a feel for how visitors use each site. We have summarised them using the 25m grid as a way of highlighting areas with the most use and broadly indicating where the most footfall (of the interviewees) occurs. At Bank Island and Wheldrake Ings the data show people moving along the river between the two survey points and at Wheldrake Ings the route to the hides is the key focus, with some visitors following the river bank and others walking directly across the field.

5.33 At Skipwith the routes walked largely reflect the marked routes, including the 'Hidden Archeology' route and the Bombs and Lizards route that includes the Bomb Bays loop.

Map 8: Interviewee routes on 25m grid



Comments/views on recreation management (Q16-17)

5.35 The last part of the questionnaire included free text boxes for the surveyors to log any changes interviewees would like to see regarding how the site is managed for recreation and people (Q16). The subsequent question asked for any further comments or feedback about the interviewee's visit (Q17). All comments are listed in Appendix 2 (Q16) and Appendix 3 (Q17) and we summarise a selection of themes or particular comments below, by survey point.

5.36 Bank Island:

- 2 interviewees suggested they would like to see a café and another stated they would not like to see it commercialised or have a café
- 1 interviewee commented that with native corncrakes the site should have a higher profile
- 1 interviewee commented that they would like to see water in pools for longer in the summer

5.37 Wheldrake Ings:

- 4 interviewees liked the site as it was and appreciated the quiet
- 2 interviewees commented they would like to be able to walk dogs on the riverside path
- 2 interviewees wanted better access to the river or views of the river. One of these wanted access to fish
- 2 interviewees commented that toilets would be good
- 1 interviewee would like to see more hides and another commented that they would like to be able to get closer to the hides by car

5.38 Skipwith Common:

- 6 interviewees commented on parking/vehicle access, mostly positively with interviewees clearly appreciating the ability to park in different locations and access parts of the site by car; 2 interviewees commented that car-parks were easy to miss.
- 4 interviewees commented negatively about dog-related issues, 2 wanting to see more clearing up of mess/bins and 1 commenting on issues with livestock.
- 1 interviewee suggested they would like to see a food truck in the summer
- 1 interviewee liked "seeing the livestock around"
- 1 interviewee commented the site was busier with too many people visiting now

- 3 interviewees suggested more for children – with two suggesting more interpretation on history etc. and 1 suggesting a wild play area with ropes.

6. Discussion and implications

6.1 This report was commissioned to further understand the recreational use of Skipwith Common and the Lower Derwent and to consider implications for the European site interest as a result housing development and an increased local population.

6.2 The results show that the two sites are used for a variety of recreational activities, but the data suggest relatively low levels of use. There were some differences between the Lower Derwent and Skipwith Common.

6.3 On the Lower Derwent the car counts covered a number of different dates and counts were generally low. The tally data and the number of interviews collected both point to relatively few people visiting; no interviews were conducted at one car-park over 16 hours in which a surveyor was present. The number of dogs and dog walkers recorded on the Lower Derwent sites were particularly low and a high proportion of visitors had come from a wide area, drawn by specific wildlife interest. In general, we would potentially expect such visitors to be aware of the nature conservation issues and keen to use the hides and marked trails. The SPA is relatively rural, without lots of fringing urban development and the number of entry points to the SPA is limited. The entry points themselves are typically well managed nature reserves, promoted as such and not likely to draw high volumes of people for casual recreation, daily dog walks, running etc.

6.4 At Skipwith Common there were also relatively low levels of access recorded. The site is relatively tucked away and the car-parks not necessarily easy to find. The interview data did however– in contrast to the Lower Derwent sites – show use by local residents for dog walking, but the interviews seemed to pick up relatively few very regular visitors. Out of the 21 interviewees at the site, 2 visited daily and 1 most days. This, combined with the housing data (see Figure 6) would suggest that the site does not necessarily have a large pool of local residents who visit on a very frequent basis

Potential issues from access

6.5 There are a range of ways in which recreation access at the different sites may have an impact on the nature conservation interest. These are summarised in Table 18.

Table 18: Summary of mechanisms by which recreational access may affect the European site interest, drawing from discussions with relevant land managers, site visits and literature on recreation impacts (e.g. Lowen *et al.* 2008; Liley *et al.* 2010)

Potential issues	Lower Derwent SPA	Lower Derwent SAC	Lower Derwent Ramsar	Skipwith Common SAC
Disturbance to wintering waterbirds	✓		✓	
Disturbance to breeding Shoveler	✓			
Disturbance to otters		✓		
Conflicts with grazing management through dogs off-leads, disturbance to livestock, gates left open etc.	✓	✓	✓	✓
Nutrient enrichment (dog fouling)		✓	✓	✓
Trampling (leading to vegetation wear, erosion etc.)		✓	✓	✓
Damage to infrastructure, from wear & tear, vandalism etc.	✓	✓	✓	
Contamination of pools (e.g. from dogs)				✓

6.6 Recreation is raised as an issue in Natural England's Site Improvement Plan for both sites, and these plans raise areas of particular concern. For the Lower Derwent Valley[3], public access/disturbance is considered a potential threat to the site rather than a current pressure and the plan highlights that public access along Public and non-Public Rights of Way (particularly flood banks) is causing increasing disturbance to birds. For Skipwith Common[4], public access and disturbance is listed as a current pressure and ranked first among all the issues listed for the site. The report highlights that most of the Common is access land, with large numbers of visitors, many with dogs. Uncontrolled dogs affect site management through stock worrying and loss of stock to dog attacks. This has the knock-on effect of threatening future grazing management. If the site was unable to be grazed this would adversely affect the wet and dry heath communities.

6.7 Clearly both sites are potentially vulnerable to recreation pressure and the issues are slightly different. On the Lower Derwent Valley concerns about future recreation from local development will to relate to people straying from rights of way, following banks or other potential routes that bring them

[3] See Natural England website for details
[4] See Natural England website for details

close to the areas important for birds. Parking is quite limited and the main access points are managed as nature reserves and promoted as such. The visitor data presented here would suggest there is relatively little cause for concern from recreation, however it is important to recognise that the surveys took place when the sensitive wildlife features are not necessarily present. Were the surveys to be undertaken in mid-winter (when the valley is flooded) or spring/summer there may be different patterns of use.

6.8 Relatively few local residents are likely to be keen wildlife watchers but significant amounts of housing in the wider catchment of the site (say approximately 15km based on the 75th percentile figure for Wheldrake Ings in Table 16) may result in more use by birders and other naturalists. As such concerns are likely to be relatively minimal and low key. Long term solutions to ensuring any impacts are contained will relate to:

- Ensuring access off Public Rights of Way is restricted through barriers, fences and signage. This could simply involve reactive approaches to restrict any new routes or desire lines if/when they appear.
- Screening any existing public rights of way where there is a risk of disturbance causing problems. Screening could involve scrub, banks or reed screens/fencing etc.
- Maintaining the existing infrastructure for wildlife watchers, e.g. hides and paths such that they can accommodate for the numbers of visitors and minimise impacts.

6.9 At Skipwith Common the concerns in particular relate to dog walking and dogs off leads. There is also an area of bike jumps and mounded earth near the bomb bays loop which suggests use by mountain bikes/BMX and this could be of concern if it spreads more widely or causes damage.

6.10 There are numerous parking locations and a range of entry points, however much of the site is quite wet and access is therefore limited and there appears (e.g. Map 8) to be little access to the south-eastern corner of the site. While we recorded low levels of use, it is important however to note that there was some rain while the interviews took place, and this may have deterred some visitors. We chose to focus on one survey point at the main car-park on the Cornelius Causeway, and there may have been merit in including the King Rudding Lane car-park in addition, as the car-park count data showed this to be used on occasion (with cars present on 2 of the 6 counts). Our survey recorded no postcodes from residents of Riccall and these may have been picked up from King Rudding Lane.

6.11 Dog walking is the activity of particular concern at Skipwith Common. Dog walkers interviewed at the Common had come from Balby (4), North Duffield (2), Hambleton (1), Hemmingbrough (1), Cliffe (1), Naburn (1), Dunnington (1), York (1) and Boroughbridge (1), with those who lived closer tending to visit more frequently. The site clearly has a wide potential draw for dog walkers and significant development in the local area could create greater pressure on the site. Long term options to manage that pressure could involve:

- Greater promotion of the dog walker ('Canine') car-park on the Cornelius Causeway (this provides walking routes away from the SAC) or improvements to make this more appealing to dog walkers; car-park counts recorded just one car here over the 6 counts;
- Greater wardening presence, engaging with dog walkers, encouraging them to keep dogs on leads and pick-up etc., particularly at times when livestock have just been brought onto the site or other vulnerable times;
- Low-key events aimed at local dog walkers, for example guided walks for dog walkers and their dogs (potentially showing new routes or promoting areas such as around the Canine car-park), meet and greet events etc.
- Developing volunteer ambassadors or similar – ideally local dog walkers – who can help with peer pressure to promote responsible dog ownership.
- Provision of greenspace away from Skipwith, targeted for dog walkers. This will need to replicate the experience at Skipwith Common, for example the median route length of 2.3km. Such an approach is likely more relevant at Skipwith Common compared to the Lower Derwent Valley, due to the particular issues with dogs and grazing. The location of any new space in relation to development and how the site is promoted will be critical to its effectiveness.

6.12 At both the Lower Derwent and Skipwith Common long-term monitoring of visitor numbers and recreation use is recommended. Car-park counts could form the basis of such monitoring and the data here provide a baseline. Future visitor survey work, including car-park counts would perhaps best be targeted to include the winter period at the Lower Derwent Valley. The current results are adequate to inform HRA work for the relevant Local Plans: the results suggest little use of the valley besides those visiting to see wildlife. This pattern is unlikely to change in the winter, when access is potentially harder and more challenging. Nonetheless, access patterns can

change over time and it is clear from the comments from visitors that there is some desire for further facilities – for example increased commercialisation, café, toilets, visitor centre and different access (e.g. dogs at Wheldrake). Over time these pressures may grow and any change in the facilities may change how visitors use the two sites. Monitoring will allow checks at Local Plan review.

Key findings in relation to relevant HRAs

6.13 Drawing from the above, we would suggest that there is the potential for Likely Significant Effects from development for both the Lower Derwent Valley SPA and Skipwith Common SAC. At plan-level HRA the results presented here should be sufficient to rule out adverse effects on integrity for both sites with respect to recreation for any single development alone, unless it is of a large scale and within close proximity of the relevant sites (within 1km). It should also be possible to rule out adverse effects on integrity relating to recreation pressure, for the quantum of development as a whole (i.e. in-combination), however it is recommended that checks are in place to make sure necessary monitoring and review are included within the Plans. Such monitoring will need to include targets such that, should particular changes be recorded, necessary mitigation and avoidance measures (as suggested here) can be establish before any harm to the European sites. We suggest that Skipwith Common is the more vulnerable of the two sites, due to the particular issues relating to dogs of leads and grazing.

Appendix 1: Questionnaire

Good morning/afternoon. I am conducting a visitor survey on behalf of City of York Council and Selby District Council, who are interested in gathering visitor's views about this site and how they use it. Can you spare me a few minutes please?

Q1 ...

- ◯ **Are you on a day trip/short visit and have travelled directly from your home today**... *if no*
- ◯ **Are you on a short trip/short visit & staying away from home with friends or family** ... *if no*
- ◯ **Are you staying away from home, e.g. second home, mobile home or on holiday**
- ◯ If none of the above, **How would you describe your visit today?**

Further details

Q2 **What is the main activity you are undertaking today?** *Tick closest answer. Do not prompt. Single response only.*

- ◯ Dog walking
- ◯ Walking
- ◯ Jogging / power walking / running
- ◯ Outing with family
- ◯ Cycling / Mountain Biking
- ◯ Bird / Wildlife watching
- ◯ Enjoying scenery / fresh air
- ◯ Photography
- ◯ Meeting up with friends
- ◯ Picnic
- ◯ Horse riding
- ◯ Other, please detail:

Further details

Q3 **Over the past year, roughly how often have you visited this site?** *Tick closest answer, single response only. Only prompt if interviewee struggles.*

- ◯ Daily
- ◯ Most days (180+ visits)
- ◯ 1 to 3 times a week (40-180 visits)
- ◯ 2 to 3 times per month (15-40 visits)
- ◯ Once a month (6-15 visits)
- ◯ Less than once a month (2-5 visits)
- ◯ Don't know
- ◯ First visit
- ◯ Other, please detail

Further details:

Q4 **How long have you spent / will you spend at this site today?** *Single response only.*

- ◯ Less than 30 minutes
- ◯ Between 30 minutes and 1 hour
- ◯ 1-2 hours
- ◯ 2-3 hours
- ◯ 3-4 hours
- ◯ 4 hours +

Further details

Q5 **Do you tend to visit this area at a certain time of day?** *Tick closest answers. Multiple answers ok.*

- ☐ Early morning (before 7 am)
- ☐ Late morning (between 7 am and 10 am)
- ☐ Midday (between 10 am and 2 pm)
- ☐ Early afternoon (between 2 pm and 4 pm)
- ☐ Late afternoon (between 4 and 6 pm)
- ☐ Evening (after 6 pm)
- ☐ Varies / Don't know
- ☐ First visit

Q6 **Do you tend to visit this area more at a particular time of year for [***insert given activity***]?** *Multiple answers ok.*

- ☐ Spring (Mar-May)
- ☐ Summer (Jun-Aug)
- ☐ Autumn (Sept-Nov)
- ☐ Winter (Dec-Feb)
- ☐ Equally all year
- ☐ Don't know
- ☐ First visit

Q7 **How long have you been visiting this site?** *Single response only. Do not prompt.*

- ◯ Don't know
- ◯ First visit
- ◯ less than or approximately 6 months
- ◯ less than or approximately 1 year
- ◯ less than or approximately 3 years
- ◯ less than or approximately 5 years
- ◯ less than or approximately 10 years
- ◯ more than 10 years

Further details:

Q8 **How did you get here today?** *if necessary prompt with:* **What form of transport did you use?** *Single response only.*

- ◯ Car / van
- ◯ On foot
- ◯ Bus
- ◯ Bicycle
- ◯ Other, please detail

Further details:

Now I'd like to ask you about your route today. looking at the area shown on this map, can you show me where you started your visit today, the finish point and your route please. *Probe to ensure route is accurately documented. Use **P** to indicate where the visitor parked, **E** to indicate the start point and **X** to indicate the exit. Mark the route with a line; a solid line for the actual route and a dotted line for the expected or remaining route.*

Q9 **Is / was your route today the normal length when you visit here for [***insert given activity***]?** *Tick closest answer, do not prompt. Single response only.*

- ◯ Yes, normal
- ◯ Much longer than normal
- ◯ Much shorter than normal
- ◯ Not sure / no typical visit
- ◯ First visit

Q10 **Were you following a marked route or signposted route?** *Tick closest answer, do not prompt. Single response only.*

- ◯ No
- ◯ Not sure/don't know
- ◯ Yes

Q11 If yes**, what was the name or colour of the route you were following?**

Q12 **What, if anything, influenced your choice of route here today?** *Tick closest answers, do not prompt. Multiple responses ok.*

- ☐ Weather
- ☐ Daylight
- ☐ Time
- ☐ Other users (avoiding crowds etc)
- ☐ Group members (eg kids, less able)
- ☐ Muddy tracks / paths
- ☐ Followed a marked trail
- ☐ Previous knowledge of area / experience
- ☐ Activity undertaken (eg presence of dog)
- ☐ Interpretation / leaflets / promotion
- ☐ Viewpoint / Feature
- ☐ Other, please detail

Further details:

Q13 **Why did you choose to visit this specific location today, rather than another local site?** *Tick all responses given by visitor in the 'other' column. Do not prompt, tick closest answers. Then ask* **Which single reason would you say had the most influence over your choice of site to visit today?** *Tick only one main reason. Use text box for answers that cannot be categorised and for further information.*

	Other	Main
Don't know / others in party chose	○	○
Close to home	○	○
No need to use car	○	○
Quick & easy travel route	○	○
Good / easy parking	○	○
Particular facilities	○	○
Refreshments / cafe / pub	○	○
Choice of routes	○	○
Feels safe here	○	○
Quiet, with no traffic noise	○	○
Not many people	○	○
Scenery / variety of views	○	○
Rural feel / wild landscape	○	○
Particular wildlife interest (including trees)	○	○
Habit/familiarity	○	○
Good for dog / dog enjoys it	○	○
Ability to let dog off lead	○	○
Closest place to take dog	○	○
Closest place to let dog safely off lead	○	○
Appropriate place for activity	○	○
Suitability of area in given weather conditions	○	○
Presence of water	○	○
Other, please detail	○	○

Further details:

I would now like to ask about other local sites that you visit for [*given activity*].

Q14 **What proportion of your weekly visits for** [given activity] **take place at here compared to other sites. Can you give a rough percentage?** *Do not prompt*

- ◯ All take place here
- ◯ 75% or more
- ◯ 50-74%
- ◯ 25-49%
- ◯ less than 25%
- ◯ Not sure/don't know/first visit

Q15 **Which one location would you have visited today if you could not visit here?** *Do not prompt, tick closest answer.*

- ◯ Not sure/ Don't know
- ◯ Nowhere/ wouldn't have visited anywhere
- ◯ Site Named:

Record site name:

Q16 **Are there any changes you would like to see here with regards to how this area is managed for recreation and people?** *Do not give options*

Q17 **Do you have any further comments or general feedback about your visit and access to this area?**

Q18 **What is your full home postcode?** *This is an important piece of information, please make every effort to record correctly.*

Q19 *If visitor is unable or refuses to give postcode:* **What is the name of the town or village where you live?**

Q20 *If visitor is on holiday ask:* **Which town / village are you staying in?**

That is the end. Thank you very much indeed for your time.

Q21 **TO BE COMPLETED AFTER INTERVIEW FINISHED.**

Surveyor initials	
Survey location code	
Map Reference Number	
Gender of respondent	
Total number in interviewed group	
Total males	
Total females	
Total minors (under 18)	
Total number of dogs	
Number of dogs seen off lead	

Q22 **Surveyor comments**. *Note anything that may be relevant to the survey, including any changes to the survey entry that are necessary, eg typos/mistakes/changes to answers/additional information.*

Appendix 2: Responses to Q16, are there any changes you would like to see here with regards to how this area is managed for recreation and people?

All responses are listed below. These were typed as part of the interview and often it was necessary to paraphrase, as such the comments do not necessarily reflect the precise words stated by the interviewee. Dark blue shading reflects comments recorded at Bank Island, paler blue from Wheldrake Ings and pale green from Skipwith.

Don't know
Don't make it commercial. Don't have cafe.
Leave the grass longer in the valley keeps the water longer.
Natural England more proactive in promoting the site. Cafe would be great. No visitor centre
Needs a circular route. Needs a cafe
Toilets not open
Allow dogs onto the path
Better access to the river banks, used to be much more accessible for fishing, now only one access next to the bridge.
Clearing around the riverside for people to see the views on the river. Nice to have a circular path.
Could get cars further, closer to the hides, to make it more accessible. Good number of hides.
Don't know enough about it
Happy with changes made to make it less muddy.
I like it quiet
Keep vehicles off the path, or to a minimum. They damage the path and make it dangerous for pedestrians to walk on.
Likes it quiet as it is.
Litter bin, periodically takes litter bags with him. Bench.
No, first visit
No, it is nice that it is so quiet
Tidier car park, allow more cars, more hides
Toilets would be nice
Very satisfying site
Would be nice to be able to walk dogs along the river path
A bit more local history (also for kids), more poo bins to keep the place clean
Education for people with dogs
Good
Like it as it is
Like seeing the livestock around
More for the children (adventure park with logs and ropes), more benches, food truck in the summer
More history boards (also for kids)
More wheelchair and pushchair access, the lane going through the common is full of holes
Nice bird hides
Nice, good management
No
No

Several times had to help sheep stuck in brambles, fences, mud, etc., dog owners not very respectful and a danger to the sheep, have seen a lot of dead sheep over the years...
Some people don't clean up after their dogs, or leave the poo bags on the path
Toilets, especially coming with family
Too many trees have been taken down over the years

Appendix 3: Responses to Q17, further comments or feedback?

All responses are listed below. These were typed as part of the interview and often it was necessary to paraphrase, as such the comments do not necessarily reflect the precise words stated by the interviewee. Dark blue shading reflects comments recorded at Bank Island, paler blue from Wheldrake Ings and pale green from Skipwith.

Don't keep the water and the pools for a long enough time
Feel really lucky to have these facilities. Could do with a more obvious sign on road to advertise it.
Organise school trips to come here.
Important site has native corncrake here so should be managed better, have higher profile
Lived in the area for 15 year and didn't know it was here. Sign on road hard to see. Honesty box to raise funds
Access from the east of the site
All fine.
Better disabled access would be good
Easy access.
Happy as it is
Improvements to approach road (closed by water flooding in winter)
No, easy access
No, first visit
Parking at Bank Island is very easy
Pretty good
Pretty good, well looked after
Signposting is very poor to come to this car park
Stones on the path make it hard to walk on
Toilets at car park would be good, signposting is not brilliant, nearly drove past...
A footpath from North Duffield would be nice
Clear routes, car parking at both ends is good
Dangerous to come out of car park as poor visibility to the left
good car park, easy to miss the entrance and look on the other side of the road towards other car park, sign is overgrown by vegetation
Good car parks, nice as it is
Good parking
Good, car parks are convenient, signage is good in regards to livestock, seems well managed, dog walkers seem respectful.
Great access
No, brilliant access at every entrance
No, too many people coming now, not always respectful of the place!...
Plenty of car parks, several accesses (although road a bit bumpy on the side of industrial area - see map)
Signage is not very good for the car park

Signage is really poor to find this car park, no sign coming from one direction, and sign hidden by vegetation coming from the other direction...
Very good access at different places

D. Strensall Common Visitor Survey

FOOTPRINT ECOLOGY

Visitor surveys and impacts of recreation at Strensall Common SAC.

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Footprint Contract Reference: 489
Date: 12/02/2019
Version: Final
Recommended Citation: Liley, D. & Lake, S., (2019). Visitor surveys and impacts of recreation at Strensall Common SAC. Unpublished report by Footprint Ecology for City of York Council.

Summary

This report, commissioned by City of York Council, presents the results of visitor surveys at Strensall Common Special Area of Conservation (SAC). The survey results show the level of recreation use and current access patterns at the site and how this use relates to local housing. We review how access may impact on the nature conservation interest of the site and consider the potential implications of future housing development in and around Strensall village. The work relates to the York Local Plan and the implications of the housing development set out within the Plan on the designated nature conservation interest of the site.

Survey work involved counts of both people and vehicles and interviews with a random sample of visitors. Habitat mapping and target notes allowed us to consider the extent of current impacts of recreation.

Key findings from the visitor surveys are:

- The total number of parked vehicles around the site at any one time ranged from 4-16 with a mean of 9.7 vehicles. The Galtres car-park was the busiest car park.
- On a typical day in July-September we might expect around 108 vehicles, bringing 173 people a day.
- Counts of people entering the SAC were made at key access points (near the Sewage Works and at the two main car-parks at Scott Moncrieff and Galtres) and in addition automated counters (trail cameras) were used to count the number of people entering at two other, quieter entry points. These totals combined indicate around 17.2 'groups' entering the site on average per hour, or around 206 groups per 12-hour day.
- The counts and cameras indicated use by dog walkers, walkers, joggers, mountain bikes, horse riders.
- 199 interviews were conducted over 64 hours of fieldwork.
- Virtually all (95%) of interviews were with those who had undertaken a day trip/short visit directly from home that day, but the 3% of interviews included people staying away from home with friends/family and some (2%) were on holiday or staying in a second home/mobile home.
- 126 interviewees (63%) had at least one dog with them
- The total number of people in all the interviewed groups was 308 accompanied by 190 dogs; giving a mean of 1.5 people and 1 dog per group.
- The most frequently recorded activity across all survey points was dog walking (70% of interviewees). Other activities included walking (14%), outing with family (6%), jogging (5%), cycling (2%) and meeting with friends (2%).
- Around a third (32%) of all interviewees were visiting daily. Dog walkers were the group who visited the most frequently, with 43% visiting daily and a further 21% visiting most days.
- The majority of visits were short, with most (73%) spending less than an hour on the site.
- Nearly half (43%) of interviewees didn't tend to visit at a particular time of day.

- Most interviewees (78%) indicated that they visited Strensall Common equally all year round, and there was little evidence to suggest particular seasons were favoured by any particular activity group.
- Half (51%) of those interviewed had been visiting Strensall Common for at least 10 years and indicates that the Common is long established as a destination for recreation.
- Overall, two-thirds (67%) of interviewees had travelled by car, with a further 32% arriving on foot and one interviewee (1%) arriving by bicycle.
- The rural feel/wild landscape was the most common given reason underpinning site choice (52% of interviewees). Close to home was also important (51% of interviewees) and was the most commonly given single main reason for choosing Strensall Common as a destination.
- A quarter (25%) of interviewees stated that all their visits (for the activity they were undertaking when interviewed) took place at Strensall Common and for a further third (32%) of interviewees 75% or more of their visits were at Strensall Common.
- Interviewee home postcodes reflect a local catchment for the site, particularly Strensall and nearby settlements (Haxby, Wigginton, Park Estate). There was also a wedge of interviewee postcodes from south of the York bypass towards the city centre, around Earswick and Huntington – these included some regular visitors and a reasonable proportion of dog walkers.
- For those visiting directly from home on a short visit, the median distance ('as the crow flies') between the home postcode and survey point was 2.4km and 75% of visitors came from a radius of 5.5km.
- Dog walkers (median 3km), runners (median 1.7km) and those walking (median 1.45km) were all relatively local and for all these groups the 75th percentile was between 5 and 6km.
- A range of factors influenced the interviewees' choice of routes during their visit at Strensall Common. Time available was the most commonly given response (21%). Weather, previous knowledge/experience and activity undertaken were also common reasons (in all cases 10%). 'Other' reasons were varied but sheep were clearly a factor for many (cited by 12 interviewees).
- Routes were mapped as part of the interview. The mean route length as mapped was 3.7km ($\pm$ 1SE of 0.1), with a median of 3.5km. Routes ranged from 326m to 13.1km. When the route data were clipped to the SAC boundary, the mean was 2.7km ($\pm$ 1SE of 0.1), with a median of 2.5km. Routes ranged from 83m to 9.2km.

Potential housing change and estimates of changes in recreation use

- The allocations within the submission version of the York Local Plan include 6653 dwellings within 7.5km of Strensall Common. This represents approximately a 14% increase in the amount of housing. Some allocations are particularly close to the SAC and we predict a potential increase in housing of 61% within 500m of the SAC. Visit rates from current housing within 500m of the Common are particularly high, indicating that people who live close to the Common visit much more frequently.
- Based on the postcodes of interviewed visitors and the distribution of the housing allocations we predict a 24% increase in access at Strensall Common.

Impacts of recreation at Strensall Common include or potentially include:

- Trampling;
- Increased fire incidence;
- Disturbance to grazing livestock;
- Nutrient enrichment from dog fouling;
- Contamination of ponds;
- Contamination from fly tipping, litter etc.; and
- Damage to infrastructure (gates etc.).

A habitat survey undertaken in September 2018 indicates that recreational impacts are currently evident at Strensall Common, although these are mostly limited in extent and severity and are generally in found in fairly close proximity to the car parks. The most concerning impact is worrying of livestock by dogs, which is already resulting in loss of animals and may jeopardise future grazing. Appropriate grazing will be a vital tool in restoring the SAC to favourable condition.

Given the scale of increase in access predicted from the visitor surveys, the proximity of new development and concerns relating to current impacts from recreation, adverse integrity on the SAC cannot be ruled out as a result of the quantum of development proposed. In addition, for individual allocations that are adjacent to the site it will be difficult to rule out adverse effects on integrity. Mitigation measures are discussed.

Contents

Acknowledgements

This report has been commissioned by the City of York Council. Our thanks to Alison Cooke and Nadine Rolls for overseeing the commission, useful discussion and comments.

We are grateful to Major (retired) Paddy Ennis (Defence Infrastructure Organisation) and James Searle (Yorkshire Wildlife Trust) for access to undertake the various survey work and useful discussion.

We are also grateful to Merlin Ash and Simon Christian (both Natural England), Naomi Eward (Freshwater Habitat Trust) and Phil Wilson for useful background and context and for sharing relevant ecological information, including NVC survey reports and pond information.

Survey work (interviews) was conducted by the following Footprint Ecology field surveyors: Graham Blight, Caroline Hallam, Phil Rotheram and Ben Wray. Fieldwork logistics were overseen by Fenella Lewin (Footprint Ecology) and the route data were digitised by Damiano Weitowitz (Footprint Ecology).

1. Introduction

Overview

1.1 This report has been commissioned by City of York Council to further understand recreational use of Strensall Common, the potential impacts of recreation on the nature conservation interest of the site and any avoidance and mitigation measures necessary to resolve future impacts. The work relates to the submission version of the Local Plan and the implications of the housing development set out within the Plan on the designated nature conservation interest of the site.

Strensall Common

1.2 Strensall Common supports one of the largest areas of lowland heath in northern England. Managed in mostly by the Ministry of Defence (MOD) and in part by the Yorkshire Wildlife Trust, extensive areas of both wet and dry heath occur and form a complex habitat mosaic with grassland, woodlands and ponds. The site is noted for its population of Marsh Gentians and Narrow Buckler-fern and for a range of invertebrates including the Dark Bordered Beauty Moth, for which the common is the only site in England with recent records[1]. The common supports a diverse bird population with breeding Curlew and Woodlark.

1.3 The common is designated as a Site of Special Scientific Interest (SSSI) and also forms part of the Natura 2000 network of European sites, designated as a Special Area of Conservation (SAC) for the heathland habitats (wet and dry heath) present on the site. The SAC boundary (which matches the SSSI boundary) and the location of the site are shown in Map 1.

Legislative context

1.4 The designation, protection and restoration of European wildlife sites is embedded in The Conservation of Habitats and Species and Planning (Various Amendments) (England and Wales) Regulations 2018, which are commonly referred to as the 'Habitats Regulations.' These Regulations are in

[1] There is evidence for a marked decline in the moth in recent years, linked to fire, weather and grazing (see Baker *et al.* 2016)

place to transpose European legislation set out within the Habitats Directive (Council Directive 92/43/EEC), which affords protection to plants, animals and habitats that are rare or vulnerable in a European context, and the Birds Directive (Council Directive 2009/147/EC), which originally came into force in 1979, and which protects rare and vulnerable birds and their habitats. These key pieces of European legislation seek to protect, conserve and restore habitats and species that are of utmost conservation importance and concern across Europe. European sites include Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) classified under the Birds Directive.

1.5 As such, European sites have the benefit of the highest level of legislative protection for biodiversity. Public bodies, including local planning authorities, have specific duties in terms of avoiding deterioration of habitats and species for which sites are designated or classified, and stringent tests have to be met before plans and projects can be permitted. Importantly, the combined effects of individual plans or projects must be taken into account. For local planning authorities, this means that the combined effect of individual development proposals needs to be assessed collectively for their cumulative impact.

1.6 The legislation requires public bodies to be proactive, not reactive. The overarching objective is to maintain sites and their interest features in an ecologically robust and viable state, able to sustain and thrive into the long term, with adequate resilience against natural influences. This requires public bodies to put measures in place to prevent deterioration of European sites, not to wait until there is harm occurring that needs to be rectified. Where European sites are not achieving their potential, the focus of attention by public bodies should be on restoration.

1.7 Public bodies are referred to as 'competent authorities' within the legislation. The duties set out within the Habitats Regulations in relation to the consideration of plans and projects are applicable in situations where the competent authority is undertaking or implementing a plan or project, or authorising others to do so. The assessment process for plans or projects is called a Habitats Regulations Assessment ('HRA').

City of York Local Plan and need for this work

1.8 It is the HRA work for the City of York Local Plan and consultation advice from Natural England that has identified the issue of increased recreational

use on Strensall Common, and consequently the need for survey work and avoidance and mitigation measures to be taken forward.

1.9 The City of York Local Plan was submitted to the Planning Inspectorate in May 2018. The Plan covers the period from 2017 to 2032/33 and sets out provision to accommodate an annual provision of around 650 new jobs and a minimum annual provision of 867 new dwellings over the plan period.

1.10 The HRA that accompanies the submission version of the Plan identified likely significant effects from recreation at Strensall Common SAC, in relation to three policies in the Plan: SS19/ST35, H59 and E18. All three allocations lie immediately adjacent to the SAC (see Map 2); SS19/ST35 provides for 500 new dwellings, H59 for 45 new dwellings and E18 allows for a 4ha employment area. The HRA identified risks relating to an increase in recreational pressure and impacts from trampling, erosion and eutrophication of the fragile heathland communities and potential interference with the management of the site by the disturbance of grazing livestock.

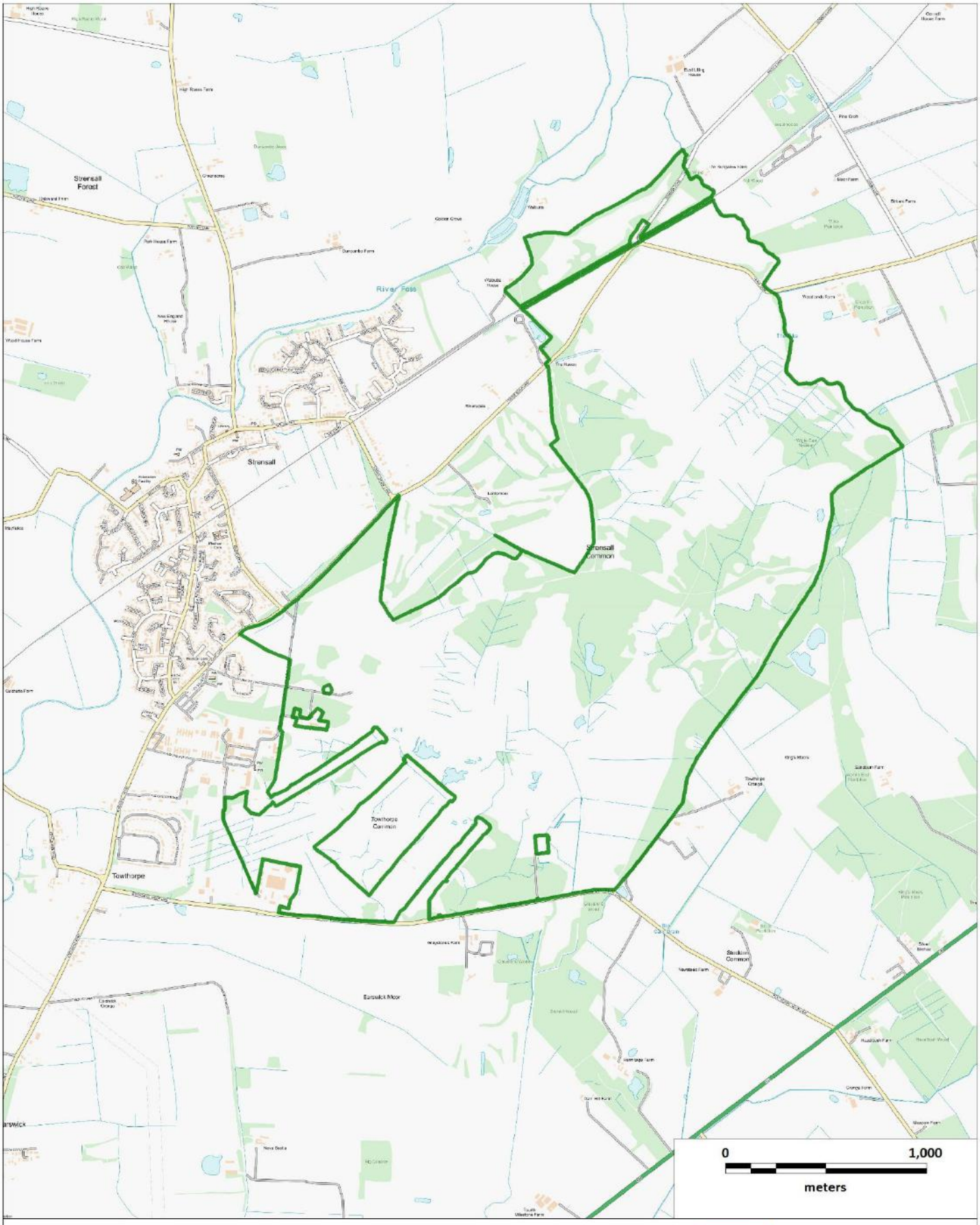
1.11 Following more detailed assessment, the HRA advised that adverse effects on integrity could be ruled out through the implementation of wardening on the Common to present a physical presence on site and encourage good behaviours by the public. Following the HRA work, Natural England wrote to the Council[2] to advise that no evidence has been provided to back up the conclusion of no adverse effects on integrity and that Natural England would expect to see a robust and comprehensive visitor assessment.

1.12 Following the advice from Natural England, the City of York commissioned this work, which aims to:

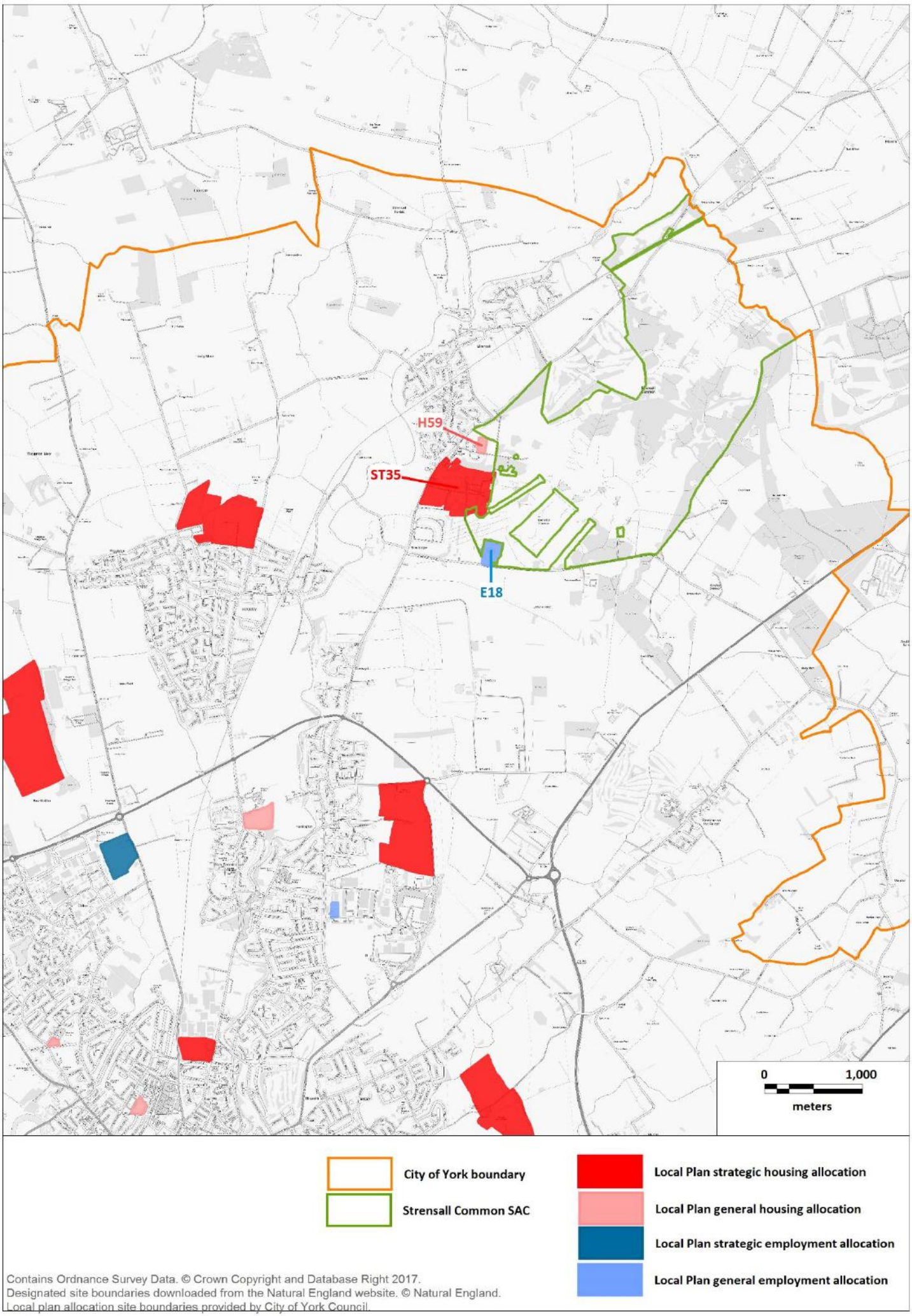
- Provide evidence on current levels of use and patterns of access at Strensall Common;
- Understand the visitor origins and likely scale of change in access from new development;
- Review the vulnerability of the site to recreation impacts; and
- As relevant recommend mitigation approaches that will resolve any issues identified.

[2] Letter dated 4th June 2018

Map 1: Strensall Common SAC



Map 2: SAC and Local Plan allocations (labelled sites those identified in HRA)



2. Methods

Overview

2.1 Visitor fieldwork included the following:

- Face-face interviews and direct counts
- Car-park counts
- Automated counters

2.2 In order to review the current impacts of recreation on the SAC interest and the ecology of the site, the following were undertaken:

- Site visit, target notes and habitat mapping

2.3 Details of these different work areas are set out below.

Face-face interviews and direct counts

2.4 These were conducted by a surveyor positioned at an entry point and counted people passing and interviewed a selection of visitors.

2.5 The counts were in the form of a tally, recording numbers of groups, people, horses, cycles and dogs (entering, leaving or passing).

2.6 Face-face interviews were conducted with a random selection of visitors (the random selection was achieved by selecting the next person seen after completing the previous interview). Only one person per group was interviewed, and no unaccompanied minors were approached.

2.7 Surveys were conducted on tablets hosting SNAP survey software and the questionnaire (Appendix 1) was conducted verbally, with the surveyor recording the responses of the interviewee onto the tablet. At the end of the interview the group size, gender of interviewee, number of dogs in group and whether dogs were seen off lead were recorded.

2.8 Routes taken by respondents (or planned to be taken if they were just setting off) were recorded by drawing the visitor's route on a paper map linked by a unique reference number to the SNAP questionnaire. These routes were later digitised to give a polyline in GIS.

2.9 The interviews and counts took place at three locations (Map 3 and Table 1).

Table 1: Strensall Common interview/count locations.

	Location	Description/ notes	Grid reference
1	Scott Moncrieff Road car-park	Main car-park.	SE6358 5982
2	Galtres car-park	Main car-park	SE6485 6120
3	on Foss Walk, YWT section	By sewage works, at track junction and close to railway crossing. Likely to be low levels of use.	SE6469 6161

2.10 Surveys took place at location 1 and 2 during late August (8 hours at each location) and then during early September all three locations were surveyed for a total of 16 hours. This gives a total of 16 hours survey work in August and 48 hours in September.

2.11 Survey times covered: 0700-0900; 1000-1200; 1300-1500; 1700-1900 (by splitting the day into 2 hour blocks the surveyor is able to take comfort breaks yet data are collected from across daylight hours). The August surveys took place on a Thursday and a Friday (no live firing) with the surveys split between the two car-parks on each day (i.e. 4 hours total in each car-park on each day).

2.12 In September the same survey timing was used (8 hours per day, split into two-hour sessions), and each location was surveyed such that each time period was covered on a weekday and weekend day at each location.

2.13 Effort was made to avoid adverse weather conditions. The surveys took place during a period of unsettled and changeable weather at the end a prolonged dry and very hot summer. The 16 hours of surveys in August at the two main car-parks were both entirely rain free and the 16 hours of survey at the Foss Walk survey point were also rain-free. At the Galtres and Scott Moncrieff survey points in September there was some rain (at both sites three out of eight two-hour sessions had some rain).

Car-park counts

2.14 Eight transects counting parked cars were undertaken (Table 2). These involved the recorder driving round the site and logging all parked vehicles at the various parking locations (shown in Map 3) including the two main car-parks and all lay-bys and other informal parking areas. It took around 30 minutes to visit all locations and the counts were a 'snapshot' in time, reflecting the number of vehicles present when the recorder entered the parking location. Direct of travel was varied between different transects.

Table 2: Dates and start times of transects counting all parked vehicles around the SAC.

Date	Start Time	Day
12/07/2018	16:04	Thursday
30/07/2018	11:17	Monday
14/08/2018	10:40	Tuesday
14/08/2018	13:19	Tuesday
15/09/2018	08:20	Saturday
19/09/2018	18:44	Saturday
22/09/2018	12:45	Saturday
22/09/2018	16:32	Saturday

Automated counters

2.15 Two automated counters were used to derive an estimate of visitor use at parts of the site where it was considered potentially too quiet to place a surveyor. Trail cameras were used, placed low to the ground alongside paths enabling them to record feet, wheels etc. and the direction of travel, without recording any personal information (faces etc.). Locations are shown on Map 3. Both were away from the main car-parks and close to entry points with minimal parking.

2.16 Cameras were set to record one image per 'trigger' and reset after 20 seconds, meaning that the cameras would for example record separate images of two people that were walking 20 seconds apart.

2.17 Images were reviewed and any images that were not related to access were filtered out – in most cases these involved sheep or wildlife (such as foxes, badgers, squirrels etc). Images were then reviewed in time order and estimates made of the number of discrete events passing in each direction. It was not always straightforward to assign activity or identify which passes were discrete events. Dog walkers could usually be recognised by the presence of a dog or because a lead was visible. Bicycles and horses were clearly visible and joggers were recognisable by trainers and speed of movement. Images separated by more than a minute were assumed to be separate events unless clearly the same.

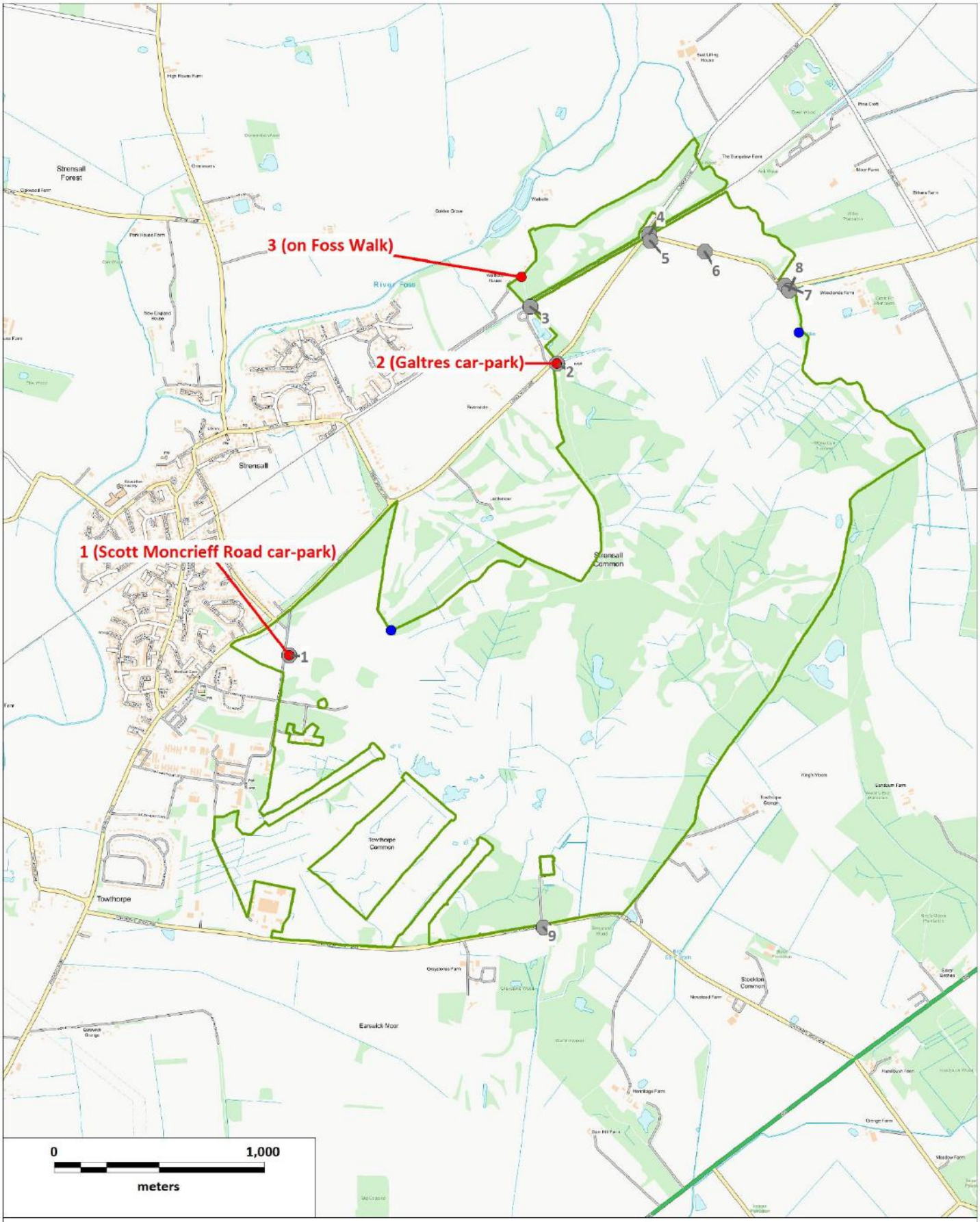
Site visit, target notes and habitat mapping

2.18 A site visit to map vegetation types and features and record current evidence of recreational pressure was carried out between 13th- 15th September.

Vulnerability of designated habitat types and features to increased recreational pressure was assessed at the same time. Habitat mapping was carried out using the recently launched UKHab[3] (which combines previous systems such as Phase one, National Vegetation Classification (NVC), Annex I etc.) and was also partly informed by a National Vegetation Survey of the site carried out in 2009 (Wilson 2009).

[3] https://www.ceh.ac.uk/news-and-media/news/unified-habitat-classification-system-launched

Map 3: Strensall Common survey points



3. Car-park count results

3.1 A total of eight car-park counts were conducted, each involving driving past all the parking locations around the common in sequence and counting the number of parked cars. The number of vehicles ranged from 4 to 16 (Figure 1). The median number of vehicles counted was 9 and the mean 9.7. There appeared to potentially be some differences between different days – the two highest counts were both Saturday afternoons for example. However, the lowest count was a Saturday late afternoon (starting 18:44).

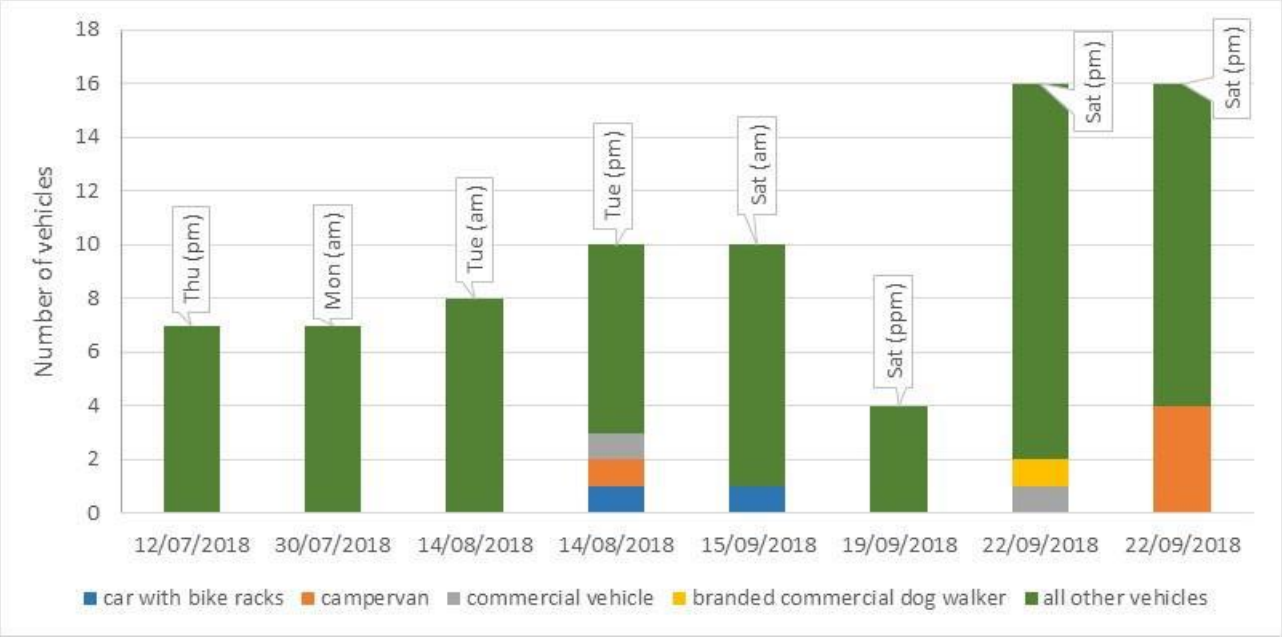


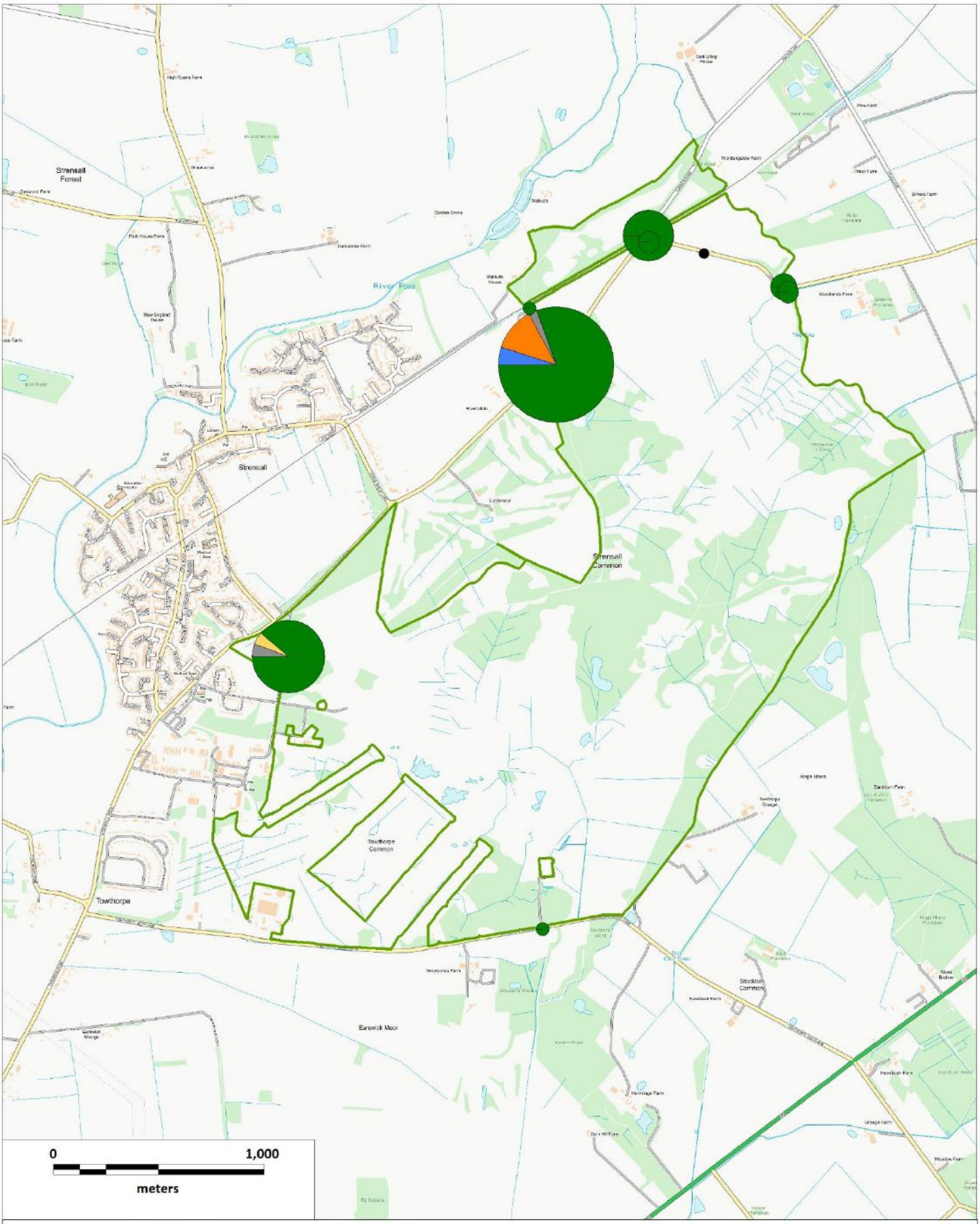
Figure 1: Car-park transect results by date and vehicle types

3.2 The results are shown spatially in Map 4. This shows that the majority of the parked vehicles were in the two main car-parks and that the Galtres car-park was the busiest. It was also the two main car-park where campervans, cars with bike racks, commercial vehicles and the branded dog walker vehicle were recorded.

3.3 If we assume a typical visit length to be around one hour (from the interview data, see Table 9) and typical car-occupancy to be 1.6 (again from the interview data, see para 6.12), then if 9 vehicles are typically present at any given time over a 12 hour day we would expect around 108 vehicles in total and these would bring around 173 people a day. These extrapolations are approximate and simple, reflecting the data collected during the survey period (i.e. July-September) rather than an extended period. We have not

attempted to account for variation during the day or discounted cars that might not relate to people visiting Strensall Common for recreation. Nonetheless they provide an approximation of the footfall from those arriving by car.

Map 4: Counts of parked vehicles



SAC boundary

Total vehicles counted across 8 transects

10
5
1

- Car with bike rack
- Campervan
- Commercial vehicle
- Branded commercial dog walker
- All other vehicles

4. Automated counter results

4.1 This section summarises the results from the two automated counters (trail cameras) placed low to the ground in different parts of the site. The data are extracted for each to give access events – these are where the camera has been triggered by people, vehicles, bicycles, dogs, horses etc. Where the camera was triggered multiple times in quick succession and clearly showed the same group (for example at the second location people regularly lingered in front of the gate or while opening the gate triggered the camera more than once) then only one event was logged. The cameras also were triggered multiple times where the group was spread out. This was also the case for dog walkers where the dog was off the lead and ahead of the owner such that both the dog and the owner separately triggered the camera. Generally, we carefully reviewed images that were within 1 minute of each other to check.

4.2 Some examples of images from the two cameras are provided in Figure 4.

Counter 1: northern edge of site

4.3 This counter was set up on the afternoon of the 12th July and retrieved on the morning of the 30th July, giving a total of 17 full days of recording (13th-29th). In total 1007 images were logged, these were estimated from reviewing the images to involve 162 access events[4]. These are summarised in Figure 2 and are also compared to the tally counts on Map 5 (next section). The events were mostly during daylight but revealed use by dog walkers on a number of dates before 6am and joggers using the site after 9pm, indicating use spread over a considerable time window spanning more than 15 hours.

4.4 On virtually all dates there was a higher proportion of access moving south compared to north, indicating that a proportion of visitors were undertaking a circuit and not retracing their steps. The results are broken down by day and activity in Table 3. Activities were predominantly dog walking (49 events in total), walking (39 events) and jogging (36 events) but did also include small numbers of people taking photographs, horse riding and cycling. A quad bike was logged three times and was presumed to be the grazier and 9 events involved people in camouflaged clothing and these were categorised as MOD. The 25th July was particularly busy, the data showed a pulse of

[4] The large volume of records that were not access events were mostly sheep.

activity around late morning and particularly involved walkers. Many of these walkers were wearing military-style boots but were classified as walkers as they did not to be in full military clothes, nonetheless the peak on that day may relate to some training event. Including the data from the 25th, the average number of events per day moving south was 5.6 and the number of events moving north was 3.3.

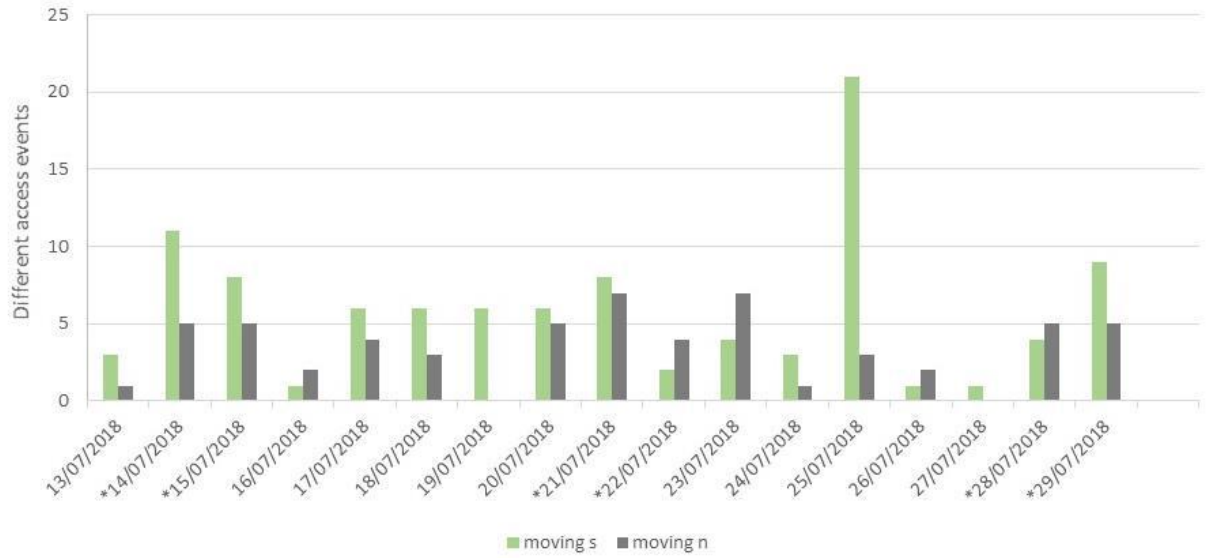


Figure 2: Day totals for counter 1 on the northern edge of the site. Asterisks by the date indicate weekends

Table 3: Summary of access events that triggered the camera (northern edge). Cell values reflect events moving north/moving south. Weekend days are shaded pale grey.

Date	Cycling	Dog Walking	Horse riding	Jogging	MOD	Photo-graphy	Quad bike	Walking	Total
13/07/2018	0/0	0/1	1/0	0/2	0/0	0/0	0/0	0/0	1/3
14/07/2018	0/0	2/5	0/0	2/3	0/0	0/0	0/0	1/3	5/11
15/07/2018	0/1	1/3	0/0	4/3	0/0	0/0	0/0	0/1	5/8
16/07/2018	1/0	0/1	0/0	1/0	0/0	0/0	0/0	0/0	2/1
17/07/2018	0/2	0/0	1/0	0/0	0/0	3/2	0/0	0/2	4/6
18/07/2018	1/0	1/3	0/0	0/2	0/0	0/0	0/1	1/1	3/7
19/07/2018	0/2	0/2	0/0	0/0	0/0	0/0	0/0	0/2	0/6
20/07/2018	0/0	0/2	0/0	0/1	4/3	0/0	0/0	1/0	5/6
21/07/2018	0/2	2/3	0/0	3/2	0/0	0/0	0/0	2/1	7/8
22/07/2018	0/1	0/1	1/0	2/0	0/0	0/0	0/1	1/0	4/3
23/07/2018	0/0	2/0	1/0	3/1	0/0	0/0	0/0	1/3	7/4
24/07/2018	1/1	0/2	0/0	0/0	0/0	0/0	0/0	0/0	1/3
25/07/2018	0/2	0/2	1/0	0/3	1/1	0/0	0/1	1/13	3/22
26/07/2018	0/0	0/1	0/0	0/0	0/0	0/0	0/0	2/0	2/1
27/07/2018	0/0	0/0	0/0	0/1	0/0	0/0	0/0	0/0	0/1
28/07/2018	0/0	4/3	0/0	1/0	0/0	0/0	0/0	0/1	5/4
29/07/2018	0/1	4/4	0/1	0/2	0/0	0/0	0/0	1/1	5/9
Total	**3/12**	**16/33**	**5/1**	**16/20**	**5/4**	**3/2**	**0/3**	**11/28**	**59/103**

Counter 2: eastern edge of the site

4.5 This camera was set up on the 31st July and left in situ until 12th September. During this time, it recorded over 3000 images. Images were scrutinised for the initial two weeks only, until the 12th August, giving 13 complete days and spanning two weekends. During this time 547 discrete access events were recorded. Day totals are summarised in Figure 3; the average daily number of events was 23.2 events entering (heading south-east) and 18.2 events leaving (heading north-west towards the road). Totals for the counter are also shown on Map 5 (next section) where they are compared to the actual counts made through the tally counts.

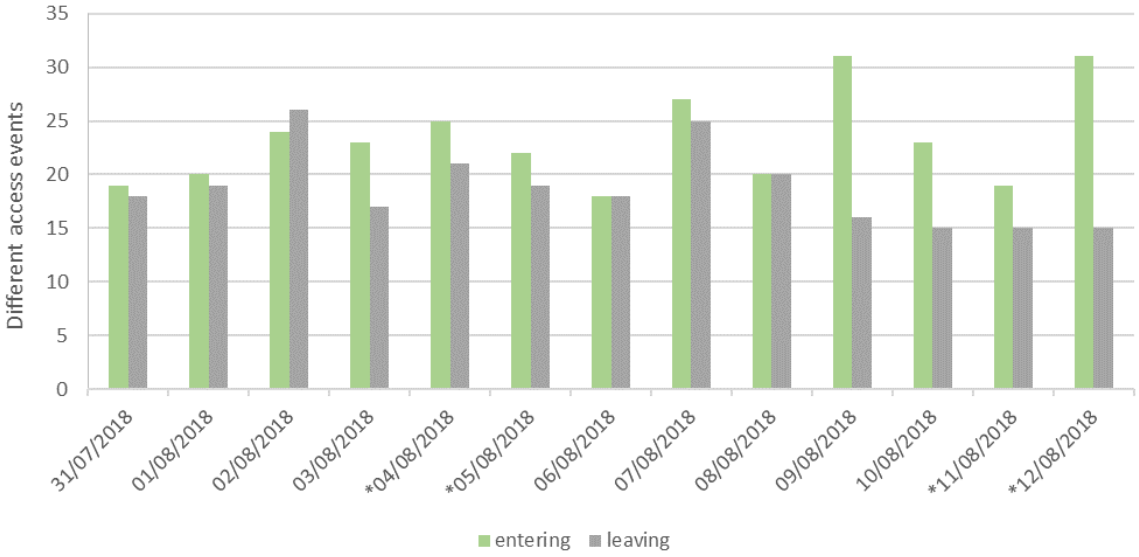


Figure 3: Day totals for counter 2 on the eastern edge of the site. Asterisks by the date indicate weekends. The camera was positioned near a gate into the site – entering is therefore people entering the common and heading south-east and leaving going in the opposite direction, towards the road.

Table 4: Summary of access events that triggered the camera (eastern edge). Cell values reflect events entering/leaving. Weekend days are shaded pale grey.

Date	Cycling	Dog walking	Jogging	MOD	Photography	Wallking	Wildlife Watching	Workmen	Total
31/07/2018	2/1	15/8	7/5	0/0	1/1	6/3	0/0	0/0	31/18
01/08/2018	0/1	11/6	6/5	0/0	0/0	3/7	0/0	0/0	20/19
02/08/2018	2/4	10/7	2/6	0/6	0/0	3/3	0/0	2/0	19/26
03/08/2018	0/0	9/10	9/5	0/0	0/0	2/2	0/0	0/0	20/17
04/08/2018	3/1	11/10	2/6	0/0	0/0	8/4	0/0	0/0	24/21
05/08/2018	3/1	10/6	4/3	0/0	0/0	6/9	0/0	0/0	23/19
06/08/2018	1/0	10/7	7/8	0/0	0/0	7/3	0/0	0/0	25/18
07/08/2018	1/2	12/12	3/8	0/0	0/0	5/3	1/0	0/0	22/25
08/08/2018	3/2	12/9	2/6	0/0	0/0	1/3	0/0	0/0	18/20
09/08/2018	1/2	12/6	8/7	0/0	0/0	6/1	0/0	0/0	27/16
10/08/2018	0/0	11/7	4/4	1/1	0/0	4/3	0/0	0/0	20/15
11/08/2018	0/2	17/9	3/1	0/0	0/0	11/3	0/0	0/0	31/15
12/08/2018	0/1	13/10	6/3	0/0	0/0	4/1	0/0	0/0	23/15
Total	**16/17**	**153/107**	**63/67**	**1/7**	**1/1**	**66/45**	**1/0**	**2/0**	**303/244**

4.6 Additional data recorded by the camera included a cat on two occasions and also on two different dates multiple images of sheep were captured. These

images suggested the gate may have been left open, but it was not possible to tell for certain.

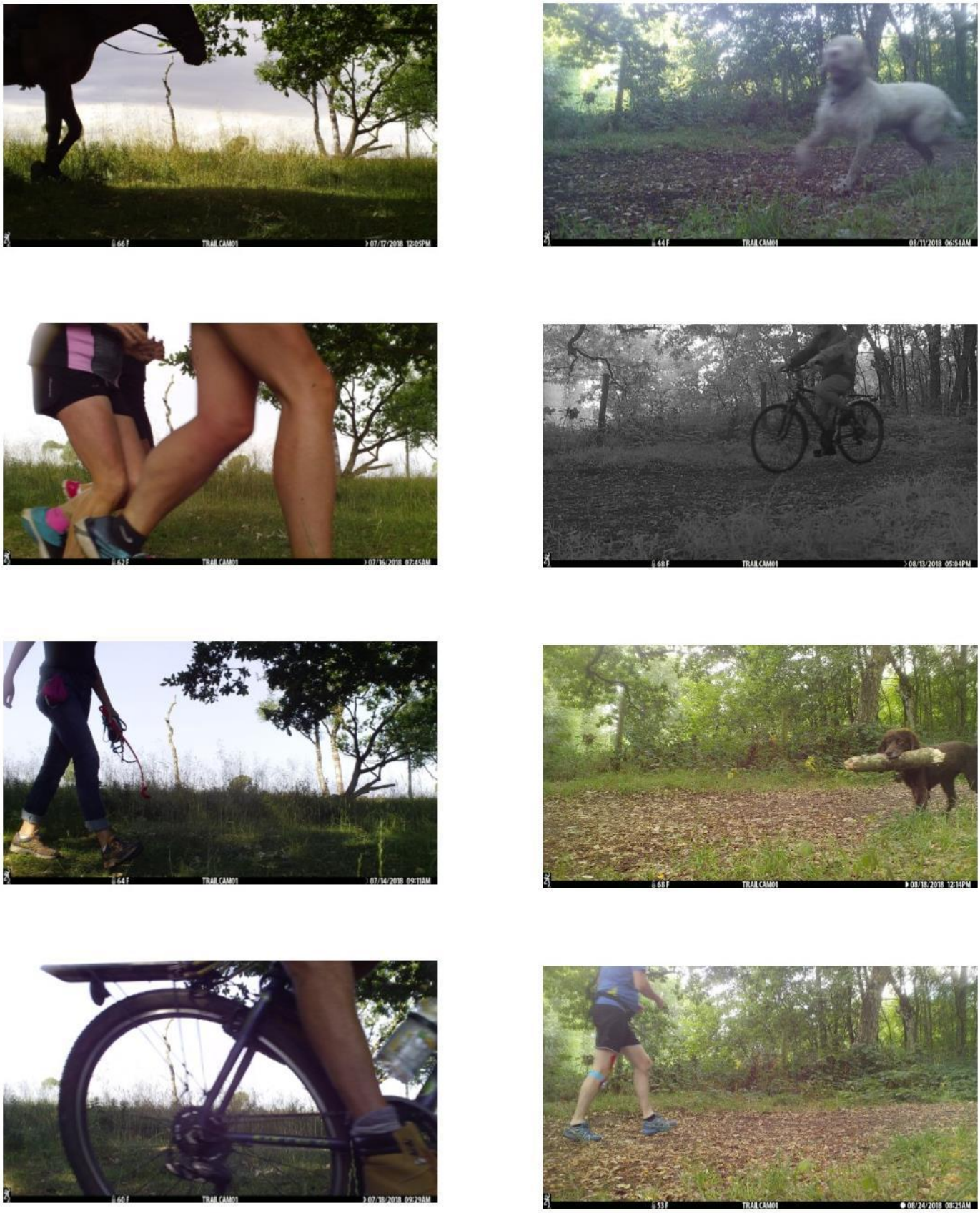


Figure 4: Examples of images from the automated counters. Left hand set are from the counter on the northern edge; right hand ones from the counter on the eastern edge of the site.

5. Direct counts of people: tally counts

5.1 Tally counts were maintained by the surveyors when on-site conducting interviews. These tallies reflected the number of people entering or leaving at the survey point.

5.2 Data are summarised in Table 5, which gives the total numbers of groups, people and dogs "entering" on each date. The days are directly comparable in terms of the amount of hours and times that the surveyor was recording however note that Galtres and Scott Moncrieff were surveyed for the extra time in late August.

Table 5: Tally data, groups, people and dogs entering at each survey point. Weekend days are shaded pale grey.

Date	Day	groups entering			total people			total dogs		
		Galtres	Scott Moncrieef	Foss Walk	Galtres	Scott Moncrieef	Foss Walk	Galtres	Scott Moncrieef	Foss Walk
30-Aug	Thurs	15	15		25	19		7	14	
31-Aug	Fri	19	19		21	28		15	9	
01-Sep	Sat			21			28			16
03-Sep	Mon			17			20			12
07-Sep	Fri		50			76			54	
08-Sep	Sat	59			87			63		
09-Sep	Sun		88			134			87	
10-Sep	Mon	37			50			45		
Total		**130**	**172**	**38**	**183**	**257**	**48**	**130**	**164**	**28**

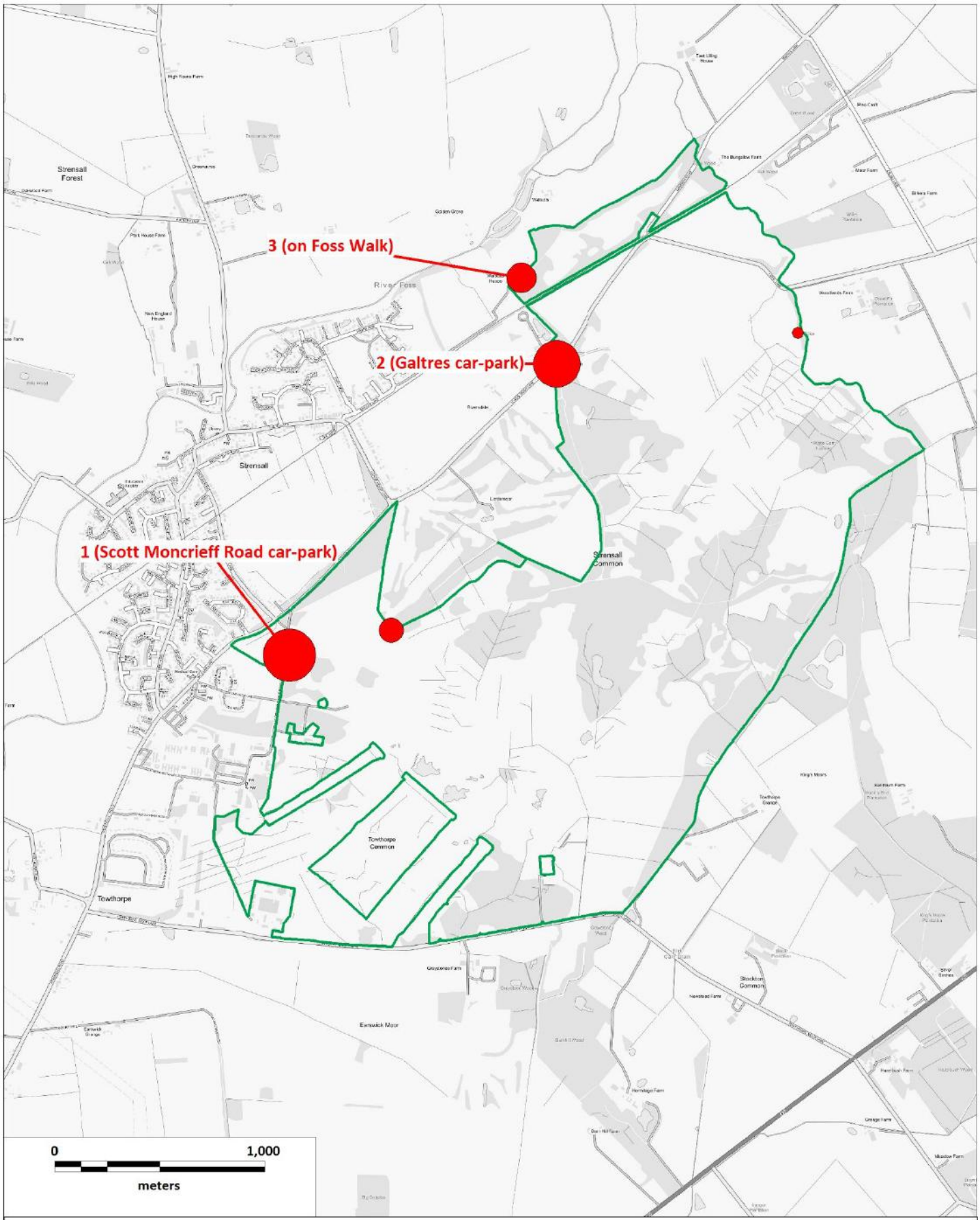
5.3 The Tally data give a total of 340 groups entering, involving 488 people counted and a total of 322 dogs, equivalent to 1.4 people and 0.9 dogs per group.

5.4 In Map 5 we show the tally data converted to an hourly rate and presented alongside the automated counter data. The size of the red circles indicates the number of groups passing in one direction. While the data are different for the two survey methods, the conversion to an hourly rate does allow the two data sets to be presented alongside each other. For the tally data the hourly rate was the total number of groups entering, divided by the total number of survey hours (24 hours at the two main car-parks and 16 hours at the Foss Walk survey point). For the automated counters the data are the

access events 'entering' (i.e. moving south in both cases) between 0700 and 1900 hours only. The total hours for each counter was the number of days multiplied by 12. These results suggest that the three interview locations had the largest visitor flow with 7.2 groups per hour entering at the Scott Moncrieff car-park and 5.4 at the Galtres Road car-park. The northern automated counter locations recorded, by comparison 0.4 events per hour on average.

5.5 Combining these hourly rates across all the five locations shown in Map 5 indicates around 17.2 groups entering per hour, i.e. 206 groups over 12 hours.

Map 5: Tally count data and automated counter results: groups passing per hour



Tally data and automated counter data: access events entering per hour

4

2

0.4

6. Visitor interview results

Overview

6.1 A total of 199 interviews were conducted, with the majority (92%) at the two main car-parks on Scott Moncrieff Road and Galtres (Table 6). Virtually all (95%) of interviews were with those who had undertaken a day trip/short visit directly from home that day; 3% of interviews were with people staying away from home with friends/family and some 2% were on holiday or staying in a second home/mobile home. This latter category were all interviewed at the survey point near the sewage works or at Galtres car-park, both of which are a short distance from the caravan/camp site.

6.2 In total 51% of interviews were conducted on the two-person days of fieldwork undertaken in August, with the remaining 45% undertaken on six person days in September.

Table 6: Number (%) of interviews by visit type and date (from Q1).

Visit type	Aug		Sept			Total
	Scott Moncrieff Road	Galtres car-park	Galtres car-park	On Foss Walk	Scott Moncrieff Road	
Day trip/short visit, travelling directly from home that day	70 (35)	29 (15)	46 (23)	14 (7)	31 (16)	**190 (95)**
Day trip/short visit, staying away from home with friends/family	0 (0)	1 (1)	1 (1)	3 (2)	0 (0)	**5 (3)**
Staying away from home, e.g. second home, mobile home or on holiday	0 (0)	2 (1)	2 (1)	0 (0)	0 (0)	**4 (2)**
Total	**70 (35)**	**32 (16)**	**49 (25)**	**17 (9)**	**31 (16)**	**199 (100)**

6.3 The average interview duration was 6.9 minutes, with interviews ranging in length from 2.6 minutes to 24.6 minutes. In 84 interviews (42%) the gender of the interviewee was female; 115 interviews (58%) were with men. Group size (i.e. the total number of people with the interviewee, including the interviewee), ranged from 1 to 8 (the latter a group of friends who meet up regularly to walk on the Common). Around two-thirds (64%) of interviewees were visiting on their own (i.e. group size of 1). A total of 146 interviewees

(73%) had at least one dog with them and the number of dogs with the interviewees ranged from 1-4. The total number of people in all the interviewed groups was 308 accompanied by 190 dogs; giving a mean of 1.5 people and 1 dog with each interviewee. Of the 190 dogs observed, 85 (45%) of them were off lead during the interview. It should be noted that the interviews were at entry points and particularly main car-parks so the numbers of dogs let off the lead during the walk could be much higher.

Activities undertaken (Q2)

6.4 The most frequently recorded activity across all survey points was dog walking (70% of interviewees) (Figure 5), and this was the case at all survey locations (Table 7). Walking was the next most common activity (14% of interviewees). The Foss Way survey point held a higher proportion of walkers (35% of interviewees) compared to other locations. Other activities were relatively infrequent but included family outings, jogging/power walking/running, cycling/mountain biking, meeting up with friends, photography and bird wildlife watching. 'Other' activities (which did not fit with the standard categories on the questionnaire) accounted for 1% of interviewees and these included one interviewee having a picnic, another enjoying the scenery and one foraging for mushrooms.

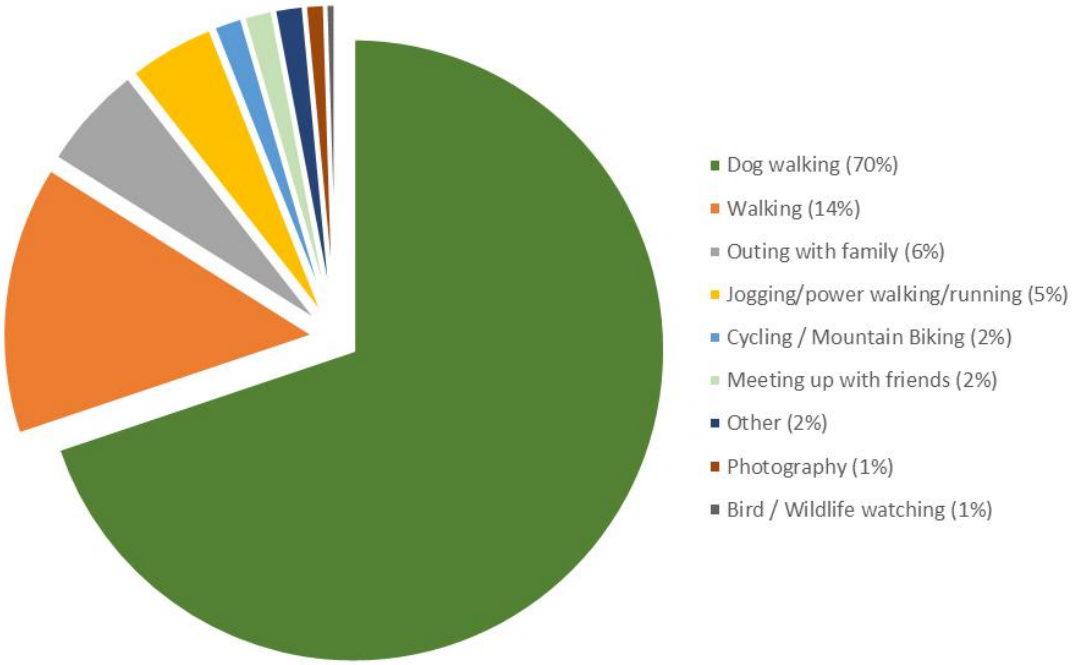


Figure 5: Activities undertaken (all 199 interviewees); from Q2.

Table 7: Number (column %) of interviewees by activity and survey point.

Activity	Galtres car-park	On Foss Walk	Scott Moncrieff Road car-park	Total
Dog walking	55 (68)	9 (53)	75 (74)	**139 (70)**
Walking	9 (11)	6 (35)	13 (13)	**28 (14)**
Outing with family	5 (6)	0 (0)	6 (6)	**11 (6)**
Jogging/power walking/running	3 (4)	1 (6)	5 (5)	**9 (5)**
Cycling/Mountain Biking	2 (2)	0 (0)	1 (1)	**3 (2)**
Meeting up with friends	2 (2)	0 (0)	1 (1)	**3 (2)**
Other	2 (2)	1 (6)	0 (0)	**3 (2)**
Photography	2 (2)	0 (0)	0 (0)	**2 (1)**
Bird/Wildlife watching	1 (1)	0 (0)	0 (0)	**1 (1)**
Total	**81 (100)**	**17 (100)**	**101 (100)**	**199 (100)**

6.5 Comparing the August data with the September data for the two relevant survey points (Galtres and the Scott Moncrieff car-park) there was a lower percentage of dog walkers in August (65% compared to 75%) and a higher percentage of walkers (19% compared to 8%). Comparing the proportions of

interviewees undertaking the main activities (dog walking, walking and all other activities) there was however no significant difference between August and September (χ^2_2=4.427, p=0.109).

Temporal visiting patterns, frequency of visit, time of day etc. (Q3-7)

6.6 Around a third (32%) of all interviewees were visiting daily (Table 8). Dog walkers were the group who visited the most frequently, with 42% visiting daily and a further 21% visiting most days. Those walking, on an outing with the family or jogging/power walking/running tended to visit less frequently with 1-3 times a week the most common visit frequency for these activities.

Table 8: Numbers (row %) of interviewees and frequency of visit (Q3) by activity. Grey shading reflects the highest two values in each row, with the darker shading highlighting the highest row value.

Activity	Daily	Most days (180+ visits)	1 to 3 times a week (40-180 visits)	2 to 3 times per month (15-40 visits)	Once a month (6-15 visits)	Less than once a month (2-5 visits)	First visit	Other	Total
Dog walking	58 (42)	29 (21)	28 (20)	6 (4)	6 (4)	7 (5)	5 (4)	0 (0)	**139 (100)**
Walking	2 (7)	4 (14)	8 (29)	4 (14)	3 (11)	6 (21)	1 (4)	0 (0)	**28 (100)**
Outing with family	1 (9)	0 (0)	4 (36)	3 (27)	1 (9)	0 (0)	2 (18)	0 (0)	**11 (100)**
Jogging/power walking/running	1 (11)	2 (22)	5 (56)	1 (11)	0 (0)	0 (0)	0 (0)	0 (0)	**9 (100)**
Meeting with friends	1 (33)	0 (0)	1 (33)	0 (0)	0 (0)	1 (33)	0 (0)	0 (0)	**3 (100)**
Cycling/Mtn. Biking	1 (33)	1 (33)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (33)	**3 (100)**
Other	0 (0)	0 (0)	0 (0)	1 (33)	0 (0)	0 (0)	2 (67)	0 (0)	**3 (100)**
Photography	0 (0)	0 (0)	0 (0)	0 (0)	1 (50)	0 (0)	0 (0)	1 (50)	**2 (100)**
Bird/Wildlife watching	0 (0)	0 (0)	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	**1 (100)**
Total	**64 (32)**	**36 (18)**	**47 (24)**	**15 (8)**	**11 (6)**	**14 (7)**	**10 (5)**	**2 (1)**	**199 (100)**

6.7 The majority of visits were short, with most (73%) spending less than an hour on the site (Table 9).

Table 9: Numbers (row %) of interviewees and visit duration (Q4). Grey shading reflects the highest two values in each row, with the darker shading highlighting the highest row value.

Activity	Less than 30 minutes	Between 30 minutes and 1 hour	1-2 hours	2-3 hours	4 hours +	Total
Dog walking	25 (18)	79 (57)	31 (22)	3 (2)	1 (1)	**139 (100)**
Walking	3 (11)	14 (50)	9 (32)	1 (4)	1 (4)	**28 (100)**
Outing with family	0 (0)	7 (64)	3 (27)	1 (9)	0 (0)	**11 (100)**
Jogging/power walking/running	6 (67)	3 (33)	0 (0)	0 (0)	0 (0)	**9 (100)**
Meeting with friends	3 (100)	0 (0)	0 (0)	0 (0)	0 (0)	**3 (100)**
Cycling/Mtn. Biking	3 (100)	0 (0)	0 (0)	0 (0)	0 (0)	**3 (100)**
Other	1 (33)	0 (0)	2 (67)	0 (0)	0 (0)	**3 (100)**
Photography	0 (0)	1 (50)	0 (0)	0 (0)	1 (50)	**2 (100)**
Bird/Wildlife watching	0 (0)	0 (0)	0 (0)	1 (100)	0 (0)	**1 (100)**
Total	**41 (21)**	**104 (52)**	**45 (23)**	**6 (3)**	**3 (2)**	**199 (100)**

6.8 Nearly half (43%) of interviewees didn't tend to visit at a particular time of day and 5% were on their first visit and therefore didn't have a typical time of day they visited. For those who did tend to visit at a particular time, mornings were the commonest given response, with around a quarter (27%) of interviewees visiting before 10am in the morning (Table 10).

Table 10: Numbers (row %) of interviewees and time of day (Q5) that they tend to visit by activity. Grey shading reflects the highest two values in each row, with the darker shading highlighting the highest row value. Interviewees could give multiple responses and the percentages, based on the number of interviews, can therefore total over 100.

Activity	Early morning (before 7am)	Late morning (7am - 10am)	Midday (10am - 2pm)	Early afternoon (2pm - 4 pm)	Late afternoon (4pm-6pm)	Evening (after 6pm)	Varies / Don't know	First visit	Number interviewees
Dog walking	10 (7)	29 (21)	25 (18)	14 (10)	24 (17)	14 (10)	58 (42)	5 (4)	139 (100)
Walking	0 (0)	8 (29)	4 (14)	1 (4)	5 (18)	4 (14)	12 (43)	0 (0)	28 (100)
Outing with family	0 (0)	1 (9)	0 (0)	1 (9)	0 (0)	0 (0)	9 (82)	2 (18)	11 (100)
Jogging/power walking/running	1 (11)	2 (22)	0 (0)	0 (0)	0 (0)	3 (33)	4 (44)	0 (0)	9 (100)
Meeting with friends	0 (0)	1 (33)	0 (0)	0 (0)	0 (0)	1 (33)	0 (0)	1 (33)	3 (100)
Cycling/Mtn. Biking	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (33)	2 (67)	3 (100)
Other	0 (0)	1 (33)	0 (0)	0 (0)	0 (0)	1 (33)	1 (33)	0 (0)	3 (100)
Photography	0 (0)	0 (0)	1 (50)	0 (0)	1 (50)	0 (0)	0 (0)	0 (0)	2 (100)
Bird/Wildlife watching	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (100)	0 (0)	1 (100)
Total	**11 (6)**	**42 (21)**	**30 (15)**	**16 (8)**	**30 (15)**	**23 (12)**	**86 (43)**	**10 (5)**	**199 (100)**

6.9 Most interviewees (78%) indicated that they visited Strensall Common equally all year round (Table 11), and there was little evidence to suggest particular seasons were favoured by any particular activity group. Of the four seasons, summer was the one named by the smallest number of dog walkers (5%).

Table 11: Numbers (row %) of interviewees and time of year (Q6) that they tend to visit by activity. Grey shading reflects the highest two values in each row, with the darker shading highlighting the highest row value. Interviewees could give multiple responses and the percentages, based on the row totals, can therefore total over 100.

Activity	Spring (Mar-May)	Summer (Jun-Aug)	Autumn (Sept-Nov)	Winter (Dec-Feb)	Equally all year	First visit	Total
Dog walking	16 (12)	7 (5)	17 (12)	15 (11)	112 (81)	5 (4)	**139 (100)**
Walking	2 (7)	3 (11)	2 (7)	1 (4)	24 (86)	0 (0)	**28 (100)**
Outing with family	1 (9)	0 (0)	1 (9)	1 (9)	8 (73)	2 (18)	**11 (100)**
Jogging/power walking/running	3 (33)	3 (33)	3 (33)	0 (0)	6 (67)	0 (0)	**9 (100)**
Meeting with friends	1 (33)	1 (33)	1 (33)	0 (0)	1 (33)	1 (33)	**3 (100)**
Cycling/Mtn. Biking	0 (0)	1 (33)	1 (33)	0 (0)	0 (0)	2 (67)	**3 (100)**
Other	0 (0)	0 (0)	0 (0)	0 (0)	3 (100)	0 (0)	**3 (100)**
Photography	0 (0)	0 (0)	0 (0)	0 (0)	2 (100)	0 (0)	**2 (100)**
Bird/Wildlife watching	1 (100)	1 (100)	0 (0)	0 (0)	0 (0)	0 (0)	**1 (100)**
Total	**24 (12)**	**16 (8)**	**25 (13)**	**17 (9)**	**156 (78)**	**10 (5)**	**199 (100)**

6.10 Half (51%) of those interviewed had been visiting Strensall Common for at least 10 years (Table 12). This was especially the case for those who were walking (68% visiting for at least 10 years), and indicates that the Common is long established as a destination for recreation.

Table 12: Number (row %) of interviewees and length of time that they have been visiting Strensall Common (Q7) by activity. Grey shading reflects the highest two values in each row, with the darker shading highlighting the highest row value.

Activity	less than or approx. 6 months	6 mnths-1 year	1-3 years	3- 5 years	5- 10 years	more than 10 years	First visit/no answer	Total
Dog walking	3 (2)	5 (4)	12 (9)	20 (14)	20 (14)	73 (53)	6 (4)	**139 (100)**
Walking	2 (7)	0 (0)	3 (11)	3 (11)	1 (4)	19 (68)	0 (0)	**28 (100)**
Outing with family	1 (9)	1 (9)	1 (9)	1 (9)	2 (18)	3 (27)	2 (18)	**11 (100)**
Jogging/power walking/running	0 (0)	1 (11)	1 (11)	1 (11)	3 (33)	3 (33)	0 (0)	**9 (100)**
Meeting with friends	1 (33)	0 (0)	0 (0)	0 (0)	0 (0)	1 (33)	1 (33)	**3 (100)**
Cycling/Mtn. Biking	0 (0)	0 (0)	1 (33)	0 (0)	0 (0)	0 (0)	2 (67)	**3 (100)**
Other	0 (0)	0 (0)	0 (0)	1 (33)	1 (33)	1 (33)	0 (0)	**3 (100)**
Photography	0 (0)	0 (0)	0 (0)	1 (50)	0 (0)	1 (50)	0 (0)	**2 (100)**
Bird/Wildlife watching	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (100)	0 (0)	**1 (100)**
Total	**7 (4)**	**7 (4)**	**18 (9)**	**27 (14)**	**27 (14)**	**102 (51)**	**10 (5)**	**199 (100)**

Mode of transport (Q8)

6.11 Overall, two-thirds (67%) of interviewees had travelled by car, with a further 32% arriving on foot and one interviewee (1%) arriving by bicycle. The majority of survey effort was focussed at the car-parks, which were located on the major paths/entry points, so it is notable that still around a third of interviewees had walked from home to visit Strensall Common. Comparing between survey points, Galtres had the highest percentage of interviewees that arrived by car (89%) (Figure 6, Table 13). At the Scott Moncrieff car-park the ratio of car-borne visitors to those arriving of foot was closer to even, with 58% driving and 41% walking.

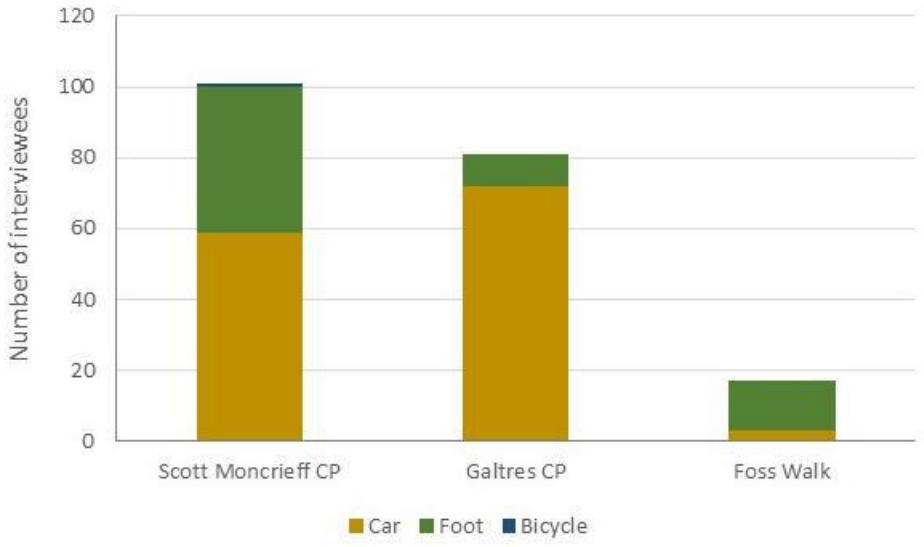


Figure 6: Numbers of interviewees by mode of transport (Q8) and survey point.

Table 13: Number (row %) of interviewees and mode of transport (Q8), by survey point and activity. Grey shading reflects the highest value for each activity at each survey point. Percentages are calculated for each survey point.

Activity	Galtres CP		Foss Walk		Scott Moncrieff CP		
	Car/van	On foot	Car/van	On foot	Bicycle	Car/van	On foot
Dog walking	50 (62)	5 (6)	2 (12)	7 (41)	0 (0)	50 (50)	25 (25)
Walking	7 (9)	2 (2)	0 (0)	6 (35)	0 (0)	4 (4)	9 (9)
Outing with family	5 (6)	0 (0)	0 (0)	0 (0)	0 (0)	2 (2)	4 (4)
Jogging/power walking/running	1 (1)	2 (2)	0 (0)	1 (6)	0 (0)	2 (2)	3 (3)
Cycling/Mtn. Biking	2 (2)	0 (0)	0 (0)	0 (0)	1 (1)	0 (0)	0 (0)
Other	2 (2)	0 (0)	1 (6)	0 (0)	0 (0)	0 (0)	0 (0)
Meeting up with friends	2 (2)	0 (0)	0 (0)	0 (0)	0 (0)	1 (1)	0 (0)
Photography	2 (2)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Bird/Wildlife watching	1 (1)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Total	**72 (89)**	**9 (11)**	**3 (18)**	**14 (82)**	**1 (1)**	**59 (58)**	**41 (41)**
Survey point total	**81 (100)**		**17 (100)**		**101 (100)**		

6.12 Group size for those arriving by car ranged from 1 (i.e. the interviewee visiting on their own) to 8, and the mean car-occupancy was 1.6 people per vehicle.

Reasons for site choice (Q13)

6.13 Reasons for site are summarised in Figure 7. Interviewees were asked why they chose to visit the specific location where interviewed, rather than another local site, with answers categorised by the surveyor using pre-determined categories which were not shown to the interviewee. One main reason was identified, and multiple 'other' reasons could be recorded. Overall the rural feel/wild landscape was the most common given reason, cited by 52% of interviewees. Close to home was also important and given by 51%. Close to home was however very clearly the most common single main reason, with 38% of interviewees stating close to home was the single main reason for underpinning their choice of site. Scenery was important for 49% (main and other reasons combined) and good for the dog was a factor for 47%.

6.14 11 interviewees (6%) gave other reasons for their choice, and these were varied, including "litter free"; "site on the way to visit relatives"; "fresh air after

a trip to B&Q"; "space to run around"; "absence of sheep" and "training for a particular event" and "rotate dog walks". For 3 of interviewees (all dog walkers who visited daily), there was clearly a social draw, as the other reason given related to meeting people on the walk.

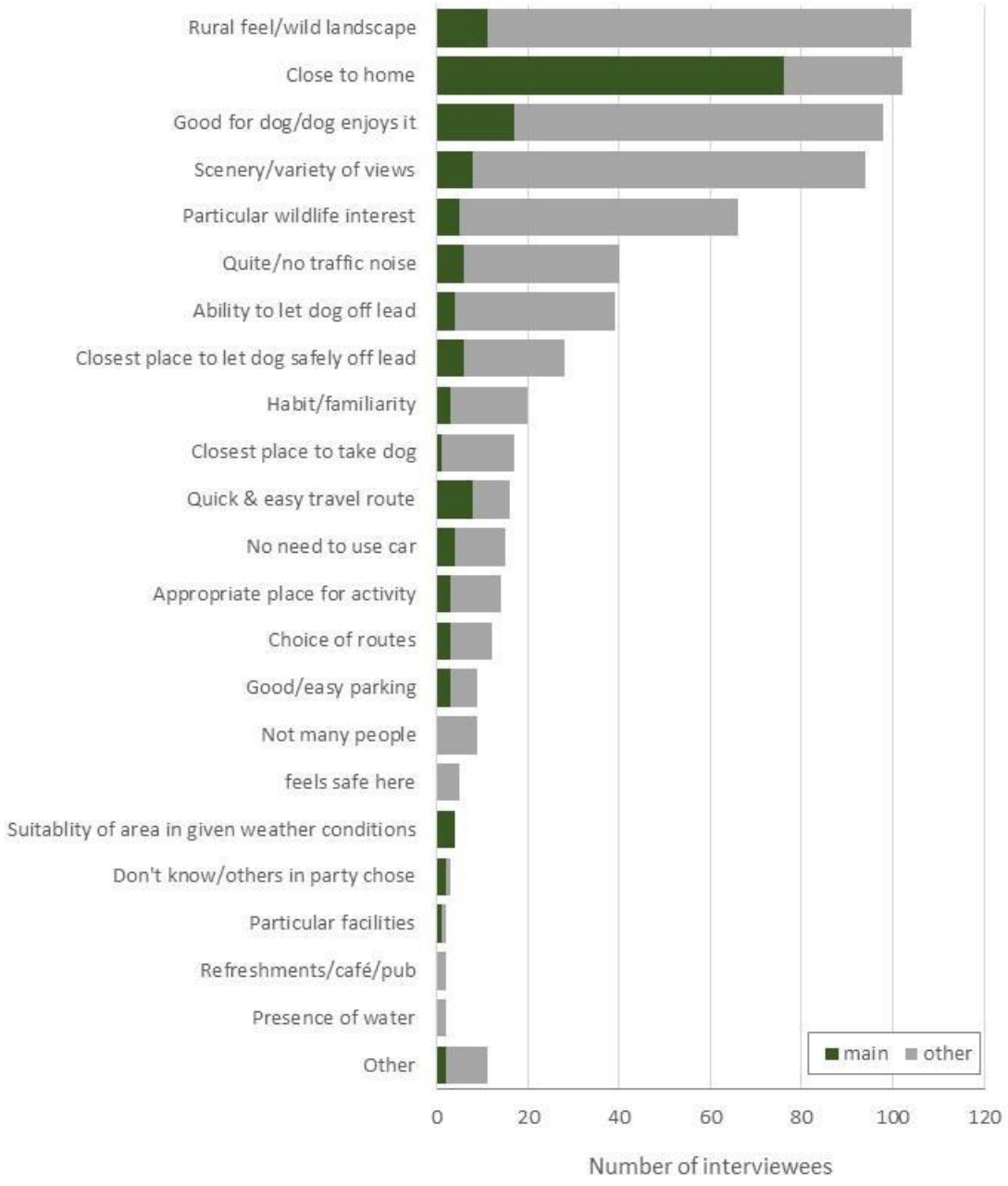


Figure 7: Reasons for site choice (Q13).

Use of other sites (Q14-15)

6.15 It is to be expected that people will tend to visit a range of greenspace sites for recreation. A quarter (25%) of interviewees stated that all their visits (for the activity they were undertaking when interviewed) took place at Strensall Common and for a further third (32%) of interviewees 75% or more of their visits were at Strensall Common. Therefore, for over half (52%) of interviewees, 75% or more of their visits were to Strensall Common, suggesting a strong degree of site faithfulness among visitors (Table 14). The other sites visited were quite limited (see Figure 8) and by far the most commonly visited alternatives were the River Foss or Strensall Village itself.

Table 14: Table 15: Number (row %) of interviewees and proportion of weekly visits at Strensall Common (Q14) by activity. Grey shading reflects the highest two values in each row, with the darker shading highlighting the highest row value.

Activity	All take place here	75% or more	50-74%	25-49%	less than 25%	Not sure/don't know/first visit/no response	Total
Dog walking	43 (31)	47 (34)	14 (10)	11 (8)	18 (13)	6 (4)	139 (100)
Walking	5 (18)	6 (21)	9 (32)	2 (7)	5 (18)	1 (4)	28 (100)
Outing with family	1 (9)	1 (9)	3 (27)	1 (9)	3 (27)	2 (18)	11 (100)
Jogging/power walking/running	1 (11)	7 (78)	0 (0)	0 (0)	1 (11)	0 (0)	9 (100)
Cycling/Mtn. Biking	0 (0)	0 (0)	0 (0)	1 (33)	0 (0)	2 (67)	3 (100)
Other	0 (0)	0 (0)	0 (0)	1 (33)	0 (0)	2 (67)	3 (100)
Meeting up with friends	0 (0)	2 (67)	0 (0)	0 (0)	1 (33)	0 (0)	3 (100)
Photography	0 (0)	0 (0)	0 (0)	0 (0)	2 (100)	0 (0)	2 (100)
Bird/Wildlife watching	0 (0)	0 (0)	1 (100)	0 (0)	0 (0)	0 (0)	1 (100)
Total	**50 (25)**	**63 (32)**	**27 (14)**	**16 (8)**	**30 (15)**	**12 (6)**	**199 (100)**

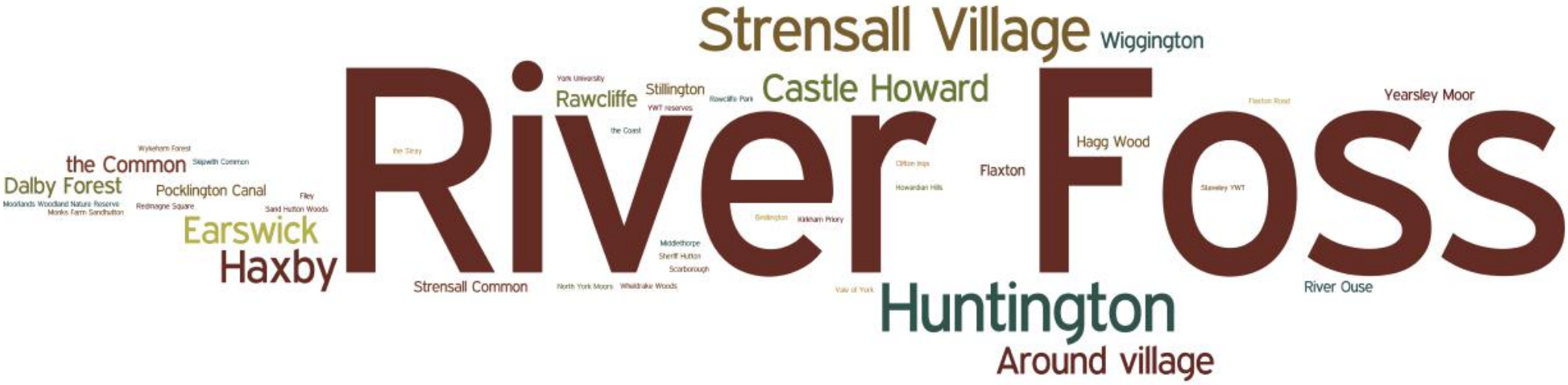


Figure 8: Word cloud giving other sites given by interviewees (from Q15). Graphic created using the Wordle app.

Table 16: Other sites visited, named by at three or more interviewees

Site name	Number of interviewees
River Foss	38
Huntington	9
Strensall Village	8
Haxby	6
Castle Howard	5
Earswick	5

Site name	Number of interviewees
'Around village'	5
Wiggington	3
'the Common'	3
Dalby Forest	3
Rawcliffe	3

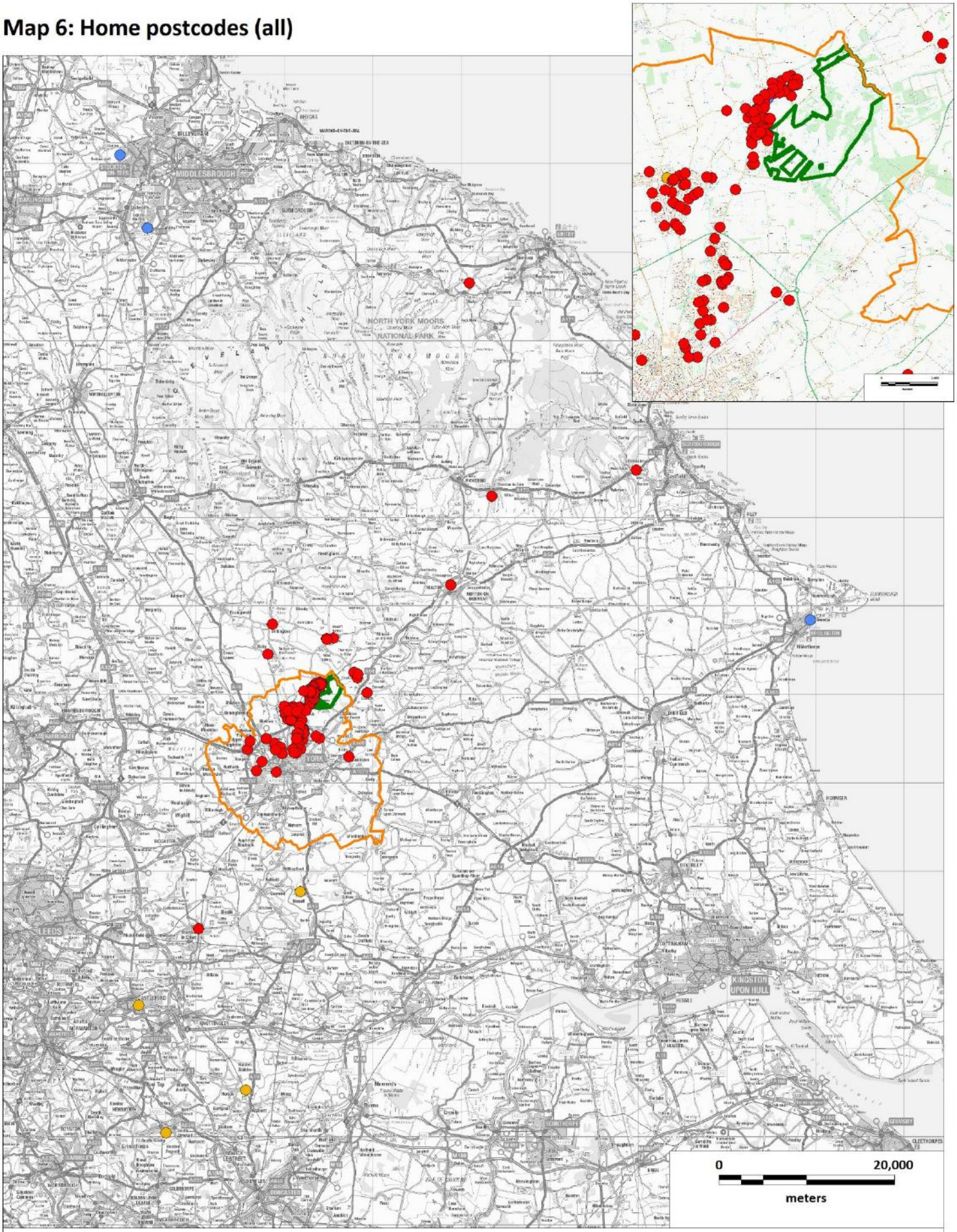
Visitor origins (Q18)

6.16 A total of 192 interviewee postcodes could be accurately mapped, with the full postcode given in the interview matching the standard national postcode database. A total of 7 (4%) of interviews were therefore not assigned to a home postcode.

6.17 Postcode data are mapped in Maps 6-10. Map 6 shows all visitor postcodes, with the inset showing the area directly around Strensall Common. Maps 7-10 show a smaller geographic area than the main map on Map 6 (and as such Maps 7-10 exclude 10 interviewee postcodes which lie outside the area shown). In Map 7 the colours reflect the activities of interviewees, in Map 8 the colours show frequency of visit, in Map 9 the shading reflects the percentage of weekly visits made to Strensall Common (for the given activity) and Map 10 shows the postcodes by survey point.

6.18 It can be seen that the distribution of postcodes reflects interviewees living in Strensall and in nearby settlements (Haxby, Wigginton, Park Estate). There was also a wedge of interviewee postcodes from south of the York bypass towards the city centre, around Earswick and Huntington. Interviewees travelling from Earswick and Huntington included regular visitors and a reasonable proportion of dog walkers. Those visiting from the western part of York and further to the south in the city clearly also use other greenspaces for their chosen activity while those living close to Strensall mostly visit Strensall Common (Map 9). Compared to the main car-parks, interviewees at the Foss Walk survey point were much more local (Map 10).

Map 6: Home postcodes (all)



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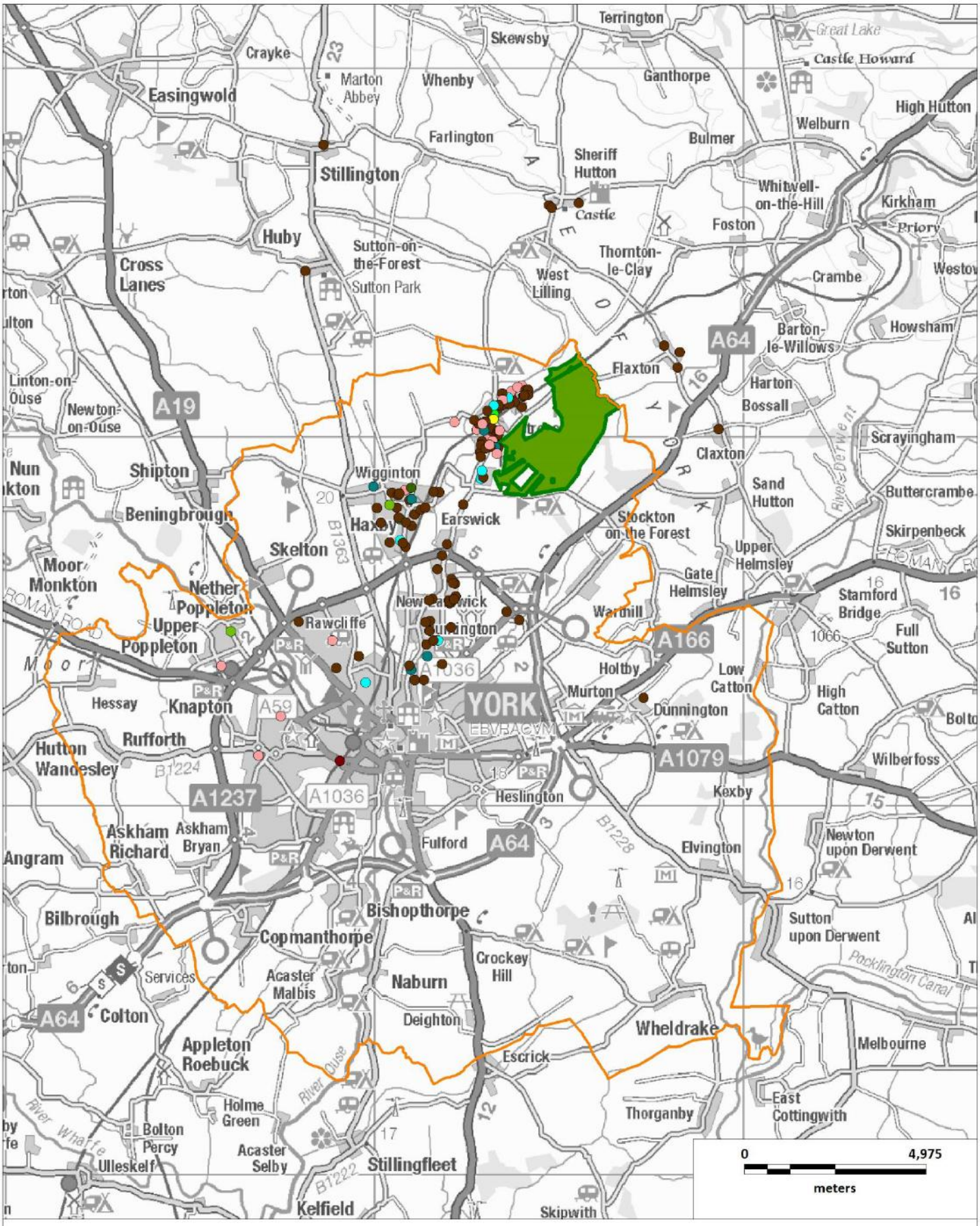
Home postcodes

- Day trip/short visit travelling directly from home that day (183)
- Day trip/short visit and staying away with friends/family (5)
- Staying away from home in second home, mobile home or on holiday (4)

Map 7: Home postcodes by activity (10 postcodes lie outside mapped area)



Interviewee postcodes by main_activity

Bird / Wildlife watching	(1)	Other	(2)
Cycling / Mountain Biking	(3)	Outing with family	(10)
Dog walking	(134)	Photography	(2)
Jogging / power walking / running	(9)	Walking	(28)
Meeting up with friends	(3)		

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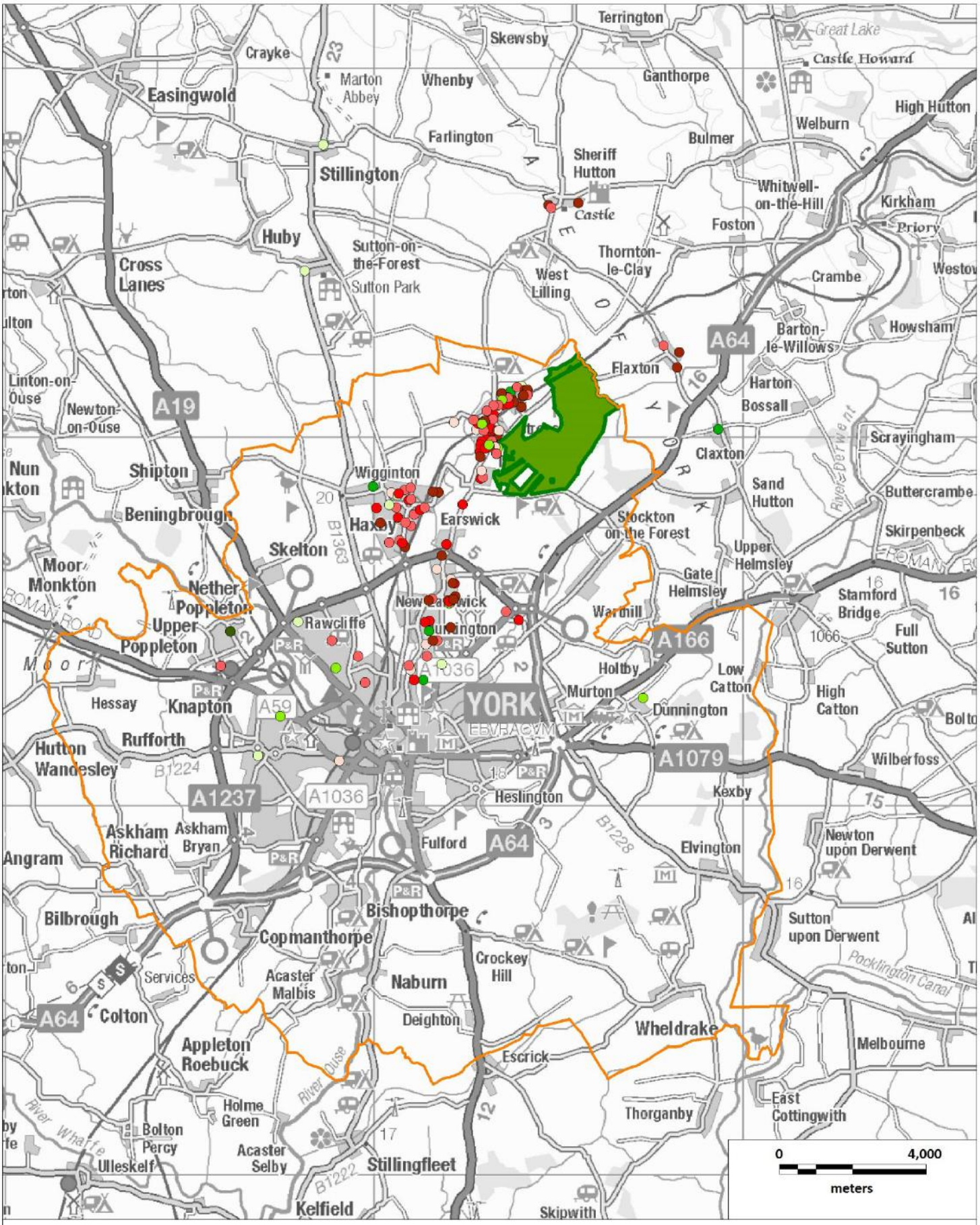
Map 8: Home postcodes by frequency of visit (10 postcodes lie outside mapped area)



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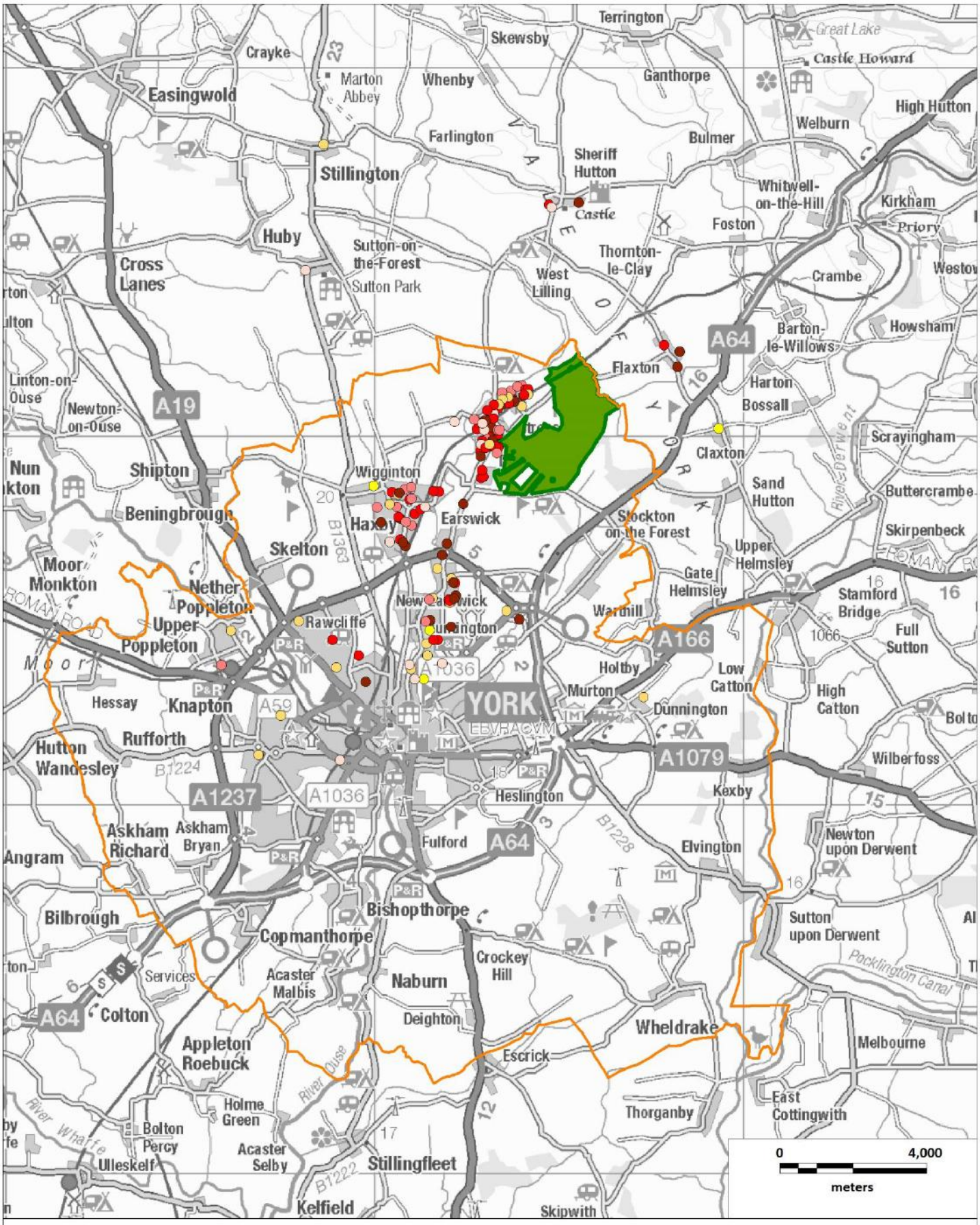
Interviewee postcode by frequeny of visit

Daily	(61)	Once a month (6-15 visits)	(10)
Most days (180+ visits)	(36)	Less than once a month (2-5 visits)	(14)
1 to 3 times a week (40-180 visits)	(45)	First visit	(9)

Map 9: Home postcodes & percentage of visits to Strensall Common (10 postcodes lie outside mapped area)



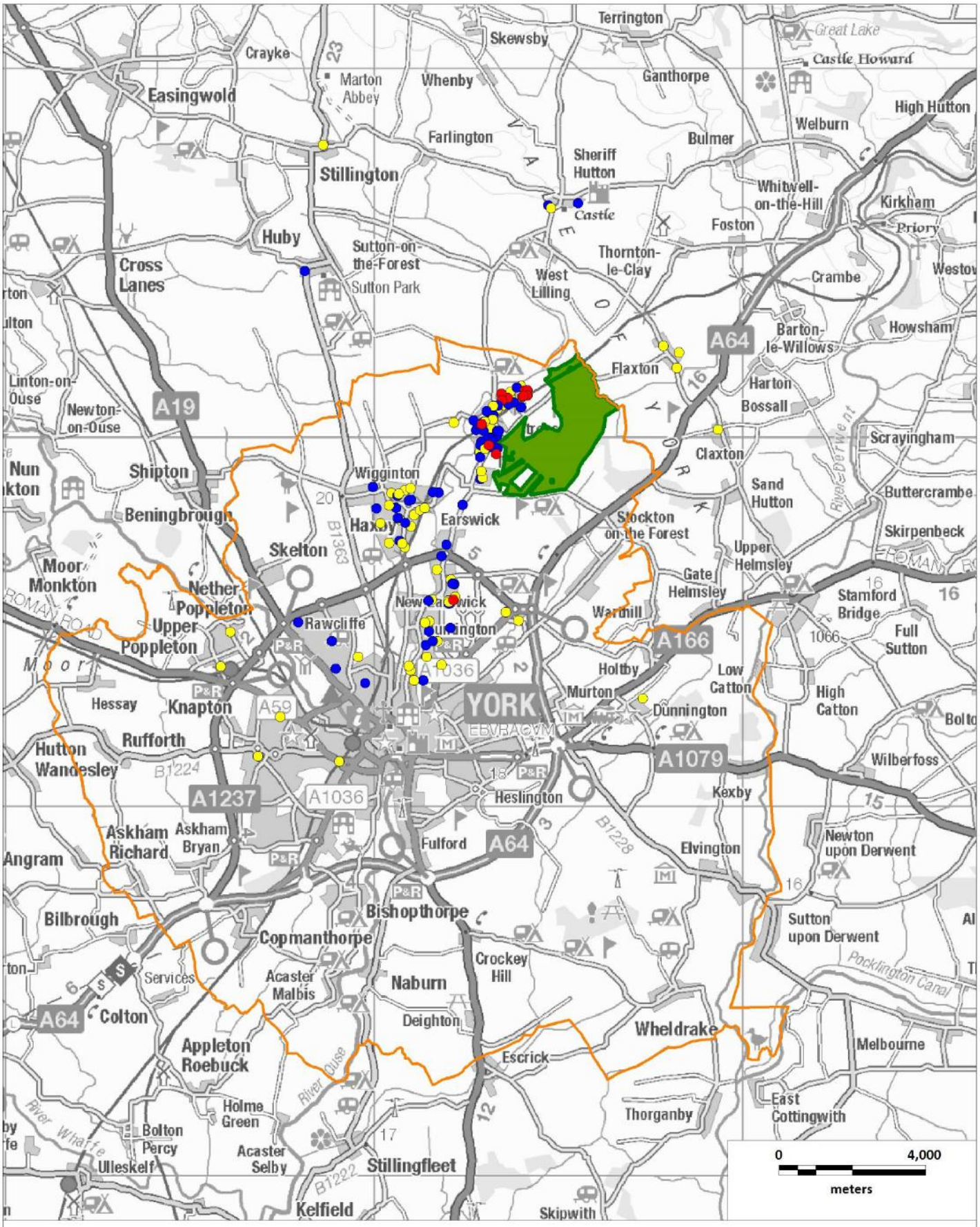
Strensall Common SAC

City of York

Interviewee postcodes and percentage of visits for given activity to Strensall Common

All take place here	(49)	25-49%	(16)
75% or more	(61)	less than 25%	(28)
50-74%	(26)	Not sure/don't know/first visit	(11)

Map 10: Home postcodes by survey point (10 postcodes lie outside mapped area)



Strensall Common SAC

City of York

Interviewee postcodes by survey point

Galtres car-park	(78)
On Foss Walk	(17)
Scott Moncrieff Road car-park	(97)

6.19 The straight-line distance ('as the crow-flies') from the interviewee's home postcode to the survey point was calculated for each of the 192 interviewee postcodes and the data are summarised in Table 17. It can be seen that across all the data the mean distance was 5.7km and the median was 2.9km i.e. 50% of interviewees had come from a radius of 2.9km around the survey points. The mean is so much higher than the median as there are a few large values (up to 64km) that skew the data. The third quartile (75th percentile) was 5.8km; 75% of interviewees lived within this distance of the survey points.

6.20 Looking across the other groupings it can be seen that if holiday makers and those staying with friends and family are excluded (i.e. the data are limited to day visitors from home only), the median is slightly lower at 2.4km and 75% of visitors came from a radius of 5.5km. Dog walkers (median 3km), runners (median 1.7km) and those walking (median 1.45km) were all relatively local and for all these groups the 75th percentile was between 5 and 6km. Those that visit less frequently (less than once a week) clearly come from further afield, with a median distance of 5.8km compared to a median of 1.8 for those coming at least weekly.

Table 17: Summary statistics for the straight-line distance between the home postcode and survey point for different groups of interviewees. Shading and dark lines separate different types of grouping. N is the sample size (number of valid postcodes) and Q3 is the 75th percentile.

Variable/type of interviewee	N	Distance (km)				
		Mean (+ 1SE)	Min	Median	Q3	Maximum
All interviewees with valid postcode	192	5.69 (+0.76)	0.28	2.86	5.79	64.15
Day visitors from home only	183	4.06 (+0.44)	0.28	2.41	5.5	48.01
Dog walkers	134	5.04 (+0.85)	0.28	3.00	5.71	64.15
Jogging/power walking	9	3.06 (+0.9)	0.86	1.67	5.67	7.53
Walking	28	5.34 (+2)	0.36	1.45	5.73	54.22
Visiting less frequently than once a week	50	12.37 (+2.37)	0.28	5.75	11.5	64.15
Visiting at least once a week	142	3.34 (+0.46)	0.34	1.82	4.82	55.35
Those travelling by car	130	6.14 (+0.73)	0.36	4.63	6.37	48.01
Those who arrived on foot	61	4.79 (+1.8)	0.28	0.73	1.35	64.15

Visitor routes during their visit (Q9-12)

6.21 For 69% of interviewees the route they took was reflective of their normal route (Q9); a further 4% did not have a typical visit and 6% were on their first visit. Of those whose route was not reflective of a typical route, 40 interviewees (20%) indicated it was much shorter than normal and only 1 interviewee (<1%) indicated their route was much longer than normal.

6.22 16 interviewees (8%) stated they were following a marked route (Q10) and a further 3 (2%) of interviewees weren't sure/didn't know. Of those that were following a marked route, 3 stated they were following the red route, 2 the brown, 1 the black and the others weren't sure of the colour.

6.23 A range of factors influenced the interviewees' choice of routes (Figure 9). Time available was the most commonly given response (41 interviewees, 21%). Weather, previous knowledge/experience and activity undertaken were also common reasons (in all cases 19 interviewees, 10%). 'Other' reasons were varied but sheep were clearly a factor for many (cited by 12 interviewees).

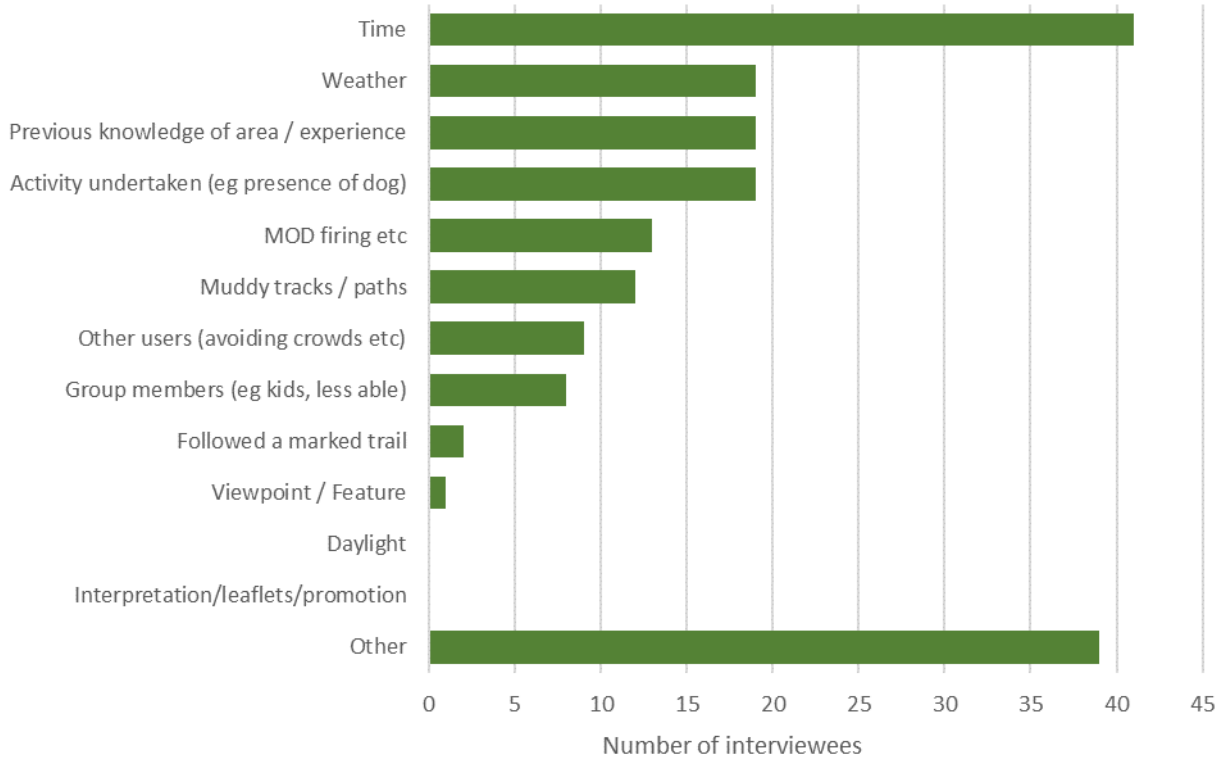


Figure 9: Factors influencing choice of route (Q12). Note interviewees could give multiple responses.

6.24 A total of 191 routes were mapped, with a line showing the route taken by the interviewee. The mean route length as mapped was 3.7km (± 1SE of 0.1), with a median of 3.5km. Routes ranged from 326m to 13.1km. Many of the routes – as mapped – included areas outside the SAC. This was particularly the case for walkers (see Figure 10) where the route often included the route from the house to the Common or encompassed the Foss Way. When the route data were clipped to the SAC boundary, the mean was 2.7km (± 1SE of 0.1), with a median of 2.5km. Routes ranged from 83m to 9.2km.

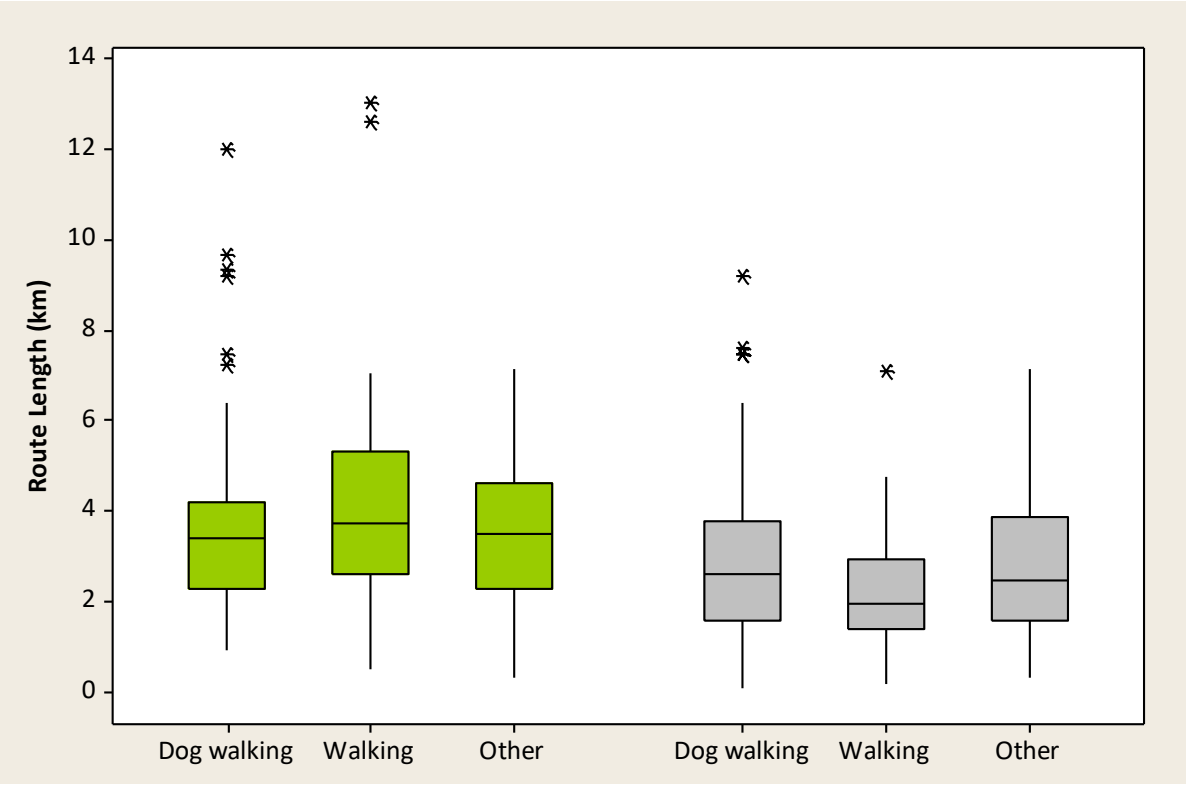


Figure 10: Box plot showing route lengths by selected activities. Green shading reflects total routes mapped, grey shading routes clipped to within the SAC only. Horizontal lines show the median, boxes show the inter-quartile range, whiskers reflect the limit of the data and the asterisks show outliers.

6.25 The mapped routes are shown in Map 11, where we have shown route density within the SAC based on a 25m grid. It is often challenging for interviewees to describe where they have walked, even if shown a map, and the range of route options on Strensall Common means that the routes as mapped are approximate. We have summarised them using the 25m grid as a way of highlighting areas with the most use and broadly indicating where the most footfall (of the interviewees) occurs.

Map 11: Route density (from interviewed visitors) across the SAC

Routes (outside SAC)

25m grid with number of routes through cell
grid covers the extent of the SAC

- 15 to 100 (371)
- 10 to 15 (237)
- 5 to 10 (471)
- 1 to 5 (3698)
- 0 to 1 (4947)

Comments/views on recreation management (Q16-17)

6.26 The last part of the questionnaire included free text boxes for the surveyors to log any changes interviewees would like to see regarding how the site is managed for recreation and people (Q16). The subsequent question asked for any further comments or feedback about the interviewee's visit (Q17). All comments are listed in Appendix 2 (Q16) and Appendix 3 (Q17).

6.27 We also summarise the combined comments to both questions in Figure 11. Key themes included:

- Sheep, in particular the difficulties for dog walkers in knowing where the sheep are, and difficulties in avoiding them (30 interviewees)
- Dog fouling (10+ interviewees)
- Anti-social behaviour, e.g. motorbikes, 'youths', overnight parking, fires etc. (8 interviewees)
- Concern about snakes/adders (7 interviewees) with at least one under the impression that adders are released on the site
- Military use, e.g. fences, red flags, uncertainty about access restrictions (7+ interviewees)

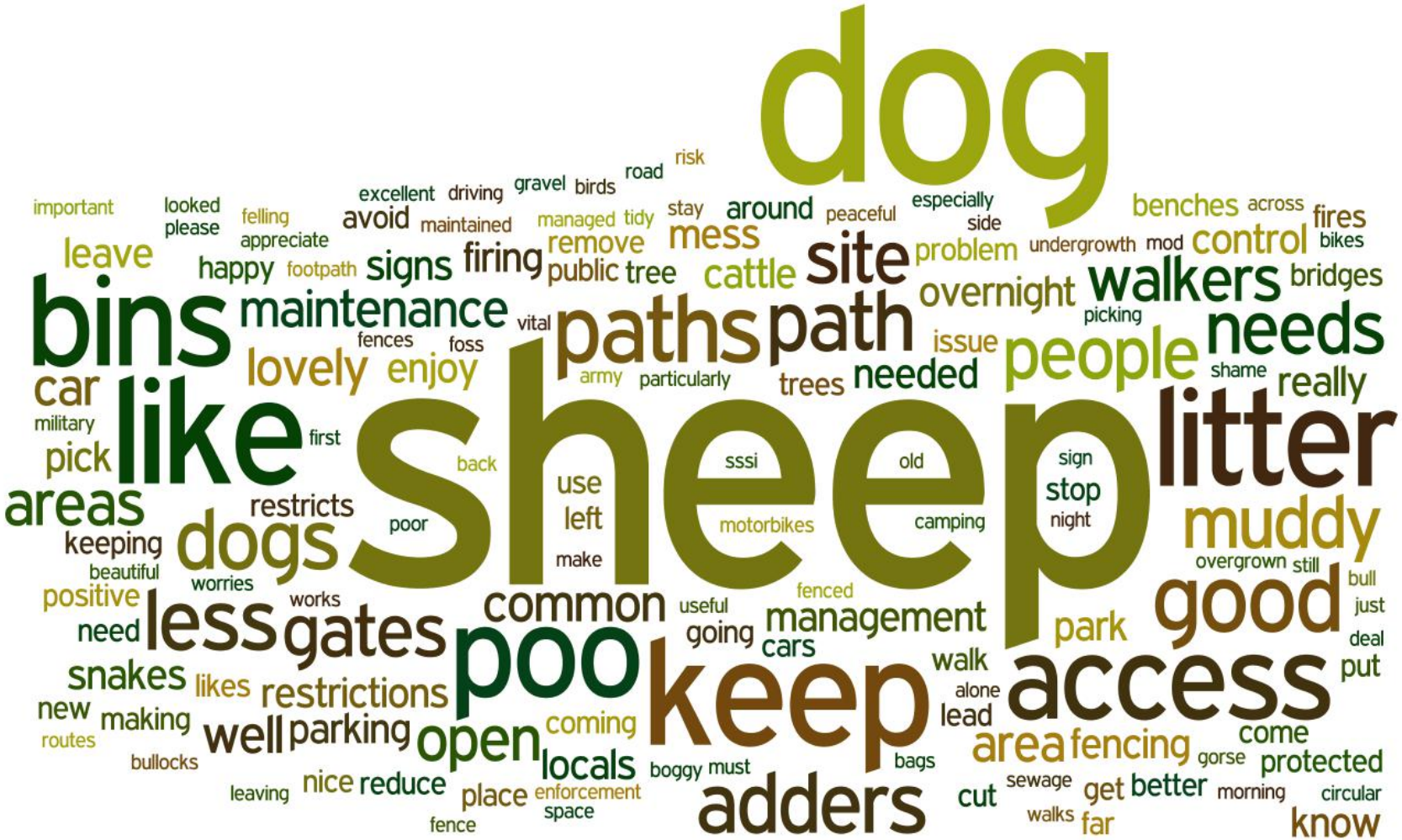


Figure 11: Word cloud giving free text responses to Q16 and 17 combined. Graphic created using the [Wordle](#) app.

7. Housing change and implications for the levels of recreation use

7.1 The analysis of visitor origins (based on the postcode data of interviewees, paras 6.16-6.20 above) highlights that visitors come from a wide area, however a high proportion of visitors are very local, coming from Strensall itself. We would expect people who live close to Strensall Common to be more likely to visit than those who live further away. In this section we use the postcode data to explore how the distance from the SAC relates to the likelihood of visiting Strensall Common, and use this to predict how visitor numbers might change as a result of new housing.

Plan allocations and current levels of housing

7.2 Plan allocations are summarised in Map 2. Using 500m buffers drawn around Strensall Common SAC we extracted figures for the amount of current and future (i.e. the plan allocations) for each 500m distance band (to 7.5km from the SAC). Current housing was based on 2017 postcode data and the number of residential properties assigned to each postcode within the band. Where allocations spanned multiple distance bands we allocated the number of dwellings to each band based on the proportion of the area of the allocation that overlapped the band.

7.3 The data are summarised in Table 18 (which also gives the number of interviewees originating from each distance band) and in Figure 12. The figure shows levels of current housing are relatively low in the immediate distance bands but rise markedly from around 6km, reflecting the location of York and larger areas covered by the buffers (which represent concentric rings of ever-increasing size). It can be seen that the most marked change is in the very local 0-500m distance band, where the 543 potential new dwellings represents an increase of 61%.

Table 18: Number of current residential properties, future development (plan allocations) and interviewees by 500m distance band.

Distance band from SAC	Current residential properties	New development (plan allocations)	% change in housing	Number of interviewees	Interviewees per current property
0-500	883	543	61	44	0.0498
500-1000	1523	2	0	49	0.0322
1000-1500	149	0	0	3	0.0201
1500-2000	791	0	0	4	0.0051
2000-2500	1269	492	39	18	0.0142
2500-3000	2900	928	32	15	0.0052
3000-3500	2772	334	12	17	0.0061
3500-4000	1863	53	3	2	0.0011
4000-4500	2180	0	0	8	0.0037
4500-5000	1637	780	48	3	0.0018
5000-5500	2463	1016	41	2	0.0008
5500-6000	4485	1293	29	3	0.0007
6000-6500	9956	395	4	3	0.0003
6500-7000	9305	213	2	3	0.0003
7000-7500	6743	604	9	0	0
Total	**48,919**	**6653**	**14**	**174**	

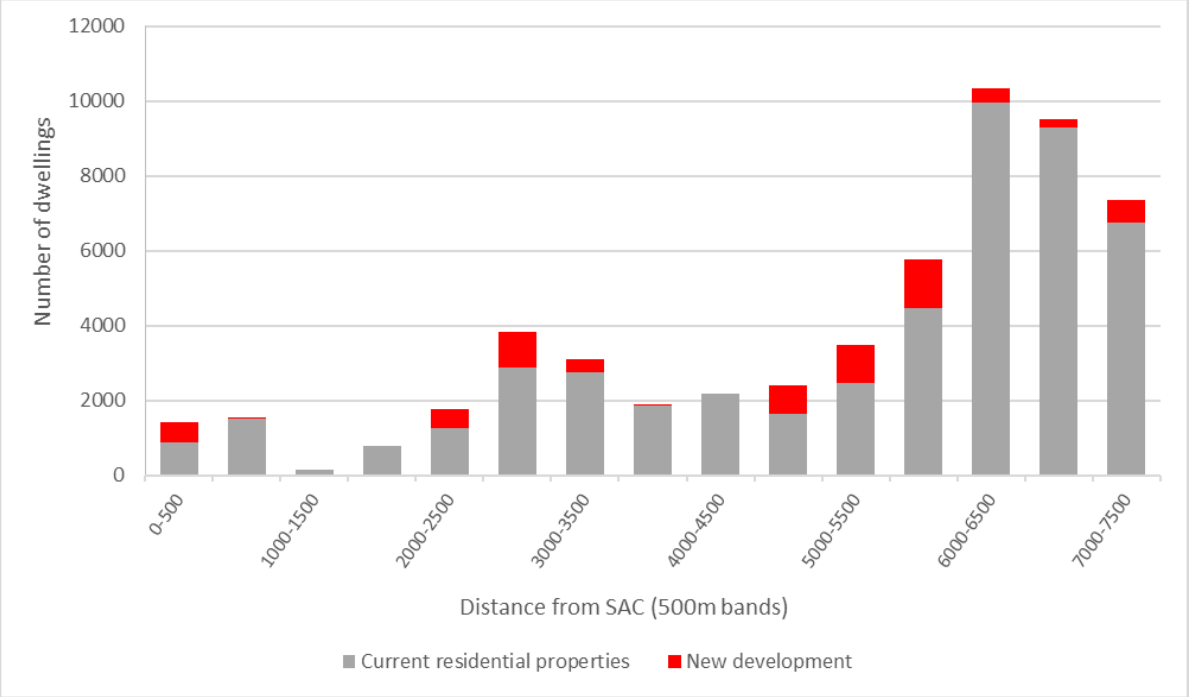


Figure 12: Levels of current and future (new) housing. Current residential properties are extracted from 2017 postcode data. New development is that shown in Map 2, i.e. plan allocations.

Implications for visitor use

7.4 In Table 18 (above) we have given the number of interviewees from each distance band. Dividing the number of interviewees by the volume of current housing gives a value for the number of interviewees per residential property, essentially a measure of visit rate. As would be expected, this value decreases with distance (Figure 13), reflecting that people who live further away from Strensall Common are less likely to visit. Visit rates appear to flatten out and are consistently low from 4km.

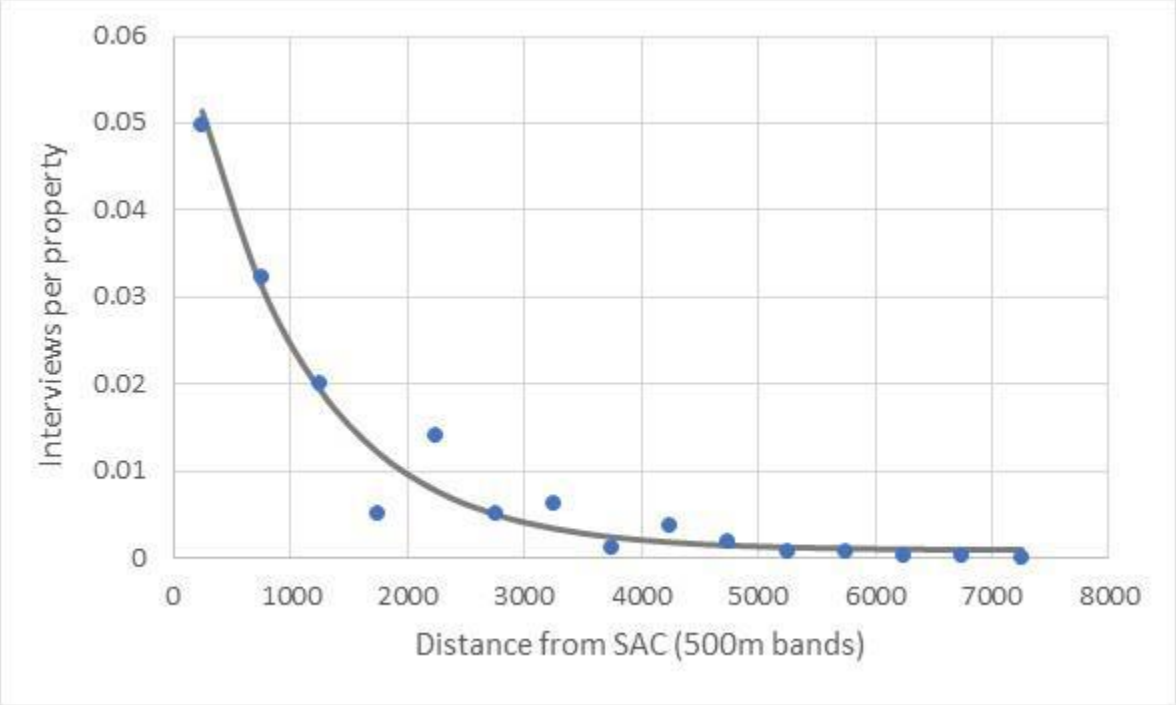


Figure 13: Interviews per property in relation to distance from the SAC. Interviews per property is calculated by dividing the number of interviewees who originated in each 500m band by the number of residential properties in the band. Trendline fitted manually by eye. $Y=0.065e^{-0.001x} + 0.0008$. r2 = 0.962.

7.5 Using the fitted line in Figure 13, we can predict how many interviewees might be expected, were the survey repeated in the future, taking into account the cumulative levels of development (within 7.5km) as set out in the current submission version of the plan. The prediction would be for a further 42 interviewees, a 24% increase (Table 19). The majority of these (28 of the 42 additional interviewees) would originate from the 0-500m distance band, reflecting the particular impact of development in very close proximity of the SAC.

Table 19: Number of current interviewees and predicted increase based on fitted curve in Figure 13.

Distance band from SAC	Number of interviewees	Predicted additional increase as a result of new housing	% change
0-500	44	27.92	63
500-1000	49	0.06	0
1000-1500	3	0	0
1500-2000	4	0	0
2000-2500	18	3.76	21
2500-3000	15	4.6	31
3000-3500	17	1.11	7
3500-4000	2	0.12	6
4000-4500	8	0	0
4500-5000	3	1.06	35
5000-5500	2	1.16	58
5500-6000	3	1.3	43
6000-6500	3	0.37	12
6500-7000	3	0.19	6
7000-7500	0	0.51	
	174	**42.16**	**24**

7.6 We can test the overall change in access to Strensall Common as a result of different sites being excluded from the Plan (Table 20). This provides a check on the scale of change associated with different development scenarios. The first row in Table 20 shows the same scenario as above (in Table 19), i.e. all allocations within 7.5km. Subsequent rows show the effect of dropping different allocations. It can be seen that without ST35 (500 dwellings at the Queen Elizabeth Barracks) all the other allocations would be predicted to result in an overall change in access of 7%:

Table 20: Increases in access with different levels of development, checking the potential effect of removing different allocations from the plan.

Scenario	Overall number of dwellings	% change in access
All allocations,	6653	24
All allocations apart from ST35, Queen Elizabeth Barracks	6153	7
All allocations apart from ST8, Land North of Monks Cross	5685	22
All allocations apart from ST14, Land to the West of Wiggington Rd	5305	23
All allocations apart from H59, Queen Elizabeth Barracks	6608	23
All allocations apart from ST9, North of Haxby	5918	22

7.7 The relative contribution of different allocations is also shown in Figure 14. This highlights the potential strong influence of the development in close proximity.

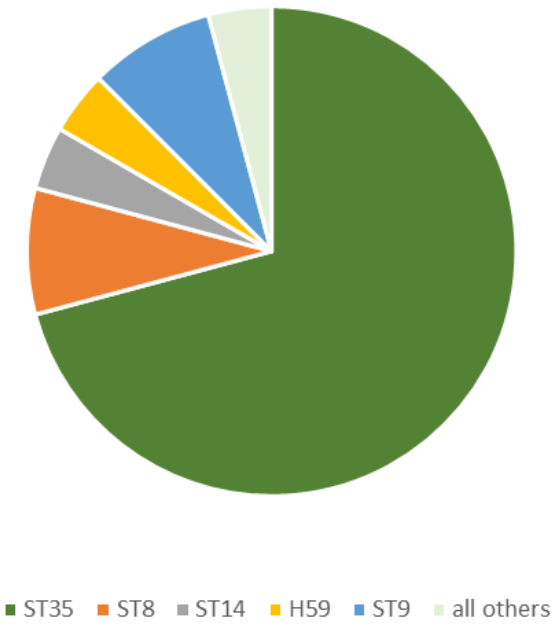


Figure 14: Relative contribution of different allocation sites (all within 7.5km of Strensall Common) to the change in access predicted from the overall quantum of development. The overall change is an increase of 24%.

Caveats with the approach

7.8 We have estimated the increase in use by extrapolating visitor data from a snapshot in time. The data show that a 14% increase in housing is envisaged within the submission version of the plan, within 7.5km of the SAC. We predict a 24% increase in access as a result, the discrepancy between the two figures reflecting the close proximity of the some of the development to the SAC.

7.9 This increase is essentially the number of interviews that would be expected were the survey to be repeated, after the allocations had been built. As the interviews were with a random sample of visitors, it is reasonable to assume that this level of change would be the overall change in access that might be expected. We highlight that the predictions are made assuming even distribution of housing within the allocation sites, i.e. for each site housing

would evenly spread across the whole allocation area. We have assumed no mitigation in place that would deflect access, essentially envisaging residents in any new development would have similar access patterns/visit Strensall Common in the same way as other local residents.

7.10 Our estimates also only take into account new development within York (within 7.5km) rather than further afield.

8. Vegetation types at Strensall Common

8.1 The vegetation types of Strensall Common are summarised in this section and mapped using the new UKHab classification (referred to in bold in the text), with cross reference to the National Vegetation Classification (Rodwell 1991) and the Annex I habitats[5] for which the site is designated. UKHab was used (as opposed to Phase 1[6]) as it was specifically designed to allow easy correlation between the different systems. Reference to Wilson (2009) should be made for more detailed vegetation descriptions, which are still valid for the site - changes since 2009 appear to be an increase in the amount of young secondary woodland, a small increase in short acid grassland and the drying out of wetland communities and ponds (although note that the 2018 survey followed a particularly dry summer).

8.2 Strensall Common is underlain by a complex mosaic of sands and clays which result in a diverse pattern of dry and wet heath and wetland communities. The common is essentially formed of two large shallow depressions supporting predominantly wet heath divided by free-draining sandy ridges crossing the site diagonally from north-west to south-east. There are additional sandy ridges throughout the wetter areas. Both wet and dry areas support heathland and there is also much secondary and planted woodland.

8.3 The SAC is designated for 4010 Northern Atlantic wet heath with *Erica tetralix* and 4010 European dry heaths. At Strensall, these habitats are represented by the NVC communities M16 Lowland Wet Heath - *Erica tetralix – Sphagnum compactum* wet heath and H9 Wavy hair-grass heath - *Calluna vulgaris-Deschampsia flexuosa* heath. A heather *Calluna vulgaris*-dominated dry subcommunity, H9a, forms dry heath while a damper subcommunity H9e with Purple Moor-grass *Molinia caerulea* and Cross-leaved Heath *Erica tetralix* represents a type of humid heath. H9 is listed as a component community of European dry heaths. However, the Annex I description[7] notes that not all forms of the communities listed (which includes H9) fall within European dry heaths. At Strensall, we consider that, together with the wetter M16 (which includes bog mosses), H9e falls within the UKHab community **h1a7 Wet**

[5] http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?EUcode=UK0030284
[6] http://jncc.defra.gov.uk/page-4258
[7] http://jncc.defra.gov.uk/protectedsites/sacselection/habitat.asp?FeatureIntCode=H4030

heathland with Cross-leaved Heath, lowland[8] while H9a falls within **h1a5 dry heathland, lowland**. In practice, H9e forms a transition between the two UKHab and Annex I communities. Dry heathland is largely confined to low ridges in the north of the site. Wet heathland is widespread, found on peaty, permanently wet soils and drier, more freely draining soils that are wet at times.

8.4 The wet areas also support larges areas of tussocky, M25 Purple moor-grass sward - *Molinia caerulea-Potentilla erecta* mire vegetation. This falls within UKHab **f2b Purple moor grass and rush pastures** although it is perhaps best considered as part of the wet heath habitat rather than as Purple Moor-grass pasture. Much of this wetter habitat is affected by drainage – there are boundary drains and herringbone drain systems are clear from aerial images throughout the main wet heath areas. The drains are many cases partly hidden on the ground by tussocky vegetation which is widespread in these areas.

8.5 Much of what was once presumably wet heath or Purple Moor-grass dominated rush pasture now supports secondary Birch-dominated woodland (W4 Hoary birch woodland *Betula pubescens-Molinia caerulea* woodland). This often has a Purple Moor-grass dominated ground flora. Some drier areas support planted Oak and Scots Pine woodland (W16 Oak-birch hair-grass woodland *Quercus-Betula-Deschampsia flexuosa* woodland). This falls within the UKHab category **w1f7 other lowland mixed deciduous woodland**. There are limited areas of W4a which fall within **w1d Wet woodland**.

8.6 There are four large, shallow ponds and several smaller ones, most of which were dry at the time of the survey (following a summer with low rainfall). The shallower ponds have marginal stands of mire vegetation (mostly M1 Cow-horn bog moss pool *Sphagnum auriculatum* bog pool community and M4 Bottle sedge poor fen *Carex rostrata-Sphagnum recurvum* mire) **f2a8 Transition mires and quaking bogs; lowland**.

8.7 There are also stands of short acid grassland (U4 Bent-fescue pasture *Festuca ovina-Agrostis capillaris-Galium saxatile* grassland) which fall within **g1a6 Other lowland dry acid grassland**. This is found along lightly used paths,

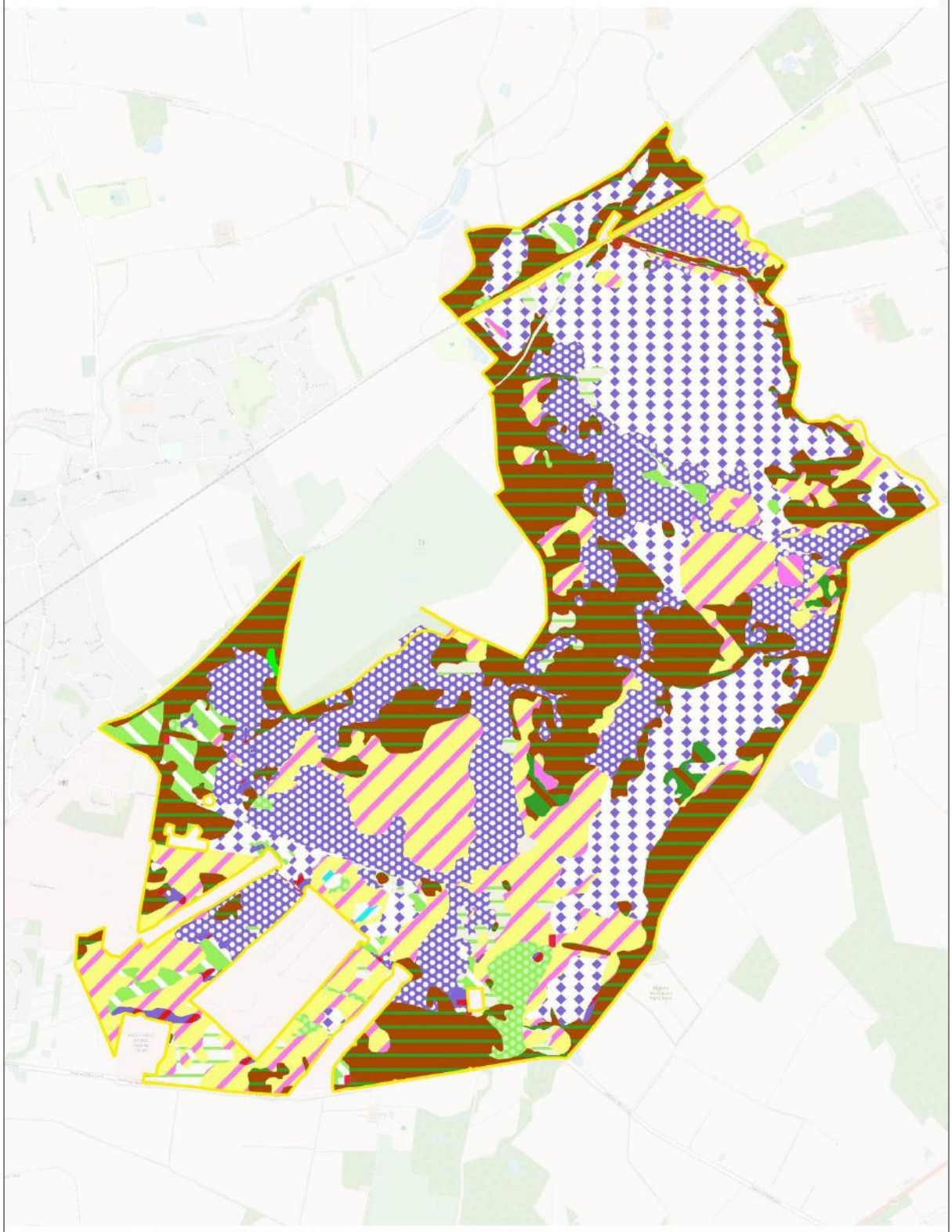
[8] The UKHab correspondence table suggests that H9e can fall within h1b6 Wet heathland with cross-leaved heath; upland, but clearly it is lowland heathland at Strensall.

around the base of trees where livestock gather and is also widespread in the mostly heavily grazed areas around the Scott-Moncrieff car park.

8.8 To the south, there are substantial areas of partially agriculturally improved vegetation with large drainage ditches. Here the vegetation is a mixture of M23 Sharp-flowered Rush-pasture **-** *Juncus acutiflorus-Galium palustre* rush-pasture, MG10 Soft rush-pasture **-** *Holcus lanatus-Juncus effusus* rush-pasture. Within in this context, these fall within the UKHab category **g3c8 Holcus-Juncus neutral grassland.**

8.9 There are also dense stands of Bracken and of European Gorse scattered throughout the site – this fall within UKHab **g1c Bracken** and **h3e Gorse scrub.**

Map 12: Strensall Common habitat map



8.10 GIS shape files containing both UKHab and NVC codes for habitat polygons are provided with this report.

8.11 Plants of note recorded included Narrow Buckler-fern (restricted to wet woodland), Petty Whin *Gensita anglica* in wet heath at the northern end of the site at SE65729 614401 and SE65794 614446, Pillwort *Pilularia* globulifera in a shallow pond at SE65015942 and Cranberry *Vaccinium oxycoccos* at SE65200, 59517.

9. Impacts of recreation at Strensall Common SAC

9.1 In this section we draw on existing literature reviews and information gained from site visits to consider the impacts of recreation on the European site interest. It is important to highlight that the focus is on recreation impacts, rather than general pressures of increasing urbanisation (which includes issues such as increased cat predation, fragmentation, air quality etc.).

Potential impacts of recreation

9.2 Natural England's Site Improvement Plan[9] for Strensall Common SAC priorities public access/disturbance as the most important current pressure or threat to the site.

9.3 Drawing on various national reviews of the nature conservation impacts of recreation access to particular habitats and species (Underhill-Day 2005; Lowen *et al.* 2008; Liley *et al.* 2010) and the HRA for the City of York Local Plan we identify that access to the SAC has the potential for the following impacts to the SAC:

- Trampling, leading to vegetation wear, soil compaction, erosion
- Increased fire incidence
- Disturbance to grazing livestock, resulting in grazing animals avoiding areas of the Common and potential difficulties in achieving the right levels and types of grazing
- Nutrient enrichment from dog fouling
- Contamination of ponds
- Contamination from fly tipping, litter etc.
- Damage to infrastructure (gates etc.), whether through wear and tear or direct damage from vandalism

9.4 These are considered in more detail below, drawing on relevant studies and material for background/context and from site visits to consider the current issues at Strensall Common SAC. We have not included disturbance to birds here because the bird interest is not reflected in the SAC designation. However, species such as Nightjar, Curlew and Woodlark which occur on the

[9] Plan available on the Natural England website

site are ground nesting species and are vulnerable to human disturbance (e.g. Murison 2002; Mallord *et al.* 2007).

Trampling, leading to vegetation wear, soil compaction, erosion

Overview of issues

9.5 Recreational activities can lead to changes in soil characteristics and ultimately lead to erosion. Although erosion brought about by recreational activities is small compared to natural factors it can none the less an important form of soil degradation (Holden *et al.* 2007). Changes to substrates can in turn lead to changes in the ecological communities they support.

9.6 At lower levels of use, the main impact is on vegetation and is largely mechanical (Bayfield & Aitken 1992; Liddle 1997) while higher levels of use will also affect substrates. Light use may cause a slight decrease in vegetation cover, and a decline in the incidence of flowering. Bare ground may be colonised by trampling resistant species. Heavier ground pressure leads to greater losses of vegetation. Significant erosion can be expected where the plant cover falls below 70% (Liddle, 1997), but erosion can commence before this level is reached (Kuss & Morgan 1984). As loss of vegetation takes place, there is disruption and progressive loss of soil horizons by direct physical abrasion or loosening and indirectly by water and wind erosion. Important changes in soil structure and chemistry can result from compaction. Poor permeability to water can increase surface run-off, and reduced aeration can result in anaerobic conditions and poor root growth.

9.7 Trampling has been shown to alter the amount of litter present (Bayfield & Brookes 1979), soil water content, soil temperature and chemistry (Liddle 1997)

9.8 Different recreational activities can have a significantly different impact. In general, walking is likely to be less damaging that horse riding, cycling or motorised vehicles. For example, Weaver and Dale (1978) showed that horses were substantially more damaging, and motor cycles slightly more damaging than hikers in grassland and woodland in the US Pacific Northwest. Thurston and Reader (2001) suggest that mountain bikes cause the same amount of damage as hikers in deciduous woodland, although

MacIntyre (1991) and Rees (1990) show that mountain bikes may cause slightly more damage than foot traffic depending on the type of habitat.

9.9 Heather-dominated vegetation is very susceptible to trampling damage, though there may be some differences related to individual species response and soil conditions. In summer and winter trials on undamaged lowland heathland in England (Harrison 1981), it was shown that 400 passes in the first summer of the experiment, caused heather cover to fall to about 50%, and by 800 passes it was less than 10%. The vegetation failed to recover in the period following the experimental trampling, after winter only, summer only, or all season trampling.

9.10 Seasonal and habitat response was tested in trials on heathland in Brittany (Gallet & Roze 2001) and though there were some differences, in all cases trampling led to a great decrease in vegetation cover, with the vegetation cover varying between 0 and 50% under 750 passes. Dry heathland was more resistant than mesophilous (humid) heath and significantly so with winter trampling, but both heath types were equally vulnerable in wet conditions. Gorse was more resilient than heathers; and younger dwarf shrubs were less vulnerable than older plants.

9.11 Heather is also more susceptible to trampling damage than purple moor-grass (Lake, Bullock & Hartley, S. 2001). In Belgium, Roovers *et al.* (2004) found that dry heath with a high proportion of grasses – Purple Moor-Grass and Wavy Hair-Grass - as well as dwarf shrubs, was less sensitive to trampling.

9.12 Though trampling can damage the dwarf shrub community of heathland, there are some aspects of the habitat that need the canopy to be broken, even to the extent of bare ground being sustained. Bare ground and early successional habitats are a very important component of the heathland ecosystem, important for a suite of plants, invertebrates and reptiles (Byfield & Pearman 1996; Lake & Underhill-Day 1999; Key 2000). Typically small, low-growing herbs with low competitive capacity require these open conditions and lack of suppression by a taller canopy. Some may be ruderals or annuals that can only survive in such conditions. Some kind of physical disturbance is usually required to create these bare ground habitats, and hence a certain level of physical disturbance, including erosion resulting from trampling, can be beneficial. However, the level of disturbance required is difficult to define and is likely to vary between sites (Lake, Bullock & Hartley 2001). There are likely to be optimum levels of use that maintain the bare ground habitats but

do not continually disturb the substrate. Such levels of use have never been quantified, nor is it known whether sporadic use is likely to be better at maintaining bare ground habitats than low level, continuous use.

Site specific evidence

9.13 Excluding surfaced tracks and boardwalks, most paths at Strensall Common have been created by, and are maintained by, trampling pressure (although some of the tracks appear to be mown). This generally results in a short grassy sward, often dominated by fine grasses and rosette-forming herbs. In some places, particularly on wetter ground and under tree canopies the paths are bare and peaty/muddy. This is not considered to impact on the overall integrity of the site.

9.14 There are a small number of sandy tracks that provide bare ground habitat in an otherwise largely closed sward. This microhabitat is essential for many heathland invertebrates. Although probably created by vehicles, a moderate amount of trampling on these tracks may help maintain them as open habitat.

9.15 There is also some problems with unauthorised access by motor bikes. This has been a problem in the past and the MOD have put in barriers at the northern part of the site to attempt to limit unauthorised access. Motorbikes may cause particular wear and damage. Mountain bikes were also observed on site during the survey.

9.16 Away from paths and tracks, the nature of the terrain is likely to influence access patterns. In general, the tussocky Purple Moor-grass communities appeared to be less penetrable than drier, Heather-dominated areas, particularly where there was also young tree growth. Although Heather-dominated communities are potentially more vulnerable to trampling (see above) in addition to attracting more footfall, no significant impacts were observed away from paths.

9.17 Overall, wetter areas are less likely to be attractive to visitors because the walking conditions are more difficult (although ponds may be an attraction). This is clear in the northern and south western sections of the site, where there are very few paths crossing the main stands of vegetation. The section between the railway and York Lane also appears to be very little used. The limitations to access within the live firing range also mean that this area is presumably less used than that around the car parks (a substantial fence

was being erected along the live firing boundary at the time of the survey) and informal paths were much less frequent within this area.

Increased fire incidence

Overview of issues

9.18 Fires can be caused accidentally from discarded cigarettes, by sparks from a campfire, BBQs or from burning a dumped or stolen car, from fireworks, as a result of a controlled fire getting out of control, from discarded bottles in strong sunlight, from children playing with matches or similar, and from deliberate arson.

9.19 Based on 217 questionnaires from a sample of lowland heaths in Dorset, Kirby and Tantram (Tantram, Boobyer & Kirby 1999) found that 61% of fires were caused by arson, 8% from management fires getting out of control, 7% from bonfires and the remainder from camp fires, burning refuse, vehicle fires, property fire and sparks from a railway. The only natural cause of fire was from lightning. The same study noted that there was a widespread belief among the public and nature conservation professionals that most fires were deliberate and that children were often believed to be responsible (this would be most relevant on sites close to residential areas rather than remote uplands).

9.20 A number of studies have linked the incidence of fires with areas used by the public, or with the extent of urbanisation. In the Peak District National Park during 1970-1995, 84% of 324 recorded fires were next to roads, paths or within areas of open access, and many burnt areas on Exmoor are close to public roads (Miller & Miles 1984). Kirby and Tantram (1999) noted that of the 26 lowland heathland SSSIs in Dorset with the highest number of fires, 1990-1998, 70% were located in or adjacent to urban areas, including the top nine.

9.21 Fires can have major impacts on the soil, vegetation and fauna present, and recovery can take many years.

9.22 After a fire where temperature and intensity moderate, vegetation recovery will be largely influenced by the vegetation composition before the fire, although subsequent management, particularly grazing and trampling, will influence regeneration. The less palatable or better-adapted species may be favoured by grazing, so that, for example, cross leaved-heath and the more unpalatable graminoids may benefit initially at the expense of heather. On

wet heath, fire led to dominance by a range of graminoids that were not supplanted by dwarf shrubs for about 15 years (Currall 1981) and on a blanket bog in the Pennines, fire led to replacement of heather by Common Cotton Grass for at least 15 years (Rawes & Hobbs 1979). Stevenson *et al.* (1996) found that two serially burnt stands of dry heath aged more than 19 years when burnt had lower species richness than unburnt controls.

9.23 A range of studies show impacts of fires for invertebrate populations. Recovery of the full community of unburnt areas can take as little as two years in grassland to 20 years in heathland habitats (Bell, Wheater & Cullen 2001; Panzer 2002). While some species and communities can benefit from the open conditions following a fire or in regularly burned sites, others can be seriously depleted or even eliminated (Kirby 2001).

9.24 Where fires are extensive, whole populations of invertebrates can be destroyed and large fires may cause local extinctions in less mobile species. Invertebrate groups which are most vulnerable to fire in open habitats are those present in the litter as eggs or larvae in spring when many fires take place, species with only one generation per annum and sedentary or flightless species or groups. These include molluscs, leafhoppers, grasshoppers and some butterfly and moth species (Kerney 1999; Panzer 2002). Fire can also be particularly damaging to reptile.

9.25 Controlled burning is sometimes used as a management tool to remove a build up of Purple Moor-grass litter and stimulate the growth of young heather, creating a more structurally diverse sward. However, this must be carried out in a narrow window of opportunity in late winter when there is least likely to be damage to heathland species. This is very different from wildlife, which is uncontrolled and often occurs in the summer when the damage to both flora and fauna is likely to be greatest.

Site specific evidence

9.26 The distribution of the Dark Bordered Beauty Moth has become increasingly focussed on a number of small 'hotspots' within Strensall Common, whereas in the past it has been widely distributed across the site (Baker *et al.* 2016). This means it is potentially very vulnerable to fire, for example a fire in 2009/10 was particularly damaging (Baker *et al.* 2016).

9.27 Evidence of previous fire was noted in the northern central section of the site in an area where the sward was very even-aged.

Disturbance to grazing livestock, resulting in grazing animals avoiding areas of the Common and potential difficulties in achieving the right levels and types of grazing

Overview of issues

9.28 Public access and grazing can be difficult to reconcile. Grazing is essential to the conservation management of Strensall Common. Natural England's Site Improvement Plan highlights that if the site was unable to be grazed then the wet and dry heath communities would be adversely affected. The Site Improvement Plan identifies that access currently affects the ability of the site to be managed with the tenant farmer losing stock each year to dog attacks. It would therefore be expected that access will influence the choice of livestock and the grazing that can be achieved. The presence of people is likely to influence the overall distribution of livestock and which areas animals use.

Site specific evidence

9.29 Strensall Common is currently grazed by both sheep and cattle. Cattle appear to be restricted to the centre of the site within the live firing zone. Sheep are more widely dispersed.

9.30 Almost all lowland heathland in the UK is semi-natural, i.e. has evolved through the interaction between natural processes and human behaviour. Without ongoing intervention, it will develop into secondary woodland with the loss of characteristic heathland species. Livestock grazing is one of the land-uses that helped create heathland and, combined with other management techniques, is key to maintaining heathland swards that are varied in structure and species (e.g. Lake, Bullock & Hartley, 2001). Grazing is therefore an essential part to the ongoing management of Strensall Common. The condition of the vegetation suggests that the current grazing plan could be beneficially tweaked for example to increase cattle grazing in some heavily Purple Moor-grass dominated areas, and possible reduce (but not remove) the sheep grazing pressure in others.

9.31 However, it is essential to achieve an appropriate balance as different species have different requirements. Grazing intensity has been raised as an issue for the Dark-bordered Beauty at Strensall Common. The site is the last remaining location for this moth in England and recent declines at Strensall

Common have been linked to grazing levels being too high (Baker *et al.* 2016). Access levels may affect the potential to get the long-term grazing management at the right stocking density.

9.32 The tenant farmer has issues with dog worrying of stock in most years and the numbers of visitors and uncontrolled dogs have caused problems for stock management. The tenant farmer has also lost stock on the Common and in one instance had stock butchered on site. Increased levels of recreational pressure will exacerbate this problem.

Nutrient enrichment from dog fouling

Overview of issues

9.33 A number of reviews have addressed the impacts of dog fouling (Bull 1998; Taylor *et al.* 2005; Groome, Denton & Smith 2018). Dogs will typically defecate within 10 minutes of a walk starting, and as a consequence most (but not all) deposition tends to occur within 400m of a site entrance (Taylor *et al.,* 2005). In addition, most faeces are deposited close to the path, with a peak at approximately 1m from the path edge (Shaw, Lankey & Hollingham 1995). Similarly, dogs will typically urinate at the start of a walk, but they will also urinate at frequent intervals during the walk too. The total volume deposited on sites may be surprisingly large. At Burnham Beeches NNR over one year, Barnard (2003) estimated the total amounts of urine as 30,000 litres and 60 tonnes of faeces from dogs.

9.34 Nutrient levels in soil (particularly nitrogen and phosphorous) are important factors determining plant species composition on heathland, the typical effect will be equivalent to applying a high level of fertilizer, resulting in a reduction in species richness and the presence of species typically associated with more improved habitats. The impacts of dog fouling can often be seen in the form of grassy wedges/edges of paths on many heaths with high levels of access. This can be exacerbated by trampling, which has a lesser effect on species such as grasses (which grow from the base rather than the tip).

9.35 One study on chalk grassland, a typically nutrient poor habitat, showed that in the first 50m alongside the path the typical chalk grassland flora was replaced by crested dog's-tail and perennial ryegrass (Streeter, 1971). It also showed that although this change in flora did not correlate well with available soil nitrogen, it did correlate with soil phosphate, hypothesised to

come from dog faeces. In another study on a heathland site frequently used by dog walkers, available soil nitrogen and phosphate followed the spatial distribution as dog faeces which peaked at 1m from the path and showed a conversion from a heathy to grassy sward (Shaw et al., 1995).

9.36 Very little is known about the nutrient composition of dog urine and its impacts on habitats. It is however known that dog urine can scald vegetation and does provide some enrichment of soil nitrogen (Taylor et al., 2005). It is also known that urine does more damage on dry soils because the salts cannot disperse as easily.

9.37 The persistence of dog faeces and nutrients in the soil will be subject to a number of factors, but primarily the soil type, soil water, weather and temperature. Dog faeces can take up to two months to break down, however if the weather is cold and dry this is likely to take longer, whereas if it is warm and wet it is likely to take less time (Taylor et al., 2005). The persistence of these nutrients in the soil is strongly influenced by the soil type. In one study it was calculated that phosphorous derived from agricultural fertilisers persist between 15 and 20 years in sandy soils, while it was not uncommon for them to persist for 30 years or more in heavy clay soils (Gough & Marrs 1990).

Site specific evidence

9.38 At Strensall Common eutrophied vegetation is evident in close proximity to Galtres car-park and the Scott Moncrieff car-park and some laybys. It is often characterised by tall swards containing nettles. Along some of the more heavily used paths in the vicinity of the car parks the vegetation at the side of the path also shows evidence of eutrophication, with Perennial Rye-grass rather than heath species present. This vegetation is likely to be linked to a dog walking culture in which picking up dog faeces is not prevalent.

Contamination of ponds

Overview of issues

9.39 Ponds and small water bodies are often popular with dogs and dog walkers will often seek such features out, particularly in hot weather. Heavy use by dogs leads to turbid water, an impoverished invertebrate flora and a loss of vegetation (Denton & Groome 2017; Groome, Denton & Smith 2018). These impacts are linked to the trampling/splashing of the dogs and are potentially exacerbated contamination from wormer, tick and flea treatments (Groome,

Denton & Smith 2018). Dogs may also act as vectors for non-native invasive plant species, such as New Zealand Pygmyweed (Groome, Denton & Smith 2018).

Site specific evidence

9.40 Most ponds and small water bodies encountered were dried out at the time of the UKHab survey and it was difficult to establish the extent of any existing recreational impact. Many are surrounded by unstable wetland vegetation which is unlikely to be attractive to dog walkers. The Strensall ponds are known for Marsh Stitchwort, Mud Snail, Pillwort, Common Toad and Great Crested Newt. Of these, Pillwort can be considered characteristic of one of the designated Annex I habitat types, as it is typically found on the drawn-down zone of ponds in wet heath. Pillwort requires open conditions and therefore some trampling at the edges of ponds can help maintain suitable conditions (although this is a function usually fulfilled by livestock). However, ponds can be attractive to dogs and excessive use would lead to the loss of vegetation including Pillwort. The pond at SE6501 5942 currently has an extensive Pillwort population. Although dry at the time of the survey, it is very close the track which provides a main route N-S through the southern area of the site, and is potentially vulnerable.

Contamination from fly tipping, litter etc.

Overview of issues

9.41 Litter is a ubiquitous problem and can range from large volumes of roadside fly tipping to a small number of discarded food wrappings. It can occur anywhere, regardless of habitat, although generally more prevalent in areas with greater public access. The impacts are perhaps predominantly aesthetic, and litter and dumping of rubbish are rarely explicitly identified as a nature conservation issue. However, there are causes for concern for some habitats such as heathlands (Underhill-Day, 2005).

9.42 Plastic debris is an environmentally persistent and complex contaminant of increasing concern and while most of the focus has been on the marine environment, increasing concern is being raised about plastic in terrestrial environments and there are clearly gaps in our understanding (Horton *et al.* 2017).

Site specific evidence

9.43 Fly tipping was not noted as a significant problem at the time of the survey although some was evident. Some litter was also present. This was usually limited to the vicinity of car parks (e.g. piles of beer cans), but was also noted at other places (for example beer bottles on the edge of the Kidney Pond at SE 6505 5972).

Damage to infrastructure (gates etc.), whether through wear and tear or direct damage from vandalism

Overview of issues

9.44 Damage to infrastructure can occur in a variety of ways. With more footfall, infrastructure such as car-parks, paths, gates and stiles are likely to need more maintenance and repair. Direct damage can also occur through vandalism.

9.45 While not fundamental to the SAC interest, where infrastructure becomes in a poor state or does not appear looked after, it may influence visitors' perceptions of the site, for example suggesting that there is no provision in place to prevent anti-social behaviour. Replacing or repairing infrastructure is likely to take staff time and resources, and this may limit the available funds for habitat management or other site work more relevant to the SAC interest.

Site specific evidence

9.46 At Strensall Common, there was evidence of graffiti and damage to signs/interpretation and also sprayed graffiti on the trees around the Scott Moncrieff and the Galtres car-parks. While limited in extent currently, there is potential for these issues to escalate. Although it has no direct impact on the SAC interest features of the site, it is both indicative of visitors' attitudes towards the site and may also influence behaviour (see above).

Map 13: Target notes relating to recreational pressure at Strensall Common

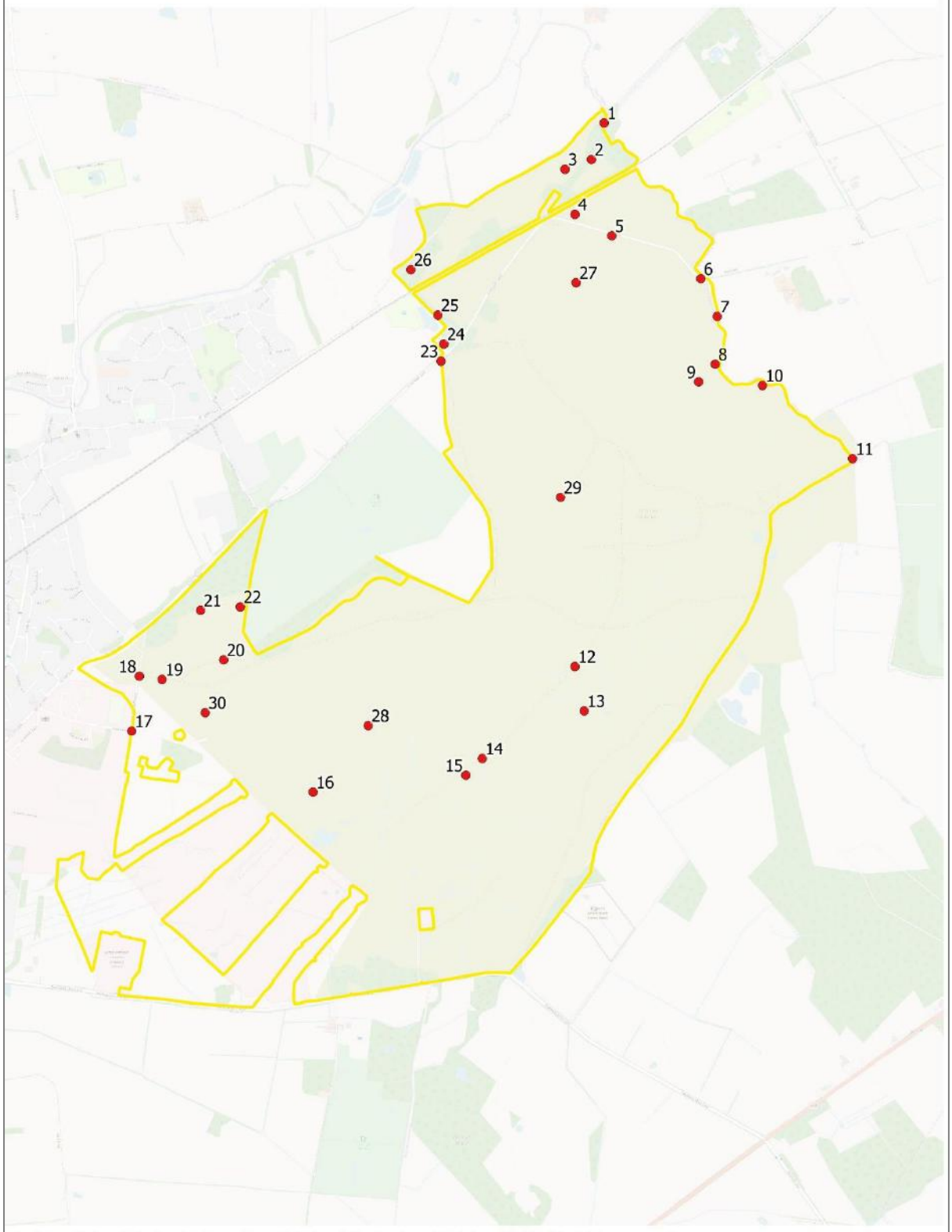


Table 21: Target notes relating to recreation pressure recording during habitat survey (September 2018).

Point	Target note
1	Moderately well-used path through woods
2	Stile grown over
3	Lightly-used path across heath towards dwellings
4	lightly-used path runs parallel to road inside tree line and thick gorse "hedge"
5	obvious recent litter in lay-by
6	Well-used access points with paths in 3 directions onto heath
7	Dog poo bag hung on fence
8	Fresh cycle and horse tracks, some poaching
9	Path along drier ground of drain bank
10	Broad path along boundary drain, but little bare ground
11	Access point with "private" sign leading onto maintained path
12	Boardwalk "bridges" on main N-S track
13	Kissing gate into grazing enclosure with limited signs of use
14	main N-S vehicle track is grassy, suggesting limited pedestrian use
15	Shallow-sided pond with Pillwort - potentially vulnerable to dogs due to proximity to track
16	Small area of tightly grazed grassland with old Purple Moor-grass tussocks - shows how grazing can increase the ease with which visitors can penetrate an area by decreasing the tussockiness of vegetation
17	Current entrance point from Strensall Camp on tarmac road
18	Public car-park. Some graffiti on back of interpretation boards and some patches of nettles around car-park
19	3 mountain bikes past while visiting, with 2 dogs (off lead).
20	Green, nutrient-enriched edges with nettles on margin of well-used track
21	Unusually frequent paths (doubled up)
22	Gravelled path and encroachment on SAC from golf course
23	Main car-park. Dense nettles around edge. Graffiti on dog bins and on oaks.
24	Desire line from car-park across towards track and railway crossing
25	Fly-tipping - old shed, also cans and other litter, indicating parking and recreational use
26	Kissing gate - appears lightly used
27	Very few paths crossing tussocky vegetation and wet terrain in northern section
28	Access appears to be very limited in this area
29	A network of paths in this area
30	A network of paths in this area

			
Little used access point in YWT area (TN1).	Well-used path through woods and more lightly used path through grazing unit in YWT area (TN2, 3).	Lightly-used path parallel with road in northern section of common (TN4).	Broad path along main boundary drain on eastern edge of site appears well used but with little bare ground (TN10).

			
Occasional marker posts are found on colour-coded routes throughout site.	Littering is mainly concentrated around car parks and laybys (TN2).	Heavy grazing (e.g. in areas where livestock congregate) can create short swards that are more easily accessible by visitors (TN16).	Path surfacing can lead to changes in adjacent vegetation, as seen here (TN22).
			
Much of the vegetation is bulky and visitors are unlikley to penetrate far off the paths (track along SE boundary).	Kissing gate into grazing enclosure near centre of site with only limited signs of use (TN13)	Abundant aquatic vegetation and intact bankside vegetation suggest this pond is largely undisturbed by dogs.	

10. Discussion and Implications

10.1 The visitor survey results indicate that the site is well used and popular with local residents who visit for a range of activities, predominantly dog walking, walking, jogging and cycling.

10.2 There are a range of ways access can impact the nature conservation interest, but at present impacts would appear to be limited to:

- Issues with grazing, including incidents of sheep worrying and potential challenges in achieving the right long-term grazing regime;
- A risk of fire;
- Some dog fouling;
- Some graffiti and vandalism around the car-parks;
- Some littering and fly-tipping including evidence of antisocial behaviour.

10.3 It is clear from the comments from interviewees that many view the site as special and have a strong affinity to it. It is also clear that there are pressures/demands from visitors, for example views of interviewees reflected an interest in seeing café facilities, changes to the grazing, management of muddy paths etc.

10.4 Our predictions suggest an increase in access of 24% as a result of the quantum of proposed housing in the City of York Local Plan. This is a marked change and given the scale of change, the issues we have outlined above will be exacerbated and there will be growing pressures on the management of the site.

10.5 Given the scale of increase in access predicted from the visitor surveys, the proximity of new development and concerns relating to current impacts from recreation, adverse integrity on the SAC cannot be ruled out as a result of the quantum of development proposed. In addition, for individual allocations that are adjacent to the site it will be difficult to rule out adverse effects on integrity. Potential approaches to mitigation are considered below.

Potential approaches to mitigation

10.6 Diverting visitors away from the SAC by providing alternative greenspace is one mitigation option. Suitable Alternative Natural Greenspace (SANGs) are

a key component of mitigation approaches around other heathlands, such as Dorset and the Thames Basin Heaths. In these areas SANGs are considered as suitable mitigation only for developments set back from the European site boundary (beyond 400m).

10.7 The visitor survey results indicate that visitors to Strensall Common undertake relatively long routes, with a median route length of 2.5km when clipped to the SAC boundary. Significant areas of green space would be necessary to accommodate routes of this length. The rural/wild landscape was a key factor determining interviewee's choice of site, again suggesting that any alternative green space provision would have to be significant and have a semi-natural feel.

10.8 Close to home was also a key factor in visitor's choice of site and Figure 13 clearly shows current residents living within 500m visit particularly frequently compared to those further away. As such there is likely to be a disproportionate effect of housing in close proximity to the SAC and such housing will be potentially harder to mitigate as it will be very hard to deflect visitors away from Strensall Common. As such the role for any alternative greenspace provision would probably need to be targeted towards those people coming from further afield and there may be limited opportunities to deflect access from development within a few hundred metres of the SAC. For new development that is set well back from the SAC, such that the main means of access is by car, provision of suitable alternative natural greenspace of a suitable size and quality could work to absorb access, particularly if the new greenspace was targeted towards dog walkers.

10.9 Development directly adjacent to the SAC boundary or in close proximity therefore poses particular challenges, and it should be noted that at other heathland areas, such as the Dorset Heaths, Thames Basin Heaths and East Devon Heaths there is a presumption against development within 400m.

10.10 For development in Strensall, and particularly H59 and SS19/ST35, it will be important to ensure access to the SAC is through the main access points, ensuring visitors walk or drive through the village rather than providing diffuse direct access onto the SAC boundary. This will require robust barriers to limit direct access and there is likely to be – in the long-term – demand for residents to be able to have direct access. Ensuring a robust, permanent barrier will be a challenge and there are various examples from other heathland sites where a fence has not been deemed effective

mitigation. For example, at Talbot Heath in Dorset a planning appeal[10] for 378 housing units, student accommodation and academic floor space adjacent to a heathland SAC/SPA was refused by the Secretary of State. While the Inspector concluded that, if a fence could be implemented in its entirety and properly maintained, it would effectively increase the distance that new residents would need to travel to access the Heath she also raised doubts as to the feasibility of implementing a fence for the whole of the proposed length. At Strensall, given the MOD ownership and presence of existing security fencing it may be possible to provide the necessary barriers and have confidence in them being maintained in-perpetuity. High-specification security fencing will not feel so out of place and is more likely to be accepted by residents. Were the site not to remain in MOD management or control then there could be doubts about the potential for fencing effective.

10.11 Elsewhere, for example along York Lane, a fairly impenetrable hedge of gorse impedes direct access to the heath – these hedges could be maintained to discourage casual access along the road, however there is likely to be pressure for access onto the nearby Common should housing levels around the boundary increase.

10.12 Assuming that it might be possible that access is effectively pushed towards the main car-parks and entry points, then a number of measures could then potentially be implemented that will help absorb the additional recreation pressure and help to resolve the current issues identified above.

10.13 Wardening is a component of mitigation approaches at other sites such as Dorset and the Thames Basin Heaths. Wardens or Rangers can provide a presence on site, able to directly talk to visitors and deal with any problems. At Strensall Common such a role could involve:

- Facilitating the grazing management through liaison with visitors, highlighting where grazing animals are and acting as a 'looker';
- Deterring anti-social behaviour such as motorbikes around the car-parks, fire, graffiti etc;
- Dealing with any issues, such as gates left open, bins needing emptying, damage to infrastructure and on-hand to direct the emergency services in the case of a fire;

[10] Application by talbot village trust (tvt) application ref: 00/08824/084/P land south of Wallisdown Road, Poole, Dorset

- Talking to visitors to make them aware of the conservation interest and any particular issues (e.g. fire risks, training, livestock presence);
- Directly influencing the behaviour of any visitors likely to cause problems, for example dogs off leads around livestock;
- Positively engaging with the local community through attending events, hosting guided walks, encouraging wildlife recording and volunteer involvement etc.

10.14 Ensuring the site is effectively grazed in the long-term will be key, and the wardening will be a positive step towards ensuring any conflicts with access and grazing in the long term are minimised or avoided. An additional approach to consider, that is used elsewhere (e.g. Braunton Burrows in Devon), is the provision of a website (for example a Facebook page) with information about which units are grazed at any one time, so that visitors can choose to avoid stock.

10.15 A further measure that is likely to improve the robustness of the site is reducing the amount of drainage, with the potential to restore the site so that it is much wetter. This is likely to be beneficial to the SAC habitats and will reduce the risk of fire. Decreasing drainage would help revert wet heath, mire and transitional vegetation communities towards wetter forms that would once have characterised Strensall Common. It would not affect the dry heath habitat that is on raised ridges (see section 8.3 for a discussion of the classification of wet and dry heath on Strensall Common).

10.16 Decreasing drainage is likely to be unpopular with some visitors. The visitor surveys were undertaken during a very dry and hot summer. During the site visits many of the ponds on the site were dry and therefore the site was perhaps particularly accessible. The route data suggests some visitors were crossing the main wetland areas, and the banks of the drainage ditches towards the north-east of the site are likely to provide easy foot access even during wetter periods (such paths were noted during the survey). Were some blocking of ditches and re-wetting to be undertaken, access is likely to be pushed to the edges of the site. While this is likely to be unpopular with visitors, provision of a good walking route, with board walks through the wetter areas, could then focus access, shifting use away from a more diffuse use of the site to use more concentrated on set routes. This will make access easier to manage in the long-term and provide better opportunities to engage with visitors. In order to achieve this shift, wardens will play an important role, and signage and interpretation will also need to be updated.

10.17 Signage and updated interpretation will play a role in directing visitors and helping explain the issues. Changes to the drainage and the provision of boardwalks and such infrastructure may deter cyclists and horse riders and it may be necessary to review these particular activities and provide some kind of dedicated routes for these activities. These would not necessarily need to be within the SAC.

10.18 Some of the particular nature conservation interest at Strensall Common is associated with ponds and some of the key ponds are directly adjacent to well-used paths. It is clear from the automated counter images that many of the dogs leaving the site are wet and muddy, suggesting that even during dry conditions they were finding water to splash in. In the key pools, low fencing and signage may be necessary to deter dogs from entering the water or limiting the areas that become turbid (see Denton & Groome 2017 for options).

10.19 The results set out here provide a snapshot of access to inform the plan-level HRA. While further visitor work, for example during the winter when the ground is wetter, may be useful; the data presented here provides a large sample and a clear picture of current access at Strensall Common. The types of access recorded, and the visitor data collected would suggest access is likely to be similar through the year, and as such at this point in time there is little merit in further data collection. A further key component of mitigation will however be regular monitoring and the methods used here provide a baseline against which visitor numbers and access patterns can be checked. Regular monitoring will be important to pick up any changes in access (for example visitors parking in different locations, different paths becoming more popular, different activities taking place, new entry points becoming established) and help direct the mitigation.

10.20 At plan-level HRA it will be necessary to have confidence that the above mitigation measures are feasible and achievable in order to rule out adverse effects on integrity on Strensall Common SAC as a result of increases in recreation. At subsequent project-level HRA it will be necessary for the details of the mitigation to be confirmed and in place ahead of any occupation of new housing.

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Appendix 1: Questionnaire

Good morning/afternoon. I am conducting a visitor survey on behalf of City of York Council and Selby District Council, who are interested in gathering visitor's views about this site and how they use it. Can you spare me a few minutes please?

Q1 ...

- ◯ **Are you on a day trip/short visit and have travelled directly from your home today**... *if no*
- ◯ **Are you on a short trip/short visit & staying away from home with friends or family** ... *if no*
- ◯ **Are you staying away from home, e.g. second home, mobile home or on holiday**
- ◯ If none of the above, **How would you describe your visit today?**

Further details

Q2 **What is the main activity you are undertaking today?** *Tick closest answer. Do not prompt. Single response only.*

- ◯ Dog walking
- ◯ Walking
- ◯ Jogging / power walking / running
- ◯ Outing with family
- ◯ Cycling / Mountain Biking
- ◯ Bird / Wildlife watching
- ◯ Enjoying scenery / fresh air
- ◯ Photography
- ◯ Meeting up with friends
- ◯ Picnic
- ◯ Horse riding
- ◯ Other, please detail:

Further details

Q3 **Over the past year, roughly how often have you visited this site?** *Tick closest answer, single response only. Only prompt if interviewee struggles.*

- ◯ Daily
- ◯ Most days (180+ visits)
- ◯ 1 to 3 times a week (40-180 visits)
- ◯ 2 to 3 times per month (15-40 visits)
- ◯ Once a month (6-15 visits)
- ◯ Less than once a month (2-5 visits)
- ◯ Don't know
- ◯ First visit
- ◯ Other, please detail

Further details:

Q4 **How long have you spent / will you spend at this site today?** *Single response only.*

- ◯ Less than 30 minutes
- ◯ Between 30 minutes and 1 hour
- ◯ 1-2 hours
- ◯ 2-3 hours
- ◯ 3-4 hours
- ◯ 4 hours +

Further details

Q5 **Do you tend to visit this area at a certain time of day?** *Tick closest answers. Multiple answers ok.*

- ☐ Early morning (before 7 am)
- ☐ Late morning (between 7 am and 10 am)
- ☐ Midday (between 10 am and 2 pm)
- ☐ Early afternoon (between 2 pm and 4 pm)
- ☐ Late afternoon (between 4 and 6 pm)
- ☐ Evening (after 6 pm)
- ☐ Varies / Don't know
- ☐ First visit

Q6 **Do you tend to visit this area more at a particular time of year for [***insert given activity***]?** *Multiple answers ok.*

- ☐ Spring (Mar-May)
- ☐ Summer (Jun-Aug)
- ☐ Autumn (Sept-Nov)
- ☐ Winter (Dec-Feb)
- ☐ Equally all year
- ☐ Don't know
- ☐ First visit

Q7 **How long have you been visiting this site?** *Single response only. Do not prompt.*

- ◯ Don't know
- ◯ First visit
- ◯ less than or approximately 6 months
- ◯ less than or approximately 1 year
- ◯ less than or approximately 3 years
- ◯ less than or approximately 5 years
- ◯ less than or approximately 10 years
- ◯ more than 10 years

Further details:

Q8 **How did you get here today?** *if necessary prompt with:* **What form of transport did you use?** *Single response only.*

- ◯ Car / van
- ◯ On foot
- ◯ Bus
- ◯ Bicycle
- ◯ Other, please detail

Further details:

Now I'd like to ask you about your route today. looking at the area shown on this map, can you show me where you started your visit today, the finish point and your route please. *Probe to ensure route is accurately documented. Use **P** to indicate where the visitor parked, **E** to indicate the start point and **X** to indicate the exit. Mark the route with a line; a solid line for the actual route and a dotted line for the expected or remaining route.*

Q9 **Is / was your route today the normal length when you visit here for [***insert given activity***]?** *Tick closest answer, do not prompt. Single response only.*

- ◯ Yes, normal
- ◯ Much longer than normal
- ◯ Much shorter than normal
- ◯ Not sure / no typical visit
- ◯ First visit

Q10 **Were you following a marked route or signposted route?** *Tick closest answer, do not prompt. Single response only.*

- ◯ No
- ◯ Not sure/don't know
- ◯ Yes

Q11 If yes**, what was the name or colour of the route you were following?**

Q12 **What, if anything, influenced your choice of route here today?** *Tick closest answers, do not prompt. Multiple responses ok.*

- ☐ Weather
- ☐ Daylight
- ☐ Time
- ☐ Other users (avoiding crowds etc)
- ☐ Group members (eg kids, less able)
- ☐ Muddy tracks / paths
- ☐ Followed a marked trail
- ☐ Previous knowledge of area / experience
- ☐ Activity undertaken (eg presence of dog)
- ☐ Interpretation / leaflets / promotion
- ☐ Viewpoint / Feature
- ☐ Other, please detail

Further details:

Q13 **Why did you choose to visit this specific location today, rather than another local site?** *Tick all responses given by visitor in the 'other' column. Do not prompt, tick closest answers. Then ask* **Which single reason would you say had the most influence over your choice of site to visit today?** *Tick only one main reason. Use text box for answers that cannot be categorised and for further information.*

	Other	Main
Don't know / others in party chose	○	○
Close to home	○	○
No need to use car	○	○
Quick & easy travel route	○	○
Good / easy parking	○	○
Particular facilities	○	○
Refreshments / cafe / pub	○	○
Choice of routes	○	○
Feels safe here	○	○
Quiet, with no traffic noise	○	○
Not many people	○	○
Scenery / variety of views	○	○
Rural feel / wild landscape	○	○
Particular wildlife interest (including trees)	○	○
Habit/familiarity	○	○
Good for dog / dog enjoys it	○	○
Ability to let dog off lead	○	○
Closest place to take dog	○	○
Closest place to let dog safely off lead	○	○
Appropriate place for activity	○	○
Suitability of area in given weather conditions	○	○
Presence of water	○	○
Other, please detail	○	○

Further details:

I would now like to ask about other local sites that you visit for [*given activity*].

Q14 **What proportion of your weekly visits for** [given activity] **take place at here compared to other sites. Can you give a rough percentage?** *Do not prompt*

- ◯ All take place here
- ◯ 75% or more
- ◯ 50-74%
- ◯ 25-49%
- ◯ less than 25%
- ◯ Not sure/don't know/first visit

Q15 **Which one location would you have visited today if you could not visit here?** *Do not prompt, tick closest answer.*

- ◯ Not sure/ Don't know
- ◯ Nowhere/ wouldn't have visited anywhere
- ◯ Site Named:

Record site name:

Q16 **Are there any changes you would like to see here with regards to how this area is managed for recreation and people?** *Do not give options*

Q17 **Do you have any further comments or general feedback about your visit and access to this area?**

Q18 **What is your full home postcode?** *This is an important piece of information, please make every effort to record correctly.*

Q19 *If visitor is unable or refuses to give postcode:* **What is the name of the town or village where you live?**

Q20 *If visitor is on holiday ask:* **Which town / village are you staying in?**

That is the end. Thank you very much indeed for your time.

Q21 **TO BE COMPLETED AFTER INTERVIEW FINISHED.**

Surveyor initials	
Survey location code	
Map Reference Number	
Gender of respondent	
Total number in interviewed group	
Total males	
Total females	
Total minors (under 18)	
Total number of dogs	
Number of dogs seen off lead	

Q22 **Surveyor comments**. *Note anything that may be relevant to the survey, including any changes to the survey entry that are necessary, eg typos/mistakes/changes to answers/additional information.*

Appendix 2: Responses to Q16, are there any changes you would like to see here with regards to how this area is managed for recreation and people?

All responses are listed below. These were typed as part of the interview and often it was necessary to paraphrase, as such the comments do not necessarily reflect the precise words stated by the interviewee.

Adders restricting dog walkers use of site
Appreciate the amount of dog bins and they are serviced
Asked whether lads with trail bikes still an issue
Avoid sheep
Avoid sheep
Avoid sheep means can't let dog off lead
Beautiful landscape, unspoilt
Benches would be nice; stop 4x4s.
Better signage
Boardwalks installation appreciated
Boggy in wet weather needs more hard core to fill holes
Bridges across streams
Brilliant keep it up
Control dogs. Adders
Control of dog mess
Controlled so less parking; people coming too far and not showing respect, enforcement of rules,
Cow muck and worries over bull and bullocks
Deal with muddy paths
Deal with muddy paths
Dog keeps eating sheep poo and it is making him ill. Has to keep dog on lead when sheep are around. Adders top concern for dog walkers - has noticed far fewer dog walkers because of the snakes. Fence off both sides of track? More poo bins onward toward Towthorpe.
Dog mess signs - human safety as a training site so really important poo is picked up. Adders put people off. Signs taken down when sheep on site.
Dog poo pick up needs to be enforced
Dog walkers need to clean up after their dogs and not leave poo in bags on site
Don't like feneed areas so more access
Don't like landmark aggressive driving mod contractors
Don't release adders
Drive through costa

ESA agreement should relate to public recreation - it should come first. Concerned about cattle
Fine keep doing what you're doing. Clean and tidy
General maintenance of footpaths. Less muddy paths
Gravel whole section of path to reduce muddy bits. Gravelled a footpath but not completed
Ground nesting birds at risk. On army conservation group
Heavy traffic uses the path, with no space for walkers. Needs structure to road for pedestrians
lighting in car park? Sheep out of fenced areas
Improve Muddy paths
Keep as is
Keep as it
Keep sheep and path maintenance
Keep sheep off
Keep the undergrowth, nettles and ferns down around paths
Know where sheep are
Leave as is. Regarding coloured routes, used one the other night and got lost so needs updating
Leave well alone
Less fencing
Less litter farther on the walk
Less sheep
Litter and motorbikes
Litter control
Litter first thing in morning
Looked after well
Love the place, useful to have sign when sheep are going to be on and off
Maintain Heather and control birch
Maintenance of paths and bridges
Make sure gates are open when not firing
Management by sheep. Likes the open aspect of common
More access needed, so can do circular routes. The footbridge across the Foss is missing _ needs putting back
More access to firing area
More bins and less sheep
More bins for waste
More bins lovely place
More dog bins
More enforcement of picking up dog poo
More poo bins
More signs
Must stay as sssi as so much wildlife. Must be protected. Urbanisation of strensall is having a detrimental effect. The common is a vital lung for the area.
Need a footpath along the main road so you can increase choice of circular walks, and safer
Need pick up dog poo

New stile position indicated on map
No cattle or fenced
No cattle, too many sheep, tree felling
No complaints its lovely
No keep it
No more adders please
No overnight parking causing litter problems
No overnight parking, especially tourists
No restrictions on overnight camping
No sheep droppings
Path maintenance over wetter areas
Path running to Foss river, couldn't get through, overgrown.
Pick up dog mess
Plant equipment caused muddy areas. Gravel paths left uncompleted. Boggy areas
Please keep it just as it is
Poor bin in middle, access
Prior warning for sheep
Reduce sheep grazing, lot of dung
Remove fencing and other limitations tp keep it beautiful and open
Remove litter
Remove sheep or have area without them for dogs
Repair gates, get people to shut gates, pick up litter, unlock gates when shooting finishes
Restrict sheep so know where will be and firing access restrictions
Rutted paths in summer. What about mobility access
Shame that bridge was rememoved after fall by woman. Gates are padlock
Sheep an issue get on golf course
Sheep not looked after, find dead ones
Sheep notice to say if here as a few have been left
Sheep restricts access
Sheep serve a purpose but restricts dog off lead
Shocked at bagged dop poo being hung in trees
Should have red flag pole in each car park.relevant up to date sign re bull in field its old
Signposting on common is good. Litter pretty good. Very positive
Snakes are really a problem
Sorry to see gorse cut down as miss the birds
Sort muddy areas
Speed limit signs - lorries to sewage works going too fast. Reduce the undergrowth around trees to make it easier to walk through
Stay as is
Stop camping at this car park
Stop overnight stops
Think clearly how to manage as sssi. Mod digging huge ruts in tracks. Locals annoyed that bylaws are being ignored campervans
Tree stumps to sit on
Very pleasant shade good to have litter bins

Very pleased. Rangers are nice
Very positive. Vital it is maintained. Worry after military gone a risk of poor management and supervision.
Very well managed
Want it to be protected for wildlufe
Welcome new litter bins. In some places on path was overgrown but now cut back
Well run; dont commercialise
When sheep are on if they can be far side of the firing range fence overshoot. Bullocks lively
Wondered if army practising can I still walk my dog? Sheep and dogs being wary
Would like it left alone just tidy up
Would like restricted area to be smaller
Would like some benches

Appendix 3: Responses to Q17, further comments or feedback?

All responses are listed below. These were typed as part of the interview and often it was necessary to paraphrase, as such the comments do not necessarily reflect the precise words stated by the interviewee.

A couple weeks ago person managing flock berated them for not shutting gate, so put off walking on site
Accept access restrictions
Any chance of taking the old fences down?
Avoids sheep
Can be busy
Come here for photography and art
Current favourite place
Dog poo off path
Dogs like to socialise
Don't change anything
Don't like the adders
Don't like the enclosures by fencing and gates.
Enjoy as is
Enjoy coming
Enjoy coming
Enjoy it
Excellent for artists
Fires and litter early in morning
Good
Good path maintenance
Good to know when and where sheep will be.
Great job
Happy
Happy
Happy as is
Highly valued by locals
Hooligans with cars and setting fires needs policing
Hope when military leave 2021 keep same
Important for locals to keep fit
Invaluable public resource
Keep it open and maintained
Keeping gorse down and other heathland management
Less people especially at weekends
Less tree felling

Like as is
Like it as is
Like it as it is and good for family
Like wildness
Like woods
Likes free parking
Likes variety
Long term strategic approach to recreational use needed, problem with dogs going into ponds
Lovely
Lovely area
Lovely site except for snakes
Management excellent
More accessible for orienteering events
More bins
More dog poo bins
More of the same
More wooden board ways and hardcore needed
Motor bikes making a mess of parks. Appreciate the bridges on common
Mowed orchids by office... keeping open access
Nice for dog
No
No litter is good
No more building
No more restrictions on access
On the common, sheep have been getting into the enclosed paths making it difficult to take dogs on walks there
Other people leaving gates open and bags of poo
Peaceful
Police motorbikes on site needed
Problem with adders
Really peaceful
Rubbish needs picking up
Sewage works smells a bit
Shame fences put up
Sheep a two edged sword as good for keeping scrub down but they restricts dogs of leads. Youths using car park, lighting fires and leaving litter an issue. New dog dins better.
Sometimes dog bins over flowing particularly near housing. Boy racer cars in car park. Cattle grid very noisy for locals when cars driving over, particularly at night. Hooter at 7.30am for dog walkers to come off is it really necessary as some people work nights. Could do with benches along side of track as some elderly people use route.
Unspoilt and we'll kept
Useful to know where the sheep are
Value public access
Very positive

Wants woodland not heath
Wardens could do more
Well managed. Should be protected as wild green space
Why cut pine trees?
Worried about snakes
Worries about future, better as is
Would not like any more fencing

E. Policy Changes

The following policy modifications are extracted from City of York Council's Proposed Modifications Consultation (2019) held by between 10th June 2019 - 22nd July 2019. This is document EX CYC 20 on the Council's Examination Library accessible via: www.york.gov.uk/localplanexamination.

Modification Reference Number	Plan Location	Proposed Modification	Reason for Changes
Section 3: Spatial Strategy			
PM10 - Policy SS13: Land West of Elvington Lane	Criterion vi. Page 54 of the Publication Draft Local Plan (February 2018)	vi. Follow a mitigation hierarchy to first seek to avoid impacts, then to mitigate unavoidable impacts or compensate unavoidable residual impacts on Heslington Tillmire SSSI and the Lower Derwent Valley SPA/Ramsar through the: • incorporation of a new nature conservation area (as shown on the ~~**proposals**~~ **policies** map **as allocation OS10 and included within Policy GI6**) including a buffer of wetland habitats, a barrier to the movement of people and domestic pets on to the SSSI and deliver further benefits for biodiversity. A buffer of at least 400m from the SSSI will be required in order to adequately mitigate impacts unless evidence demonstrates otherwise; and • provision of an detailed site wide recreation and access strategy to minimise indirect recreational disturbance resulting from development and complement the wetland habitat buffer area which will be retained and monitored in perpetuity. A full understanding of the proposed recreational routes is required at an early stage.	To clarify the link to new openspace (OS10) as detailed in the Habitat Regulation Assessment (2018)
PM12 - Policy SS18:	Criterion iv.	iv. Undertake a comprehensive evidence based approach in relation to biodiversity to address potential impacts of recreational disturbance on the Lower Derwent Valley Special Protection Area	To clarify the mitigation required as detailed in the

Station Yard, Wheldrake	Page 62 of the Publication Draft Local Plan (February 2018)	(SPA)/Ramsar/SSSI. **This will require the developer to publicise and facilitate the use of other, less sensitive countryside destinations nearby (e.g. Wheldrake Woods) and provide educational material to new homeowners to promote good behaviours when visiting the European site. The former could be supported by enhancing the local footpath network and improving signage.**	Habitat Regulation Assessment (2018)
PM13 - Policy SS19: Queen Elizabeth Barracks, Strensall	Pages 63-65 of the Publication Draft Local Plan (February 2018)	Remove entire policy: ~~**Policy SS19: Queen Elizabeth Barracks, Strensall**~~ ~~Following the Defence Infrastructure Organisation's disposal of the site by 2021, Queen Elizabeth Barracks (ST35) will deliver 500 dwellings at this rural development site. Development is anticipated to commence in 2023. In addition to complying with the policies within this Local Plan, the site must be delivered in accordance with the following key principles.~~ ~~i. The mitigation hierarchy should be followed to ensure no net loss of biodiversity; where possible development should deliver biodiversity gain. Development will only be allowed where it can be demonstrated that it will not have an adverse impact, alone or in combination, upon the integrity of Strensall Common SAC and SSSI.~~ ~~ii. Take full account of the extent and quality of ecological interest on Strensall Common through the preparation of a comprehensive evidence base to support the required Habitat Regulations Assessment and other assessments to be able to~~	Site removed following the outcomes of the Habitat Regulations Assessment (Feb 2019), which has not been able to rule out adverse effects on the integrity of Strensall Common Special Area of Conservation (SAC).

		~~fully understand and avoid, mitigate or compensate impacts. To help deliver this, a detailed Visitor Impact Mitigation Strategy must be prepared, which will be informed by comprehensive and repeatable visitor surveys (to be repeated as necessary). The Strategy will identify effective measures which will encourage both the use of alternative sites instead of Strensall Common and less damaging visitor behaviour on the Common. This will include (but not be limited to) the following measures:~~ • ~~Within the site divert new users away from the SAC by:~~ ○ ~~Providing natural green space within the site boundary attractive to a range of users, particularly dog walkers;~~ ○ ~~The provision of a circular walk within the site;~~ ○ ~~Ensuring no access throughout the life of the development either by vehicle, cycle or foot to adjoining land on the north, south and eastern site boundary, and~~ ○ ~~Providing publicity, education and awareness to support these aims~~ • ~~On Strensall Common ensure suitable behaviour by visitors by:~~ ○ ~~Implementing actions to manage recreational pressure at points of arrival, by type of activity and location of activity on site;~~ ○ ~~Ongoing monitoring that will specifically lead to the implementation of prompt remedial measures such as the closure of access points etc if adverse effects are identified, and~~ ○ ~~Publicity, education and awareness~~ iii. ~~Ensure all ecological avoidance, mitigation and compensation measures are fully operational and functioning prior to commencement of any development. Measures must be supported by a long term management plan which includes ongoing monitoring and remedial measures.~~	

		~~iv. Deliver a sustainable housing mix in accordance with the Council's most up to date Strategic Housing Market Assessment.~~ ~~v. The development of this area must be informed by an assessment of architectural interest of the site and its buildings. Those buildings which are considered to be of historic interest should be retained and reused.~~ ~~vi. Be of a high design standard, ensuring the development has a distinct identity from Strensall village and not be just a continuation of the existing development. The site should have its own identity and character that in its layout and spaces, reflects the site's long use as a barracks, its landscape context, and the natural site assets.~~ ~~vii. Retain all identified good quality trees, with appropriate distance to tree canopy, unless they pose an unreasonable restriction on development and their contribution to the public amenity and amenity of the development is very limited, and their loss is outweighed by the benefits and mitigation provided by the development.~~ ~~viii. Undertake an archaeological evaluation consisting of geophysical survey and excavation of trenches to identify the presence and assess the significances of archaeological deposits.~~ ~~ix. Prepare a Flood Risk Assessment and full drainage strategy. The strategy should be developed in conjunction with the Council and required statutory bodies and should ensure that the development will not exacerbate any existing issues with surface water and drainage. Hydrological studies that explore surface and sub-surface characteristics of the local hydrological regime would be required to identify the impact on the wet heath communities of Strensall Common SAC/SSSI and identify mitigation measures where required. Any hydrology plan/study~~	

		~~also needs to consider impacts on water logged archaeological deposits.~~ ~~x. Increase the area and quality of open space within any proposed development beyond that found at present in order to reduce the impact of recreational pressure on Strensall Common SSSI'/SAC'.~~ ~~xi. Create new local facilities as required to meet the needs of future occupiers of the development.~~ ~~xii. Deliver sufficient education provision, including a new primary school, to meet the demand arising from the development. Further detailed assessments and associated viability work will be required.~~ ~~xiii. Demonstrate that all transport issues have been addressed, in consultation with the Council and Highways England as necessary, to ensure sustainable transport provision at the site is achievable. The impacts of the site individually and cumulatively with sites ST7, ST8, ST9, ST14 and ST15 should be addressed.~~ ~~xiv. Give further consideration to road safety at the Strensall Road/Towthorpe Moor Lane, in addition to the use of Towthorpe Moor Lane by through traffic. If identified as necessary, mitigation to Strensall Road/Towthorpe Moor Lane junction will be required.~~ ~~xv. Optimise pedestrian and cycle integration, connection and accessibility in and out of the site and connectivity to the city and surrounding area creating well-connected internal streets and walkable neighbourhoods, to encourage the maximum take-up of these more 'active' forms of transport (walking and cycling). Cycle paths will need to be provided along the site frontages connecting into the site and also focus upon the route into the village and local facilities.~~	

		~~xvi. Undertake detailed noise and contamination assessments, including detailed assessment of the current and future use of the military training area adjacent to the site.~~	
PM14 - Policy SS19: Queen Elizabeth Barracks, Strensall	Explanation Pages 65-67 of the Publication Draft Local Plan (February 2018)	Remove entire explanatory justification: ~~3.82: ST35 covers circa 28ha with a net developable area of approximately 18ha and will deliver approximately 12ha of public open space and an estimated yield of circa 578 dwellings. There are no listed buildings or conservation areas currently designated within this site. However, as access to the area has always been restricted, no detailed assessment of the existing buildings has been carried out to determine if the buildings merit designation~~ ~~3.83: To address any heritage designations that may exist on the site it is recommended that Historic England are consulted, using their pre-application assessment service. With a site of this size it is important to consider the impact it will have on the historic nature of the city. The area needs to have a distinct identity from Strensall village and not be just a continuation of the existing development there. This was an important military site which played a wider role in its linkages to other military sites in the area and in the history of York's development as a garrison town. It is important that the area shouldn't lose the story of its identity as a military site and that careful consideration should be given to the kind of area/place being created. The context of the barracks is essentially rural, therefore the presentation of the site to Strensall Road and Strensall common is sensitive and this characteristic should be retained or enhanced. Strensall Common forms part of the site's wider landscape context and it is important to maintain its sense of place adjacent to this whilst taking consideration of its biodiversity value.~~	

		~~3.84: The location of this site adjacent to Strensall Common SAC means that a comprehensive evidence base to understand the potential impacts on biodiversity from further development is required. Strensall Common is designated for it's heathland habitats but also has biodiversity value above its listed features in the SSSI/SAC designations that will need to be fully considered. Although the common is already under intense recreational pressure, there are birds of conservation concern amongst other species and habitats which could be harmed by the intensification of disturbance. In addition, the heathland habitat is vulnerable to changes in the hydrological regime which needs to be explored in detail. The mitigation hierarchy should be used to identify the measures required to first avoid impacts, then to mitigate unavoidable impacts or compensate for any unavoidable residual impacts, and be implemented in the masterplanning approach. Potential access points into the planned development also need to consider impacts on Strensall Common.~~ ~~3.85: It will be necessary to identify the presence and assess the significances of archaeological deposits on the site. An archaeological evaluation consisting of geophysical survey and excavation of trenches will be required. This will be used to assess the significances of archaeological features and deposits and will allow decisions about the scale and form of future mitigation measures on the site. There is a reasonable potential for survival of prehistoric and Romano-British features and deposits as well as medieval and later exploitation and occupation of the site. There is a high potential for discovering water logged deposits which would be of high significance and may need to be preserved in situ – this needs to be taken into consideration through the hydrology plan/study.~~	

		~~3.86: The majority of the site is in flood zone 1 except for a small area to the north in flood zone 2. Given the scale of the site, a full Flood Risk Assessment and full drainage strategy will be needed. Infiltration Sustainable Drainage Systems (SuDS) would be compromised in this location but there is an opportunity to develop comprehensive SuDS for the potential new development. Good Surface Water SuDS can enhance development sites and increase the potential value of homes. The adoption and maintenance of any SuDS features needs to be considered as the Council has no capacity to adopt these without funding.~~ ~~3.87: The nearest existing facilities are in Strensall, it is anticipated that a new primary school and community facilities including retail and community uses will be required within the site given the distance to existing services. This will need to be subject to further detailed viability assessment as part of the site masterplan.~~ ~~3.88: Good bus network links already exist to York City Centre and Strensall Village along Strensall road. It will be necessary to examine the potential for bus services entering the site in order that public transport access is in line with best practise and policy requirements. There are currently very limited cycle links to Strensall to/from the outer ring road. The construction of a segregated subway to facilitate the crossing of the A1237 is included within the West Yorkshire Transport Fund upgrade scheme, due for completion by 2021/22. There is potential that contributions from this site could help to deliver a cycle link between the A1237 and Strensall.~~ ~~Delivery~~ • ~~Key Delivery Partners: City of York Council; landowners; developers; and infrastructure delivery partners.~~	

<table>
<tr><td></td><td></td><td>• ~~Implementation: Planning applications; and developer contributions~~</td><td></td></tr>
<tr><td colspan="4">Section 4: Economy and Retail</td></tr>
<tr><td>PM16 -
Policy EC1: Employment Allocations</td><td>Allocation E18 and associated footnote

Page 76 of the Publication Draft Local Plan (February 2018)</td><td>
<table>
<tr><th>Site</th><th>Floorspace</th><th>Suitable Employment uses</th></tr>
<tr><td>E18: Towthorpe Lines, Strensall (4ha)*</td><td>13,200sqm</td><td>B1c, B2 and B8 uses.</td></tr>
<tr><td colspan="3">* ~~Policy SS19 points i. – ii. apply to this allocation in relation to assessing and mitigating impacts on Strensall Common SAC and~~ <u>Given the site’s proximity to Strensall Common SAC (see explanatory text), this site</u> must ~~also~~ take account of Policy GI2.</td></tr>
</table>
</td><td>Modification to associated footnote to refer to Policy GI2 following removal of policy SS19/ Site Allocation ST35.</td></tr>
<tr><td>PM17 -
Policy EC1: Employment Allocations</td><td>Explanatory text

Page 77 of the Publication Draft Local Plan (February 2018)</td><td><u>The location of allocation E18 adjacent to Strensall Common SAC means that a comprehensive evidence base to understand the potential impacts on biodiversity from further development is required. Strensall Common is designated for it’s heathland habitats but also has biodiversity value above its listed features in the SSSI/SAC designations that will need to be fully considered. Although the common is already under intense recreational pressure, there are birds of conservation concern amongst other species and habitats which could be harmed by the intensification of disturbance. In addition, the heathland habitat is vulnerable to changes in the hydrological regime and</u></td><td>New explanatory text to ensure that allocation E18 is considered in relation to Strensall Common SAC.</td></tr>
</table>

<table>
<tr><td></td><td></td><td><u>air quality, which needs to be explored in detail. The mitigation hierarchy should be used to identify the measures required to first avoid impacts, then to mitigate unavoidable impacts or compensate for any unavoidable residual impacts, and be implemented in the masterplanning approach. Potential access points into the planned development also need to consider impacts on Strensall Common.</u></td><td></td></tr>
<tr><td colspan="4">Section : Housing</td></tr>
<tr><td>PM18 -
Policy H1: Housing Allocations (H59)</td><td>Allocation H59 and associated footnote

Page 93 of the Publication Draft Local Plan (February 2018)</td><td><table>
<tr><th>Allocation Reference</th><th>Site Name</th><th>Site Size (ha)</th><th>Estimated Yield (Dwellings)</th><th>Estimated Phasing</th></tr>
<tr><td><s>H59**/***</s></td><td><s>Queen Elizabeth Barracks – Howard Road, Strensall</s></td><td><s>1.34</s></td><td><s>45</s></td><td><s>Medium to Long Term (Years 6 - 15)</s></td></tr>
</table></td><td>Site removed following the outcomes of the Habitat Regulations Assessment (Feb 2019), which has not been able to rule out adverse effects on the integrity of Strensall Common Special Area of Conservation (SAC).</td></tr>
<tr><td>PM19 -
Policy H1: Housing Allocations (ST35)</td><td>Allocation ST35

Page 94 of the Publication Draft Local Plan (February 2018)</td><td><table>
<tr><th>Allocation Reference</th><th>Site Name</th><th>Site Size (ha)</th><th>Estimated Yield (Dwellings)</th><th>Estimated Phasing</th></tr>
<tr><td><s>ST35** Queen Elizabeth</s></td><td><s>Barracks, Strensall</s></td><td><s>28.8</s></td><td><s>500</s></td><td><s>Medium to Long Term (Years 6-15)</s></td></tr>
</table></td><td>Site removed following the outcomes of the Habitat Regulations Assessment (Feb 2019), which has not been able to rule out adverse effects on the integrity of Strensall Common Special Area of Conservation (SAC).</td></tr>
</table>

Section 9: Green Infrastructure			
PM26 - Policy GI2: Biodiversity and Access to Nature	Page 166 of the Publication Draft Local Plan (February 2018)	In order to conserve and enhance York's biodiversity, any development should where appropriate: **i. determine if they are likely to have a significant effect on an International Site in the context of the statutory protection which is afforded to the site.** **ii. demonstrate that proposals will not have an adverse effect on a National Site (alone or in combination). Where adverse impacts occur, development will not normally be permitted, except where the benefits of development in that location clearly outweigh both the impact on the site and any broader impacts on the wider network of National Sites.** **iii. demonstrate that where loss or harm to a National site cannot be prevented or adequately mitigated, as a last resort, provide compensation for the loss/harm. Development will be refused if loss or significant harm cannot be prevented, adequately mitigated against or compensated for.** ~~**i.**~~ **iv.** avoid loss or significant harm to Sites of Importance for Nature Conservation (SINCs) **and Local Nature Reserves (LNRs),** whether directly or indirectly. Where it can be demonstrated that there is a need for the development in that location and the benefit outweighs the loss or harm the impacts must be adequately mitigated against, or compensated for as a last resort; ~~**ii.**~~ **v.** ensure the retention, enhancement and appropriate management of features of geological, or biological interest, and further the aims of the current Biodiversity Audit and Local Biodiversity Action Plan;	Policy amended to include reference to internationally and nationally designated nature conservation sites and how they will be considered through the planning process following Natural England's response to the Regulation 19 consultation.

		~~iii.~~ **vi.** take account of the potential need for buffer zones around wildlife and biodiversity sites, to ensure the integrity of the site's interest is retained; ~~iv.~~ **vii.** result in net gain to, and help to improve, biodiversity; ~~v.~~ **viii.** enhance accessibility to York's biodiversity resource where this would not compromise their ecological value, affect sensitive sites or be detrimental to drainage systems; ~~vi.~~ **ix.** maintain and enhance the rivers, banks, floodplains and settings of the Rivers Ouse, Derwent and Foss, and other smaller waterways for their biodiversity, cultural and historic landscapes, as well as recreational activities where this does not have a detrimental impact on the nature conservation value; ~~vii.~~ **x.** maintain water quality in the River Ouse, River Foss and River Derwent to protect the aquatic environment, the interface between land and river, and continue to provide a viable route for migrating fish. New development within the catchments of these rivers will be permitted only where sufficient capacity is available at the appropriate wastewater treatment works. Where no wastewater disposal capacity exists, development will only be permitted where it can be demonstrated that it will not have an adverse effect on the integrity of the River Derwent, Lower Derwent Valley and Humber Estuary European Sites; ~~viii.~~**xi.** maintain and enhance the diversity of York's Strays for wildlife; and ~~ix.~~ **xii.** ensure there is no detrimental impact to the environmental sensitivity and significant Lower Derwent Valley and its adjacent functionally connected land which whilst not designated, are ultimately important to the function of this important site.	

PM27 - Policy GI2: Biodiversity and Access to Nature	Explanatory text Page 167 of the Publication Draft Local Plan (February 2018) Para 9.5	9.5 Although the protection of individual sites is essential, such sites do not occur in isolation as discrete, self contained habitats, but influence and are influenced by their surroundings. The surrounding area can therefore be as important to the interest of the site as the feature itself, and changes to it could affect the integrity of that interest. In order to fully protect the site or interest, there may be a requirement to establish a suitable buffer area around it. The extent of that buffer could vary depending on the site, the type and value of the habitat present and the proposed change. **In addition, whilst recognising the benefits to people provided from access to nature, where appropriate developments will be required to fully assess and mitigate for the impact of recreational disturbance on SSSIs, SACs and SPAs.**	To clarify how the planning approach to internationally and nationally significant nature conservation sites.
Section 15: Delivery and Monitoring			
PM45 - Table 15.2: Delivery and Monitoring – Green Infrastructure	Page 255 of the Publication Draft Local Plan (February 2018)	New Target: • **No adverse increase in recreational pressure on Strensall Common SAC, Lower Derwent Valley SPA and Skipwith Common SAC.**	Additional target and indicator to respond to requirements for monitoring and review of recreational pressure at European designated nature conservation sites as a result of development in the plan.
PM46 - Table 15.2: Delivery and Monitoring - Green Infrastructure	Page 255 of the Publication Draft Local Plan (February 2018)	New indicator: • **Change in visitor numbers at and condition of Strensall Common SAC, Lower Derwent Valley SAC and Skipwith Common SAC**	

F. Review of DIO Hearing Statement/PCP Study by Footprint Ecology

FOOTPRINT ECOLOGY

City of York Local Plan; review of Hearing Statement from DIO relating to Matter 1, Legal Compliance

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Footprint Contract Reference: 570
Date: 3rd February 2020
Version: Final
Recommended Citation: Liley, D., (2020). City of York Local Plan; review of Hearing Statement from DIO relating to Matter 1, Legal Compliance. Unpublished report by Footprint Ecology.

Summary

PCP Visitor Survey

The PCP study is not without criticism but does provide additional data and further information. There is little meaningful difference in the results compared to the previous work by Footprint Ecology and the study provides further evidence that Strensall Common is well visited, particularly by those living close to the Common.

Response to critique of Footprint Ecology survey

Amec Foster Wheeler review the Footprint Ecology work and indicate that the PCP survey results are broadly comparable. Attempts to undermine the Footprint Ecology work and it's results do not stand-up to scrutiny.

Predictions of future use under different development scenarios

Using the most suitable statistical software, separate predictions were made from the PCP data and the Footprint Ecology data and these were averaged to give estimates of future visitor use. Different development scenarios were tested. This approach is therefore using both the PCP data and Footprint Ecology results. We predict, as a result of the Local Plan allocations within 7.5km of Strensall Common, including ST 35 (the Queen Elizabeth Barracks site), a 23.2% increase in recreational use of the Common.

Without the Queen Elizabeth Barracks (i.e. all other sites together with the exception of ST35), the predicted increase would be 9.8%. The Queen Elizabeth Barracks on its own would therefore result in a predicted 13.4% increase in access.

This clearly demonstrates the very high risks associated with ST35. 500 dwellings directly adjacent to the SAC is predicted to result in an increase in access of 13.4%, while 6,153 dwellings at a range of different locations within 7.5km, without the Queen Elizabeth Barracks, are predicted to generate a 9.8% increase in access.

Due to the survey design, selection of survey points and postcode data used, these are considered to be precautionary, i.e. the impact of ST35 could be greater than predicted.

Effects requiring mitigation

DIO, in their hearing statement, attempt to downplay the current impacts from recreation. The impacts from recreation at Strensall Common are however real and are set out in the Footprint Ecology report. They have been an issue for some time and have to date not been effectively resolved. Future recreation will exacerbate the issues and bring further risks.

The examples of mitigation measures used elsewhere

The Avison Young Wood review of mitigation measures used elsewhere does not provide any reassurance to CYC in terms of the risks of development at the Queen Elizabeth Barracks site. Other European Heathland sites including SAC sites have a 400m exclusion zone with a presumption against development, i.e. they do not allow any increase in the number of dwellings within 400m of European heathland sites. The reason for a 400m exclusion zone is that there are particular risks associated with development in such close proximity and furthermore mitigation options (such as alternative greenspace or wardening) are not as effective. With increased risk and limited effectiveness for mitigation, adverse effects on integrity cannot be ruled out. Mitigation approaches such as alternative greenspace and wardening are used for development that is more than 400m from the European site boundary.

The level of increased access predicted at Strensall Common as a result of future development is higher than that predicted at other sites, such as Cannock Chase SAC. As such the approach taken by CYC at Strensall Common is entirely in keeping with the approaches at other relevant heathland SACs around the country.

Mitigation proposed

A range of mitigation measures are suggested by Avison Young Wood. In all cases we have identified some concerns or risk. The mitigation suggestions identified do broadly match those discussed in the Footprint Ecology report and there is little new information. While the measures may have some merit, there is nonetheless particular risks associated with development in such close proximity to the SAC and not enough confidence that the measures proposed would be fully effective (to rule out adverse effects on integrity) in the long-term.

Contents

1. Introduction

1.1 This review has been commissioned by the City of York Council and relates to the hearing statement submitted to the Local Plan EiP (Matter 1: Legal Compliance) by the Defence Infrastructure Organisation (DIO).

1.2 Footprint Ecology are a specialist ecological consultancy involved in work on European sites across the country, undertaking HRA work, visitor surveys, management plans and projects to manage recreational issues on nature conservation sites. Footprint Ecology undertook visitor survey work at Strensall Common for the City of York and the results of the survey were used to inform the subsequent HRA of the Local Plan. Our expertise is also recognised by DIO who have engaged Footprint Ecology (in other parts of the country) to provide training to DIO conservation staff and ecological work to assess the disturbance impacts of military training.

1.3 DIO have objected to the City of York Local Plan. Their hearing statement, exceeding 300 pages, includes a Shadow HRA and a number of appendices that consider visitor data and impacts to Strensall Common. In this report I focus on this new information and any implications. My focus is on the following appendices to the Shadow HRA:

- Appendix D: Review of recreational use of the SAC and impacts of existing use
- Appendix E: Comparison of PCP and Footprint Visitor Survey Results & New Visitor Survey
- Appendix F: Case studies of mitigation measures used elsewhere (also same material in Appendix 1)

1.4 I structure the review as follows:

- **PCP Visitor Survey**, where I consider the approach used by PCP and the new visitor survey report
- **Response to critique of Footprint Ecology survey**
- **Predictions of future use under different development scenarios**
- **Effects requiring mitigation**
- **The examples of mitigation measures used elsewhere**, cited in Appendix F
- **Mitigation proposed** by DIO in association with the development of the QEB site

2. The PCP Visitor Survey

2.1 DIO commissioned a visitor survey of Strensall Common which was undertaken in the summer 2019, by PCP. The approach broadly matched that used by Footprint Ecology in 2018.

2.2 In Table 1 we provide a direct comparison of the two surveys, using a selection of metrics to allow the two approaches and results to be compared. The two surveys are similar in many ways and generated broadly similar results (in many cases virtually identical).

Table 1: Comparison of Footprint Ecology survey and the PCP survey

Metric	Footprint Ecology survey	PCP survey
Methods		
Parking locations counted	9	9
Number of vehicle counts undertaken	8	30
Number of dates with vehicle count(s)	6	6
Locations used for visitor interviews	3	3
Months interviews took place	Aug & Sept 2018	Jun, Jul, Aug 2019
Total survey hours for interviews	64	144
Total interviews conducted	199	251
Results		
Mean number of vehicles per count	9	10.7
Estimate of total people entering site per hr	24.1	21.8-33.8
% of interviewees visiting from home on short visit	95	94[1]
Average number of people in interviewed groups	1.5	1.5
% of interviewed groups with 1+ dogs	73	72
% of interviewees visiting daily	32	32
% interviewees arriving by car	67	69
% of interviewees stating 75% or more of their weekly visits took place at Strensall Common	51	57
Total number of interviewee postcodes generated	192	239
Postcodes within 500m	44 (23%)	42 (18%)
Postcodes within 7.5km	174 (90%)	185 (77%)
Median distance (km) for those on short visit from home	2.4	2.5
Median distance (km) for dog walkers on short visit from home	3.0	2.1
% interviewee postcodes from Strensall	48[2]	49
Median route length on Strensall Common (km)	2.5km	3km

[1] PCP total actually 92% from home and 2% from place of work. People on work breaks were not separated out in the Footprint Ecology survey

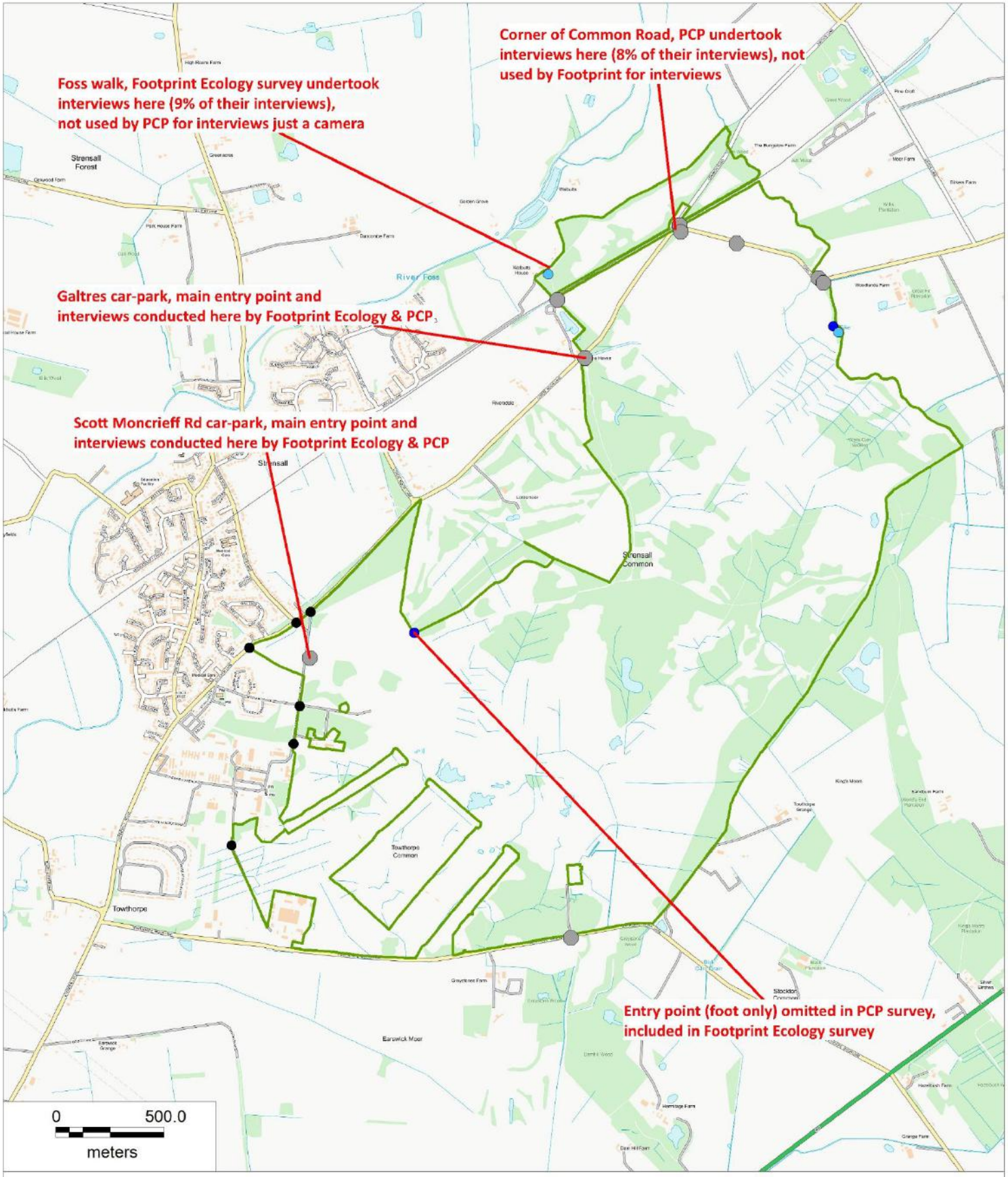
[2] This figure is not in the Footprint report but has been extracted by going back to the original data. The number of postcodes from Strensall was 93 (48.4%).

2.3 The PCP survey is largely a repeat of the Footprint Ecology survey and many of the approaches were replicated. Key differences in methods were that the PCP survey:

- Is more recent (2019 compared to 2018);
- Involved more surveyor time undertaking interviews (144 hours compared to 64 hours);
- Used one location for interviews that was not used by Footprint Ecology and omitted one location used by Footprint Ecology (both used 3 locations for interviews);
- Included an attempt to count all visitors entering the site simultaneously on two dates;
- Used a location for prolonged camera recording that was not used by Footprint Ecology and omitted one location used by Footprint Ecology (both used two locations);
- Undertook more vehicle counts (but included many more repeats on the same dates).

2.4 These spatial differences in choices of survey location are summarised in Map 1.

Map 2: Comparison of survey locations used in the two surveys



- Entry points omitted by PCP
- Camera locations used in PCP survey (prolonged recording)
- Camera locations used in Footprint Ecology survey
- Parking locations included in vehicle counts (both surveys)
- SAC boundary

2.6 The results from the two surveys are broadly similar. The main difference is the proportion of interviewees who lived beyond 7.5km. The PCP survey recorded a higher proportion, more so than would be expected by chance[1]. I suspect that the reason for this is two-fold. The PCP survey used different survey points, including a parking location on the main road through the Common, which is perhaps more likely to be used by people driving through and therefore coming from some distance. The second reason is that the PCP survey was undertaken in different months, with a greater focus during the school holiday time (and it may be that people travel slightly further during the holiday period).

2.7 Looking at the data for those interviewees who were residents of Strensall, the Footprint Ecology survey had 48% of interviewees and the PCP survey 49%, suggesting very similar results. The proportion of interviewees who lived within 500m of the survey point was slightly lower for the PCP survey, but that is to be expected given the survey points were different (and the PCP survey included a survey point further away from housing). This difference is not outside that which might be expected by chance[2].

2.8 One further difference between the two surveys is that the PCP survey included a particular attempt to count all visitors simultaneously to derive an estimate of the number of people per day. PCP undertook these counts during September 2019 on two days, with the counts involving 4 surveyors and 8 cameras. Despite this level of coverage, I note that a number of access points were still omitted, so the count was hardly comprehensive. The omitted points are shown in Map 1 above. One of these was covered with a camera in the Footprint Ecology survey (see map 1) and was clearly well used, with 23 groups per day estimated to enter the site through this point alone.

2.9 I also note that the PCP survey estimated 21.8 people per hour entering the site on a firing day and 33.8 people per hour on a non-firing day (both weekdays), figures that broadly equate to the 24.1 people per hour

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[1] The Footprint Ecology survey had 174 interviewees (out of 192) from postcodes within 7.5m and the PCP survey 185 (out of 239). Chi-squared test results indicate a significant difference: $\chi^2_1=13.371$, $p<0.001$).

[2] The Footprint Ecology survey had 44 interviewees (out of 192) from postcodes within 500m and the PCP survey 42 (out of 239). Chi-squared test results indicate no significant difference: $\chi^2_1=1.903$, $p=0.168$).

estimated from the Footprint Ecology work[3] as entering through the access points surveyed by Footprint Ecology.

2.10 It is important to highlight here that the Footprint Ecology survey work was not designed to establish total visitor numbers to the Common. Such work is complex and given variation across the year requires survey work across the year. Such survey work needs to include holiday and non-holiday periods, different weather conditions and different months throughout the year. The Footprint Ecology survey is more than adequate to derive a snapshot of recreational use, and to use this to consider the implications for development. It does not pretend otherwise.

2.11 The PCP survey, by contrast is overstretched in trying to estimate annual use (section 9 of the PCP report). PCP estimated total annual visitors based on just two days of counts undertaken during weekdays in September, and these are then scaled up with some adjustments to account for different day lengths at different times of year. As noted above there were multiple entry points to the Common that were not covered by PCP. In addition, there is no visitor survey information whatsoever for the period October – May. The annual totals of visitors and estimates of use through the year should be taken as very approximate and I would argue should be discounted entirely. The PCP report is muddled for this section and includes the same graph twice (chart 31 and 32).

2.12 A further criticism of the PCP report is that one of the survey days was exceptionally hot (35^{o}C) and this is likely to have affected how long people stayed on the site and how they behaved. The PCP survey involved a limited number of days survey work with multiple surveyors out at the same time, so the approach is more vulnerable to particular conditions on a single day.

Key Points:

The PCP study is not without criticism but does provide additional data and further information. There is little meaningful difference in the results compared to the previous work by Footprint Ecology and the study provides further evidence that Strensall Common is well visited, particularly by those living close to the Common.

[3] We estimated 17.2 groups entering per hour - from para 5.5. We counted 1.4 people per group (see para 5.3) giving 24.1 people per hour, approximately.

3. Response to critique of the Footprint Ecology survey

Strength of the evidence base

3.1 Footprint Ecology's visitor survey work at Strensall Common was in line with their work across other European sites in England – including Epping Forest, the North Kent Marshes, Cannock Chase, the Brecks, Ashdown Forest, the Thames Basin Heaths, the Wealden Heaths, the Thanet Coast, the Dorset Heaths, south Devon and the Solent. In all these cases the results have been used to underpin the evidence base for many Local Plans and strategic mitigation schemes, and the approach has stood up to scrutiny at a wide range of EiPs and public inquiries.

3.2 Appendix E of the hearing statement contains a technical note comparing the Footprint Ecology survey results and the PCP results. This appendix has been produced by Foster Amec Wheeler. As with my comparison above, Foster Amec Wheeler agree that results from the two surveys are broadly comparable.

3.3 Foster Amec Wheeler recognise that the Footprint Ecology survey "*is based on an established approach that has been used in the assessment of similar studies at other European sites across the UK*" and that the PCP work "*mirrored*" the Footprint Ecology study. Clearly there is some recognition that Footprint Ecology's approach is sound and robust.

3.4 Foster Amec Wheeler do make some relatively minor criticisms of the Footprint Ecology study which we respond to below:

3.5 Footprint Ecology did not extrapolate the data to give annual totals as this would have been inappropriate. We have little confidence in such annual estimates and they are not helpful. Contrary to DIO's suggestion in para 4.1 of their report, Footprint Ecology does provide information on the number of people using the Common and precise information on how it is being used. Visitors were counted by Footprint Ecology and the combined automated counters and tally counts indicated 17.2 groups entering the site per hour (see para 5.5). The count data are mapped and displayed in a range of ways. Precise information on how the site is being used, such as activities undertaken, are set out in detail (e.g. para 6.4). We refrain from estimating annual levels of use as such figures are meaningless without good survey coverage across the year.

3.6 Foster Amec Wheeler suggest there was a lack of clarity on firing vs non-firing, weekday and weekend days in the Footprint Ecology interview data: Dates and day are clearly given in Table 5 of the Footprint report. There was no live firing on the August Friday survey visit and this is stated in para 2.11. The Footprint Ecology survey encompassed range of days, with and without firing and included both weekend and weekday. This is ample to provide a snapshot of visitor use and recreation intensity to inform the local plan.

3.7 Foster Amec Wheeler suggest that there was no consideration of term time and school holidays in the Footprint Ecology survey. The Footprint Ecology survey did survey conduct interviews and vehicle counts within the school holiday period and outside, but no direct comparison was made between the two. The results are pooled but provide an adequate and robust set of data.

3.8 The Footprint Ecology surveys were not conducted simultaneously – i.e. with surveyors at different entry/exit points at the same time. We deliberately avoid doing this as it places a risk that data are biased (e.g. if there is a road closure, event, bad weather) and it's better to sample over a wider temporal period. The approach used at Strensall exactly mirrors that used by Footprint Ecology at other sites around the country.

3.9 Foster Amec Wheeler query why the Footprint Ecology survey effort was different at different locations. We surveyed major car-park/entry points in August and then all locations with similar survey effort in September (outside holidays). This could have been explained more within the report, but doesn't affect results. The decision to only survey the main car-parks during the holiday period was to get an indication of the catchment of the site during the main school summer holidays. Were we to have included more survey effort at the foot only access points we would have likely found more local use and therefore suggested an even greater risk from local housing development.

3.10 The Footprint Ecology study didn't ask whether visitors were military personnel. This is relevant only if military personnel were to make up a significant proportion of recreational use – with the implication that if the barracks were to close, then there would be some reduction in use to factor in (alongside the increase due to local housing development). The Footprint survey did only count and approach people visiting the site for recreation (i.e. we did not interview people who obviously worked on the site). Furthermore, we did not conduct interviews at the locations most likely to be used by residents of the barracks to access the common. As such our survey design ensured we minimised the likelihood of interviewing and counting military personnel. Military personnel could be in barracks or live in

surrounding villages so even if we had asked such a question, it would still be hard to estimate any relative change in use over time as a result of the barracks closing. I note that in the PCP survey, just 3% of interviewees were military staff, suggesting a low level of recreational use by military personnel.

3.11 A further criticism raised by Amec Foster and Wheeler is that the Footprint Ecology survey involved car-park counts that were timed on different dates to the visitor survey. The suggestion was that it would have been better to have counts of cars at the same time. I disagree that this makes any difference – the aim of the car-park surveys was simply to provide an additional measure of recreational use for those arriving by car. The counts are better for being spread over as many different dates as possible.

3.12 With the vehicle counts, Foster Amec Wheeler also suggest that a disproportionate number of weekend days feature in the vehicle count data. Again, this is not a problem as the results are clearly presented by data and time (e.g. Fig 1). We extrapolated up to around 173 people per day based on an average across the car-park counts, and it notable that the lowest count was on a weekend. With such counts, the more counts undertaken over different dates, times of day and conditions is the best way to gain a picture of use (for those arriving by car).

Key Points:

Amec Foster Wheeler review the Footprint Ecology work and indicate that the PCP survey results are broadly comparable. Attempts to undermine the Footprint Ecology work and it's results do not stand-up to scrutiny.

4. Predictions of future use under different development scenarios

4.1 Foster Amec Wheeler in Appendix E (pg 177 of the pdf) use the PCP data to make predictions of future use under different development scenarios. The development scenarios, information on housing change etc. are taken from the Footprint Ecology report.

4.2 Foster Amec Wheeler generated predictions of change that were lower for the Strensall Barracks and they use this result to argue that the impact of development – in terms of visitor use – has been over-estimated by the Footprint work.

4.3 Figure 4.2 by Amec Foster Wheeler shows the PCP data and is essentially visit rate in relation to distance from the SAC. People who live closer to the SAC visit more and a declining curve can be seen. Plot 4.2 mimics Figure 13 in the Footprint Ecology report. The two are shown side by side in Figure 1 below:

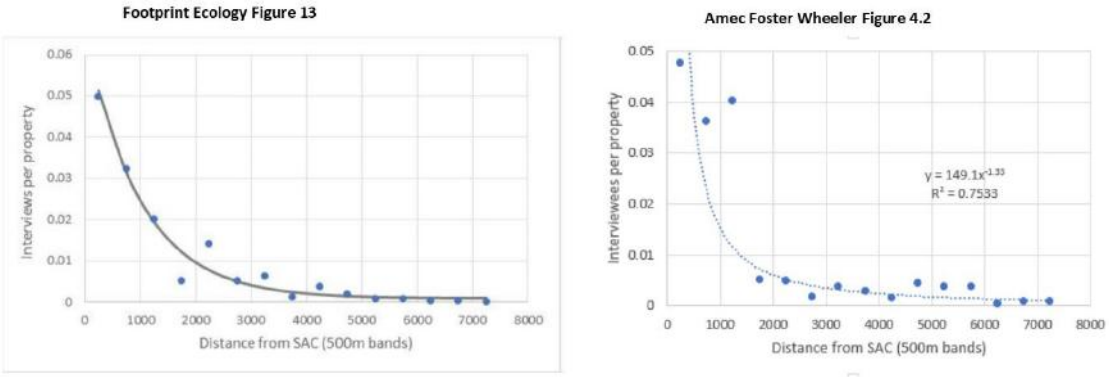


Figure 1: Extracts of relevant curve fits from the two reports

4.4 It can be seen that the shape of the two curves fitted to the data are very different. The Foster Amec Wheeler curve has a very steep shape and is a poor fit. It has been fitted using the 'Power' trendline option in Microsoft excel which has a very limited number of options and is not the appropriate shape to apply to the data. The curve fit is particularly poor for the points at the near distances and this is important as it is where most visitors are likely to originate. The curve used by Foster Amec Wheeler would suggest that the visit rate from the near distance band (i.e. 0-500m) is somewhere way off the scale of the graphs.

4.5 In Figure 1 above, the two graphs have different axes and it is hard to directly compare the points. In Figure 2 below, I show the data for the two data sets on the same plot. The pale blue dots are the PCP data and the dark green dots are from the Footprint Ecology survey. It can be seen that the pattern in the two data sets are broadly similar.

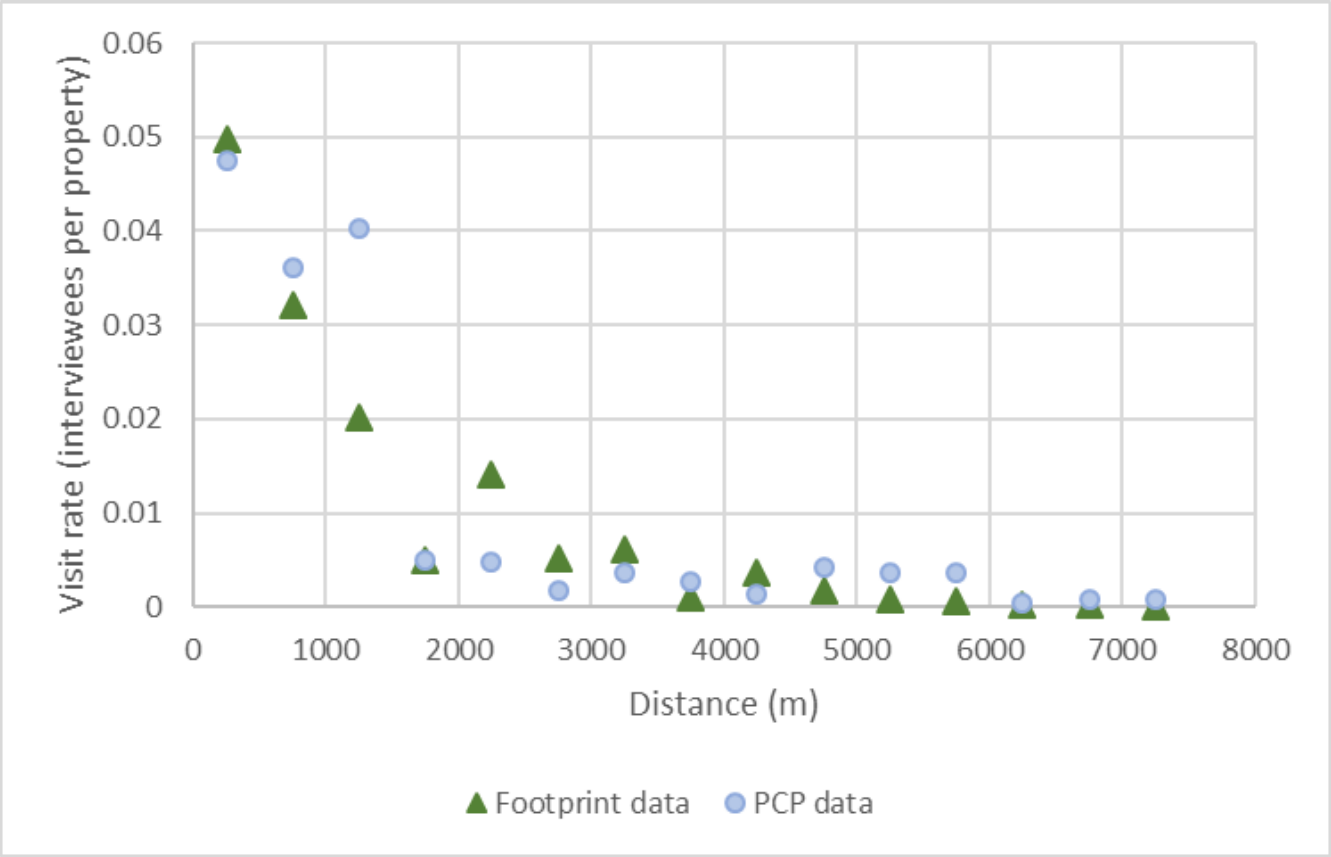


Figure 2: Combined plot showing both the Footprint Ecology data and PCP data

4.6 Curves were fitted separately to the PCP and visitor data using the statistical software r. This software provides the best approaches for curve fitting. We used an asymptotic regression function in r (SSasymp); an example of a 'self-starting' function for curve fitting. The program identifies the rate constant parameter (α) necessary to define the decay. The function searches for the logarithm of α, rather than fitting the rate constant, using the following formula:

$$y(t) \sim yf + (y0 - yf)e^{-\exp(\log\alpha)t}$$

4.7 The two resultant models were then used to predict visitor use as a result of new housing and then an average from these estimates generated. These averages are summarised in below.

Table 2: Summary of predictions of change in access to Strensall Common under different development scenarios included in the Local Plan. Predictions generated by fitting separate curves to the Footprint Ecology data and PCP data using the r (SSasymp) package and then averaging the predictions.

Scenario	Overall number of dwellings	% change in access	Change in access attributable to given development
scenario 1: all allocations	6653	23.2	23.2
NO ST 35	6153	9.8	13.4
No ST8	5685	20.2	3
no ST14	5305	22.2	1
no H59	6608	22	1.2
no ST9	5918	20.2	3

4.8 Using the average from the two surveys it can be seen that the % change in access at Strensall Common, as a result of the development in the local plan, is predicted to be 23.2%. Without the Queen Elizabeth Barracks (i.e. all other sites without the barracks) the predicted increase would be 9.8%. The Queen Elizabeth Barracks on its own would therefore result in a predicted 13.4% increase in access.

4.9 Comparing these figures in more detail it can be seen that:

- 500 dwellings directly adjacent to the SAC is predicted to result in an increase in access of 13.4%
- While 6,153 dwellings at a range of different locations within 7.5km, without the Queen Elizabeth Barracks, is predicted to generate a 9.8% increase in access.

4.10 The predicted impact (in terms of increased recreation) from the Queen Elizabeth Barracks is at least 4 times greater than any of the other single development locations within the plan. These figures highlight the issues with development in such close proximity to the SAC. A major change in access that is attributable to a single allocation. Development in such close proximity is also harder to mitigate and I consider mitigation approaches in the next section.

The need to consider existing accommodation at the Queen Elizabeth Barracks

4.11 On page 178 of the pdf, Amec Foster and Wheeler argue that residential properties within QEB were not included within the Footprint Ecology visitor survey analysis and as a result the impact of development is overestimated. There are apparently ~95 Single Living Accommodation (SLA) units within QEB[4]. Amec Foster and Wheeler therefore suggest that there are currently more residential properties in the 0-500m band than Footprint Ecology have stated. In the Footprint Ecology report (Table 18, pg 48) we state that there are currently 883 residential properties within 0-500m and we interviewed 44 people who lived in this band. Amec Foster and Wheeler therefore argue the 883 figure should be higher and as a result the Footprint Ecology results overestimate use from 0-500m band. This is not the case.

4.12 In Map 2, I show the postcode data from the visitor survey. The red and black dots indicate local postcodes – with the red dots indicating those with postcodes where at least one resident was interviewed in the survey. The number of residential properties was calculated using all postcodes. It can be seen that no-one was interviewed who is a current resident within the Barracks. However, there are 5 postcodes (black dots) within the barracks that are on the national postcode database (data from 2018 as used in the original Footprint Ecology work). These data show there are 15 residential delivery points – these 15 current residential properties were included in our 883. In addition, there are a number of other postcode points very close to the QEB and given we do not know the locations of all the SLAs, it therefore seems likely that some if not all have been included. In our calculations we assumed there would be no loss of dwellings. We also assumed all residential property as being similar in terms of visit rate. SLA units are likely to have low occupancy rates – again meaning there is no reason to consider the Footprint Ecology estimates as worst case scenarios or over-estimates.

4.13 Another key point relevant here is the locations of survey points in relation to the Barracks. In Map 2 the large blue circle at the Scott Moncrieff car-park indicates the nearest survey point used in the Footprint Ecology survey. Surveyors were positioned in the car-park and interviewed people who walked through the car-park or drove and parked at the car-park. Green dots on the map show entry points in the vicinity of the Barracks that allow

[4] The number of units is given as "~95" on page 164 of the pdf and as "95" units on page 85 and page 176.

access onto the Common. It is clear from these that current residents of the Barracks are unlikely to have been intercepted at the interview point, and that most – if accessing on foot from their homes – would have missed the surveyor.

4.14 This simply highlights that the Footprint Ecology survey and the PCP survey are likely to have under-recorded the residents living at the Barracks or areas just by the Barracks. As such, both surveys are likely to underestimate use from local residents and there is certainly an argument that predictions of use are therefore precautionary rather than over-estimates.

Key Points:

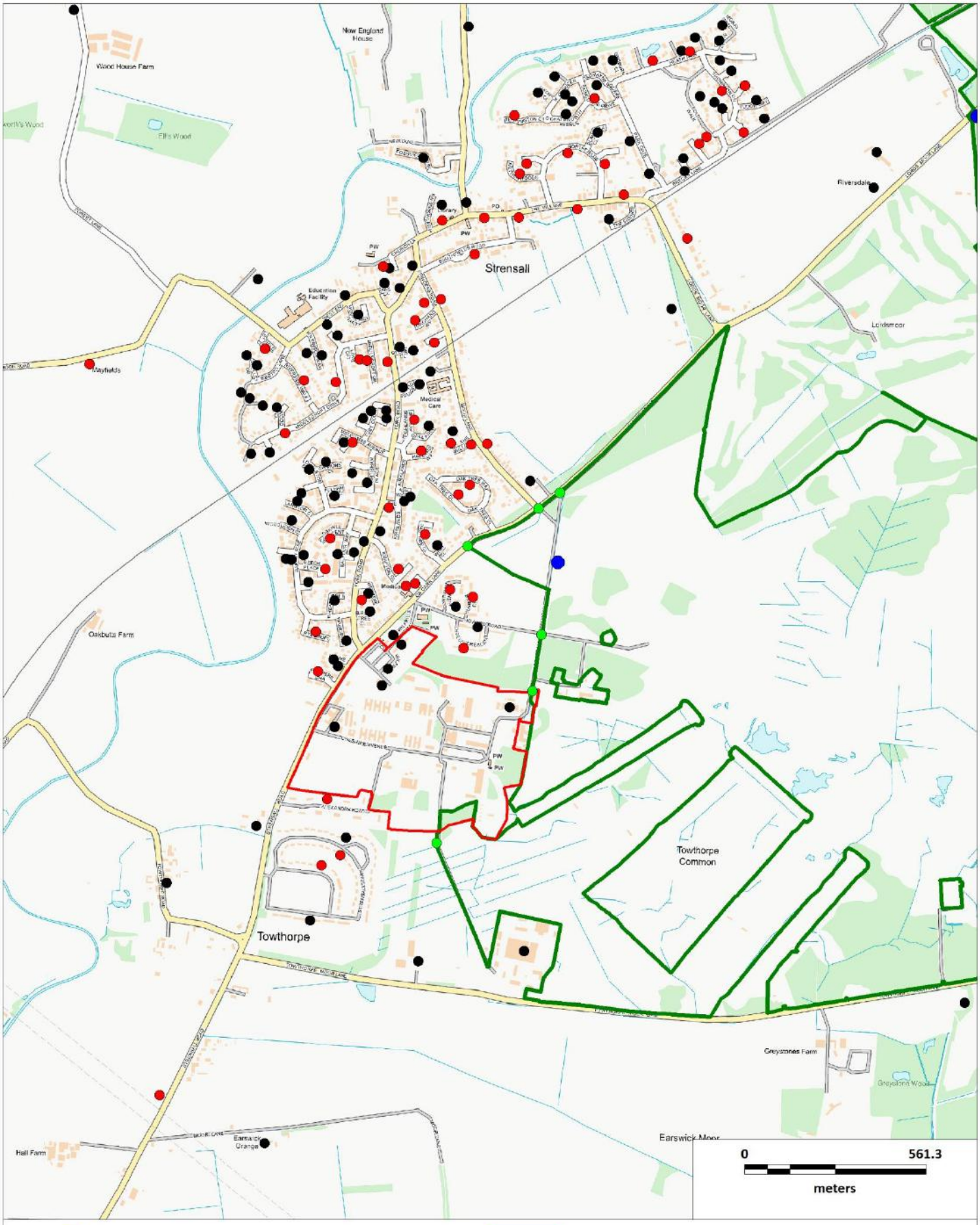
Using the most suitable statistical software, separate predictions were made from the PCP data and the Footprint Ecology data and these averaged to give estimates of future visitor use. Different development scenarios were tested. This approach is therefore using both the PCP data and Footprint Ecology results. We predict, as a result of the Local Plan allocations within 7.5km of Strensall Common, including ST 35 (the Queen Elizabeth Barracks site), a 23.2% increase in recreational use of the Common.

Without the Queen Elizabeth Barracks (i.e. all other sites together with the exception of ST35), the predicted increase would be 9.8%. The Queen Elizabeth Barracks on its own would therefore result in a predicted 13.4% increase in access.

This clearly demonstrates the very high risks associated with ST35. 500 dwellings directly adjacent to the SAC is predicted to result in an increase in access of 13.4%, while 6,153 dwellings at a range of different locations within 7.5km, without the Queen Elizabeth Barracks, is predicted to generate a 9.8% increase in access.

Due to the survey design, selection of survey points and postcode data used, these are considered to be precautionary, i.e. the impact of ST35 could be greater than predicted.

Map 2: Postcodes and entry points near the Barracks



- Survey location (where interviews conducted)
- Entry points around QEB
- Interviewee postcodes (Footprint Ecology survey)
- Postcodes (no interviewees)
- Strensall Common SAC
- Approx. boundary of Queen Elizabeth Barracks

5. Effects requiring mitigation

DIO Appendix I

5.1 Avison Young Wood consider the effects requiring mitigation at Strensall Common in their Appendix I to the hearing statement (section 4, pages 20-22 of the pdf).

5.2 The Avison Young Wood report attempts to downplay the significance of the issues associated with recreation and repeatedly asserts that various impact pathways are not identified by Footprint as an issue for the adverse integrity of the SAC. It is important to note that the Footprint Ecology report is not an HRA and was commissioned to identify the site's vulnerability to recreation impacts and the strategic implications of future housing on visitor use.

5.3 As such, the Footprint Ecology report highlights some current issues from recreation and clearly sets out risks from future development in close proximity to the SAC. All of the pathways identified have the potential to impact the site and the report clearly states (e.g. para 10.5) that adverse effects on integrity as a result of recreation impacts associated with the quantum of development proposed will be difficult to rule out.

5.4 The Avison Young Wood report (para 4.1 & 4.3) asserts that there is no evidence that recreational use of the Common is having an adverse effect on the SAC. Avison Young Wood refer to the last SSSI condition assessment (in 2011) to back-up this assertion. Firstly, there is evidence for current issues, for example Natural England's Site Improvement Plan from 2014 identifies public access/disturbance as a current pressure and the Footprint Ecology report describes a range of current issues (summarised in para 10.2). Furthermore, minutes from the Conservation Committee meetings for Strensall Common (chaired by DIO) have, for many years, repeatedly raised issues relating to recreation pressure, providing clear evidence that recreation pressure is having impacts, for example in relation to fire or the ability to effectively graze the site.

5.5 It is also relevant here to note that Natural England condition assessments will not necessarily pick up issues with recreation – they are based on a single visit where checks are made of vegetation composition, bare ground etc. They will not necessarily record levels of recreation use and assessments are so infrequent as to not pick up gradual changes at a site.

5.6 Regardless of whether DIO are aware of evidence that there is currently an adverse effect on integrity from recreation, the key issue here is whether

adverse effects on integrity from future development can be ruled out. Focussing on whether or not current issues can be 'proved' diverts attention from this key question.

5.7 The following impacts from recreation are the key concerns raised by Footprint Ecology in our report:

- Trampling;
- Increased fire incidence;
- Disturbance to grazing livestock
- Nutrient enrichment from dog fouling;
- Contamination of ponds;
- Contamination from fly tipping, litter etc; and
- Damage to infrastructure.

5.8 Avison Young Wood downplay these, incorrectly interpreting the Footprint Ecology work and ecological significance of the impacts. For example, the Footprint Ecology work highlighted increased fire incidence as an issue and gave examples of site-specific evidence in terms of fire being particularly damaging for the Dark Bordered Beauty Moth (see 9.26 of the Footprint Ecology report). Avison Young Wood suggest (para 4.2b) that the Dark Bordered Beauty Moth is not a qualifying feature of the SAC and for HRA purposes is not a relevant consideration. However, the Dark Bordered Beauty Moth is clearly identified in Natural England's European Site Conservation Objectives: Supplementary advice[5]. The moth is listed as one of the typical species of the site and a target is set to maintain the abundance of the moth to enable it to be a viable component of the Annex I habitat. The supplementary advice is produced, in part, to help inform HRA work. Strensall Common is the last site in England at which the moth is found and it is certainly relevant.

5.9 Avison Young Wood further downplay fire as a risk by stating that NE has previously approved a burning plan with the tenant farmer. Controlled burning is undertaken in late winter and very carefully done to manage vegetation without damage to species. This is very different to wildfires, often attributed to arson or accidental causes (e.g. discarded barbeques) which often occur in spring and summer and can have devastating effects.

5.10 Avison Young Wood 4.2 d) further assert that Footprint does not identify nutrient enrichment from dog fouling as an issue for the integrity of the SAC. We do in fact identify dog fouling as one of the current impacts at the site

[5] http://publications.naturalengland.org.uk/publication/6310049894891520

(e.g. para 10.2) and it is one of the pathways by which likely significant effects from future development would be triggered.

Shadow HRA Appendix D

5.11 Also, within the DIO hearing statement there is a review of impacts of existing use that has been produced by Amec Foster Wheeler. This documents site visits made to Strensall Common as well as a desk study.

5.12 I note that the site visits took place in late November/December 2017 (well before the Footprint Ecology work), with a total of 10 hours spent on the site over two weekdays. Clearly this is a time of year when access levels might be relatively low and ground conditions relatively wet.

5.13 Nonetheless plenty of impacts were recorded, for example 20 observations relating to damage/disturbance by dogs including one of a dog worrying sheep. It would appear that DIO did therefore have evidence of current impacts to the site from their own commissioned surveys, well before the Footprint Ecology report was commissioned.

Key Points:

DIO, in their hearing statement, attempt to downplay the current impacts from recreation. The impacts from recreation at Strensall Common are however real and are set out in the Footprint Ecology report. They have been an issue for some time and have to date not been effectively resolved. Future recreation will exacerbate the issues and bring further risks.

6. Examples of mitigation measures used elsewhere

Overview

6.1 Avison Young Wood give examples of mitigation approaches (relating to impacts from housing) used at other lowland heathland sites and argue that these provide examples to show that mitigation could be established at Strensall Common to resolve the issues with the Queen Elizabeth Barracks. In fact, the examples given are selectively quoted, inaccurate in their description and in reality do not support DIO's argument.

6.2 In this section I review Avison Young Wood's examples. These are set out twice in the DIO hearing statement (in Appendix I on pages 23-38 of the pdf and then repeated again in Appendix F, pages 283-301 of the same document).

6.3 The Avison Young Wood report does not provide any reassurance to CYC in terms of the risks of development at the Queen Elizabeth Barracks site. Key points are:

- The Avison Young Wood report incorrectly states that only heathland SPA sites (with ground nesting bird interest) have a 400m zone around the boundary within which there is a presumption against development. The DIO report is wrong to suggest the 400m zone is solely related to cat predation.
- The Avison Young Wood report uses both the Dorset Heaths and Cannock Chase as an example of other heathland sites where mitigation measures are established, yet fails to mention that planning policy in both areas ensures a presumption against development within 400m of the SAC. Such development exclusion zones are not limited to sites designated for ground nesting birds, but relate to SAC sites where the interest is heathland habitats.
- The reason for a 400m exclusion zone is that there are particular risks associated with development in such close proximity and furthermore mitigation options (such as alternative greenspace or wardening) are not as effective. With increased risk and limited effectiveness for mitigation, adverse effects on integrity cannot be ruled out. Mitigation approaches such as alternative greenspace and wardening are used for development that is more than 400m from the European site boundary.
- The level of increased access at Stensall Common (23% including the QEB) is higher than that identified at other sites such as Cannock Chase.

- Footprint Ecology has undertaken visitor survey work, mitigation advice and evidence-based work on recreation impacts at all the sites referenced by DIO and also at a wide range of other European heathland sites. This has supported local plan policy for a range of adopted plans and has been used at a range of hearings and public inquiries. The advice given by Footprint Ecology at Strensall is in-line with, and consistent with, the advice at other sites.
- As such the approach taken by CYC at Strensall Common is entirely in keeping with the approaches at other relevant heathland SACs around the country.
- The New Forest (also used by Avison Young Wood to argue their points) is very different, unique in terms of lowland heathland and not relevant to Strensall Common. The New Forest SAC/SPA is around 50x larger than Strensall Common and is a National Park. There are whole settlements that are surrounded by SAC/SPA, where the SPA/SAC totally encircles the settlement. In such locations 400m exclusion zones have not been established as any development within the settlement is likely to have a similar impact. As a National Park it has particular recreation facilities in place and is very different from a small, discrete site such as Strensall Common.

Detailed discussion

6.4 Avison Young Wood accept that recreation use will increase and mitigation will be necessary (in para 4.4). They take 'comfort' that the risks are not unique to Strensall Common and that mitigation schemes have been established at other European sites around the UK. A number of other heathland sites are identified (Dorset Heaths, Thames Basin Heaths, Cannock Chase and the New Forest) and used as examples to highlight successful mitigation approaches.

6.5 In all of these examples, Footprint Ecology has undertaken detailed visitor work using the same methods and approach as Strensall Common. The Footprint Ecology survey work has been commissioned by the relevant local authorities or Natural England in order to provide the evidence for HRA and to underpin the approaches to mitigation. This highlights the strength of the evidence base gathered by City of York, and demonstrates their approach is consistent with other parts of the UK.

6.6 Unfortunately, the DIO report is seriously flawed in the confidence it draws from these examples. In reality, the examples selected serve only to demonstrate that City of York, in removing the QEB allocation from their plan, are acting consistently with other parts of the UK.

400m development exclusion zones

6.7 The use of a 400m exclusion zone (i.e. where there is a presumption of no development) has been incorporated into a range of local authority plans where heathland SPA or SAC sites are present, and as such it is an established policy approach. For example, a 400m zone is specifically identified in the following locations:

- Around the Dorset Heaths[6] (five local planning authorities)
- Across the Thames Basin Heaths (11 local planning authorities)[7]
- In the Brecks (e.g. Breckland District[8])
- Around the East Devon Pebblebed Heaths (East Devon District Council[9])
- Around Cannock Chase SAC (e.g. Cannock Chase Council Local Plan[10])
- At Ashdown Forest SPA/SAC (e.g. Wealden District's Core Strategy Local Plan)[11]

6.8 The Avison Young Wood report simply refers to the 400m zone for the Dorset Heaths and the Thames Basin Heaths and argues that these sites are different from Strensall Common because the qualifying species are ground-nesting birds that it is necessary to protect from threats posed by pet (particularly cat) predation. This is incorrect. While some of the above bulleted list are SPAs, many are SAC or the policy applies to both SPA and SAC sites. For example, the 400m zone in Dorset applies to parts of the Dorset Heaths that are SAC and not SPA (e.g. Kinson Common) and 400m is applied because of the particular issues with development in close proximity

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[6] See Dorset Heaths planning framework https://www.dorsetcouncil.gov.uk/planning-buildings-land/planning-policy/joint-planning-policy-work/pdfs/heathlands/dorset-heathlands-planning-framework-supplementary-planning-document-2015-2020.pdf

[7] See the Thames Basin Heaths Delivery Framework: https://www.bracknell-forest.gov.uk/sites/default/files/documents/thames-basin-heaths-spa-delivery-framework.pdf

[8] See 3.73 in the Breckland Core Strategy https://www.breckland.gov.uk/media/13758/Adopted-Core-Strategy-and-Development-Control-Policies/pdf/Adopted_Core_Strategy_and_Development_Control_Policies.pdf?m=637019919090870000

[9] See East Devon Local Plan, strategy 47 https://eastdevon.gov.uk/media/1772841/local-plan-final-adopted-plan-2016.pdf

[10] See para 4.89 pf Cannock Chase Local Plan https://www.cannockchasedc.gov.uk/sites/default/files/local_plan_part_1_09.04.14_low_res.pdf

[11] Wealden District Local Plan Policy EA2 file:///C:/Users/durwyn/Downloads/A1._Wealden_Local_Plan_-_January_2019.pdf

to heathlands. The text in the latest Dorset Heaths Planning Framework[12] reads:

"Natural England locally is concerned at the intensification of residential development in South East Dorset and the resultant pressures placed upon protected heathland by new occupants of these developments living in close proximity to the heathlands. These are similar to the impacts being observed within the Thames Basin Heaths Special Protection Area. Various studies have found that public access to lowland heathland, from nearby development, has led to an increase in wild fires, damaging recreational uses, the introduction of incompatible plants and animals, loss of vegetation and soil erosion and disturbance by humans and their pets amongst other factors have an adverse effect on the heathland ecology.

These effects, … are most marked for development within 400m of heathland where Natural England advise that additional residential development is likely to have a significant adverse effect upon the designated site, either alone or in combination with other developments."

6.9 The Dorset Heaths comprise around 40 different heathland SSSIs and these are typically distinct locations, fragmented and isolated and some are much smaller than Strensall Common (i.e. contrary to paragraph 5.41b of the DIO report). The 400m zone in Dorset is applied to very rural and very urban heaths, with the rural heaths having much lower housing pressure than that around Strensall Common (contrary to DIO para 5.41d). Also, we note that the 400m development exclusion zone applies to those heathland sites in Dorset managed by DIO and used for military training.

6.10 Para 5.13 quotes from the Assessor's report to the panel for the draft South East Plan EiP (Burley, 2007). The selected quote refers to the 400m zone around the Thames Basin Heaths SPA ('Zone A') and specifically to cats. We note that the Assessor also stated (para 4.7.10) that the definition of the zone is based partly on possible impacts from cat predation, but also on other possible edge effects such as fly tipping and dumping of garden rubbish and in para 4.7.11 he also refers to barriers that may form an

[12] Paras 3.3 and 3.4 in https://www.dorsetcouncil.gov.uk/planning-buildings-land/planning-policy/joint-planning-policy-work/pdfs/heathlands/dorset-heathlands-planning-framework-supplementary-planning-document-2015-2020.pdf

impediment to humans as well as cats. Clearly – even for the Thames Basin Heaths which are not SAC – cat predation is not the sole driver for the zone.

The potential for mitigation for development within 400m

6.11 The critical point regarding the 400m exclusion zone at the various heathland sites around the country is that mitigation options are very limited or not possible. For example, Rushmoor Borough Council's Thames Basin Heaths SPA Avoidance and Mitigation Strategy 2019[13] states:

> *"In line with saved South East Plan Policy NRM6, the TBHDF, Rushmoor Local Plan Policy NE1 and to reflect a European Court of Justice ruling , unless full Appropriate Assessment demonstrates that there will be no adverse effect on the SPA, development in the use classes identified in paragraph 4.1 is unlikely to be permitted within this zone [i.e. 400m], as no effective avoidance and mitigation measures are considered to be available which could avoid it. The Council will consult Natural England on proposals within this zone."*

6.12 The point is that development directly adjacent to the European Site poses a much higher risk, while mitigation measures are likely to be less successful. Recreation use is much higher from homes directly adjacent to the heath and it is typically considered very difficult to deflect such access with alternative greenspace, as there is little scope to intercept visitors or provide significant alternatives. Fire risk, fly-tipping and other urban effects (such as cat predation) are also more acute for development in close proximity to the edge of the heath.

6.13 Mitigation approaches such as access management and wardening are likely to be less relevant to development in close proximity to European sites as it is harder to intercept visitors who enter from multiple informal access points (e.g. back gardens) and are likely to use the heath at a wide range of times of day (and even during the night). Such use will be by people who have the greenspace literally on their doorstep – their de facto space to use and potentially seen as an extension to their garden. That will differ from the use by people who travel to the site and make an effort to visit, potentially driving and arriving at a main car-park.

6.14 Mitigation measures such as alternative greenspace and on-site measures such as wardening are however long established and widely accepted as effective for development **beyond** 400m. Such strategic mitigation has been

[13] See para 4.9 in https://www.rushmoor.gov.uk/CHttpHandler.ashx?id=20392&p=0

in place for many years at locations such as the Dorset Heaths, the Thames Basin and Cannock Chase. The Avison Young Wood report refers to evidence for the effectiveness of these mitigation approaches (e.g. paras 5.9, 5.26), failing to stress that they are only successful for development beyond 400m. It makes sense that measures such as SANGs, wardening etc. work better for development more than 400m away as visitors are making a conscious decision to travel to the site, rather than it simply being the de facto open space on the doorstep. With people travelling to visit there is more opportunity to deflect them (SANGs) and intercept them on arrival (wardens).

6.15 We note that the DIO report in particular, highlights the effectiveness of mitigation for Cannock Chase SAC, failing to mention that there is a presumption for no development within 400m. With respect to Cannock Chase, Avison Young Wood also refers to work by Footprint Ecology and suggests Footprint Ecology's advice at Cannock Chase was different and implied a greater level of pressure than at Strensall Common. In fact the increase in access predicted at Cannock Chase was initially 9% (taken from the summary of Liley *et al.* 2009), revised to 15% in 2017 (Hoskin & Liley, 2017) following an increase in the volume of planned housing. These are lower levels than the 25% increase predicted by Footprint Ecology at Strensall Common.

6.16 Footprint Ecology's advice in relation to Cannock Chase (taken from the summary of Liley *et al.* 2009) was:

"We predict development in the respective core strategies will result in an increase of approximately 9% in visits to the SAC. Recreational access and associated visitor pressure is associated with various impacts that include trampling, increased fire risk, erosion, spread of disease and nutrient enrichment. It will not be possible to avoid these effects if development is within 400m of the SAC or for where large single developments occur within easy travel distance or travel time from the SAC. Otherwise mitigation measures should be successful in avoiding adverse effects arising from recreational pressure. Mitigation measures will be complex, difficult to implement and require a separate strategy, followed by a more detailed implementation plan; however precedents do exist in other areas, such as Dorset and the Thames Basin Heaths."

6.17 This is not really dissimilar to Strensall Common, where Footprint Ecology have advised that adverse impacts on site integrity cannot be ruled out as a result of the quantum of development proposed and that for individual

allocations adjacent to the site it will be difficult to rule out adverse effects on integrity.

The New Forest and lack of 400m

6.18 The Avison Young Wood report refers at length to the New Forest. Footprint Ecology have recently been working to update the evidence base relating to access and recreation pressure, including survey work across the New Forest SPA/SAC. As such it is likely that the situation around the New Forest is likely to change in the near future.

6.19 Footprint Ecology's previous work on the New Forest included a report in 2012 for the National Park Authority (Fearnley, Hoskin, Liley, White, & Lake, 2012), which considered the potential for a 400m zone in line with the Dorset Heaths and the Thames Basin Heaths. That report highlighted that the New Forest is very different from other areas of lowland heath in England, and as such it is difficult to draw any relevant parallels with Strensall Common. The New Forest is different in that it is a National Park, receiving visitors from far afield and a wide range of recreation types. It is also a very large extensive block of semi-natural habitat which surrounds some small settlements such as Brockenhurst and Lyndhurst. It is nearly 28,000ha in area, and therefore forms a contiguous block that is nearly 50x the size of Strensall Common.

6.20 The New Forest SPA/SAC boundary is complex in shape and a 400m buffer encompasses most (but not quite all) of some of the central settlements. Footprint Ecology therefore suggested that it would seem pragmatic to consider any development within the settlements to have a similar impact, regardless of whether they were in 400m or not. Development within those settlements is highly constrained due to the size and planning constraints within the National Park. The New Forest is therefore not relevant at all to the considerations at Strensall Common, where the QEB site would be a large single development directly on the boundary of a small SAC.

Other points

6.21 Avison Young Wood's paragraph 5.2 is full of errors. The SPA is called the Dorset Heathlands SPA and there are two different SACs: the Dorset Heaths SAC and the Dorset Heaths (Purbeck & Wareham) & Studland Dunes SAC. As such there is no 'Heathlands SAC'. The Dorset Heathlands SPA is 8,167ha. The SPA is not classified for Southern Damselfly, Great Crested Newt and the various habitats mentioned. Peat is not an interest feature of either the SAC or the SPA and there are a range of habitats listed on the two SAC citations that are not included in the paragraph.

6.22 The Avison Young Wood report in 5.41e notes that the qualifying features of Strensall Common do not include species at risk from cat predation and so a buffer zone is not required. While they are of course not qualifying features for the SAC, it should be noted that Annex I birds (Nightjar and Woodlark) do occur at Strensall Common and these birds are vulnerable to cat predation and recreation impacts. DIO state that a buffer zone is not required, however it is relevant to highlight here that DIO should be taking these species into consideration. This appears to be conveniently ignored.

Key Points:

The Avison Young Wood review of mitigation measures used elsewhere does not provide any reassurance to CYC in terms of the risks of development at the Queen Elizabeth Barracks site. Other European Heathland sites including SAC sites have a 400m exclusion zone with a presumption against development, i.e. they do not allow any increase in the number of dwellings within 400m of European heathland sites. The reason for a 400m exclusion zone is that there are particular risks associated with development in such close proximity and furthermore mitigation options (such as alternative greenspace or wardening) are not as effective. With increased risk and limited effectiveness for mitigation, adverse effects on integrity cannot be ruled out. Mitigation approaches such as alternative greenspace and wardening are used for development that is more than 400m from the European site boundary.

The level of increased access predicted at Strensall Common as a result of future development is higher than that predicted at other sites, such as Cannock Chase SAC. As such the approach taken by CYC at Strensall Common is entirely in keeping with the approaches at other relevant heathland SACs around the country.

7. Mitigation proposed by DIO in association with the development of the QEB site

7.1 A range of mitigation measures are suggested by Avison Young Wood. In all cases we have identified some concerns or risk. We comment on each measure in turn:

7.2 **Existing on-going management** is relevant for context. However, management to achieve favourable conservation status should be being undertaken independently of any development proposal.

7.3 **Enhanced signage/information**. There are some signs and interpretation panels around the site at the moment, and the byelaws are clearly displayed. Some of the panels are in a poor state of repair. It would appear therefore that these approaches have been tried in the past and have neither been well maintained or worked well.

7.4 **Car-park barriers** could help limit anti-social behaviour around the car-parks, but we note these may deter people using the car-parks late in the day/early morning and as a result there could be greater pressure from very local residents to access the Common at other points.

7.5 **Wardening** is a component of mitigation approaches at other sites such as Dorset and the Thames Basin Heaths and was recommended within the Footprint Ecology report. In those other location however, Natural England advise that wardening is not considered effective mitigation for development within 400m. Residents who live adjacent to the site are likely to access frequently, potentially in the early morning, evenings and during darkness and to use small paths, short-cuts etc. directly from their homes rather than using key pinch points (such as main car-parks) where wardening is more likely to intercept visitors. As such wardening is likely to be less effective for such visitors. Even taking the above into account, we note that the cameras used in the Footprint Ecology visitor survey report recorded dog walkers before 6am and joggers using the site after 9pm, giving a span of 15 hours and use 7 days a week. To achieve warden presence in perpetuity, across the site during such time will require high levels of resources. It is not clear how any warden might be employed, who they would report to etc.

7.6 **Managed access:** creating zones within the heath where grazing is focussed, and dog proof fences erected, may help reduce dog worrying. However, it is not clear how these might affect the grazing management and logistics for the grazing. In order to ensure any fencing is dog proof would require

permanent, relatively high fencing across the middle of the Common to create the different compartments. Whether such fencing can be achieved is not clear. Such fencing may serve to draw additional use and in particular by dog walkers, as it means there are contained areas to let the dog run loose. This may lead to issues in the long-term.

7.7 **Information packs for new residents** are widely promoted by developers as they are relatively cheap and easy to do. However, there is no means to ensure the packs are retained by new residents or passed on when the house is sold. I am aware of Natural England in other parts of the country placing little weight on this as a means of mitigation.

7.8 **Public open space** is proposed as alternative greenspace, with 10.44ha proposed (which includes formal sports/play areas). The median route length for interviewees at Strensall Common was 2.5km; a square area of greenspace would need to be around 40ha to accommodate such a route around the perimeter. The 10.44ha proposed by DIO is clearly not likely to provide such routes. The Footprint Ecology survey found that rural/wild landscape was a key factor determining interviewee's choice of site. DIO's proposed greenspace would be adjacent to the housing and include formal sports pitches/play areas, which will deter dog walkers and not provide the rural/wild landscape. These challenges accord with areas such as the Dorset Heaths SAC where alternative greenspace is not considered a suitable mitigation approach for development within 400m of the site boundary. In addition to the 10.44ha, some additional greenspace is suggested by DIO as possible additions (but yet to be confirmed whether available). From the map provided in the DIO report it appears that the greenspace will be in two separate parcels, which will limit their appeal. From a check of the aerial images and routes in the Footprint Ecology visitor report, the northern parcel does already have access and consists of a narrow strip of trees/edging around an existing children's playground and football pitch.

7.9 **Residential layout and boundary treatment** is proposed to prevent direct access from QEB to Strensall Common. The suggestion is that backing housing onto the boundaries will prevent access. However, there are numerous examples around the UK of sites where people have created direct access from their gardens onto Commons and other public open spaces. Such access provides residents with opportunities to dump garden waste, exercise the dog etc and the area becomes an extension of the garden. Given that there is public access to the Common, preventing people from accessing directly from their gardens will be very difficult. For fencing to work to limit access it will have to be maintained in perpetuity and be

subject to frequent checks. Residents will be aware that the land on the other side of the fence is open to public access, and over time there will be considerable pressure for direct access. It is hard to see how such fencing could be secured in perpetuity. Discussion is provided of the potential for such fencing in the Footprint Ecology report (para 10.10).

7.10 I note that there is an existing foot access point to the north-east corner of the site boundary. There is also vehicular access here. The point is clearly shown in Appendix A of the Shadow HRA (pg 102 of the pdf of the Hearing Statement, where it is labelled as RFCA vehicular access and potential pedestrian access). This provides access onto Open Access Land that adjoins the Common and it would be difficult to restrict access here. In the south-east corner the same plan in Appendix A shows a pedestrian/cycle route heading out of the site. Here the route would follow the edge of the Common, where there is at least one gate providing direct access onto the Common. Here it will be impossible to use any housing as a barrier and the layout is such that recreational use is directed towards the edge of the Common.

7.11 **Additional fencing** refers to existing fencing and its maintenance. It is not clear which fences this relates to.

7.12 **Making of new byelaws** may provide a means to enforce certain behaviours. It is not clear how long such byelaws may take to establish and their effectiveness will depend on enforcement in perpetuity. There is likely to be considerable opposition from local residents and the local dog walker community. We are aware of other SAC sites, such as Burnham Beeches, where there was enormous opposition from national organisations such as the Kennel Club, to Public Space Protection Orders which required dogs to be on leads over just a relatively small part of the site.

Key Points:

A range of mitigation measures are suggested by Avison Young Wood. In all cases we have identified some concerns or risk. The mitigation suggestions identified do broadly match those discussed in the Footprint Ecology report and there is little new information. While the measures may have some merit, there are nonetheless particular risks associated with development in such close proximity to the SAC and not enough confidence that the measures proposed would be fully effective (to rule out adverse effects on integrity) in the long-term.

G. Strensall Training Area Conservation Group Minutes

Strensall Training Area Conservation Group Minutes

Purpose

City of York Council has reviewed the minutes of this group to understand the prevalence of discussion and actions pertaining to access, recreational pressure, urban edge effects and sheep worrying on Strensall Common SAC. This evidence has been used to inform the emerging Habitat Regulation Assessment for the City of York Local Plan in relation to the potential effects as a result of development.

The Conservation Group

The Strensall Training Area Conservation Group is convened and chaired on a bi-annual basis by the Defence Infrastructure Organisation to inform and report on management and actions pertaining to the conservation of the Common.

Invitees to the meetings include:

- Commandant Strensall Training Area
- Commander DTE North
- Deputy Range Manager – Strensall
- Deputy Commander ATE North
- Senior Estate Surveyor
- Natural England
- York Golf Club
- Local Farmers
- Entomologist
- Strensall & Towthorpe Parish Council
- City of York Council
- Ornithologist
- Core Administrator
- 15 BDE LTAR
- Yorkshire Wildlife Trust
- East Yorkshire Botanical Club
- Yorkshire Wildlife Trust Reserves Officer
- Defence Estates EST
- Hebridean Sheep
- Friends of Strensall Common
- Cleveland Naturalist Club
- East Yorkshire Botanical Club
- Yorkshire Wildlife Trust
- Senior Defence Estates Advisor

Extracted Minutes

Table 1 presents an extract from meeting minutes between 2007 to 2019 pertaining to issues regarding access, recreational pressure, urban edge effects and sheep worrying. Names of individuals have been redacted.

Table 1: Relevant Strensall Training Area Conservation Group Meeting Minutes

Date of Meeting	Highlighted Notes
27th April 2007	**2. Minutes of Previous Meeting** Item 2.6 – Rubbish at Galtres More bins have been ordered and will be positioned around the car park area. **3. Rural Works Update / Rees (06/07)** Scott Moncrieffe Road Car Park. This has been extended to allow more room and to facilitate vehicle parking for the many visitors to the site. **6. Public Access** Car Parks. The Car Parks on the Scott Moncrieffe Road and at Galtres have been extended. The relevant signage will be installed in due course. Rubbish. Levels of rubbish are a concern on the areas. Dogs. The incidence of dog mess is increasing. Dog walkers are asked to keep their dogs on a lead during the lambing season and deposit their dog waste in the bins provided. Bikes and Horses Discussion took place about recreational use (which historically has included exercising horses). Litter Pick. A litter picking event was proposed to assist in cleaning up the rubbish around the area. This would also serve as a public relations/information exercise. **11. Any Other Business** Protecting Sheep during Lambing. In an attempt to try and reduce the risk to sheep during lambing season various measures were suggested including. Publishing in Outreach. Notices on areas.
27th November 2007	**3. Fence** On a recent routine inspection of the area it was noted that there were incursions into the Range Danger Area (RDA). In order to combat this, units were instructed to post sentry's on the area whilst live firing was taking place. Sentries were to advise walkers of the need to keep out of the RDA whilst live firing was taking place. Some walkers chose to ignore this and continued to walk onto the area. The LTAR was asked why a 6 foot fence was erected and not a stock fence or other form of demarcation fence. The LTAR advised the group that since the presence of a sentry did not deter entry to the RDA, it was unlikely that a demarcation fence would prevent entry, and so to ensure walkers did not walk into the area whilst firing was taking place a deterrent fence was required. **4. Rural Works Update / Rees (06/07)**

	The group were informed that REES monies were allocated to preserve the habitat and conserve nature; that does not necessarily involve public access, in fact, in some cases it may be necessary to exclude the public in order to preserve a habitat. **11. Any Other Business** The Deputy Commander informed the group that Wildlife Crime is on the increase and asked the group to be vigilant. This is low of the police agenda and so detection mainly falls to interested persons.
20th June 2008	**5. Minutes of Previous Meeting** There have been a few incidence of petty pilfering of gate furniture on the area anything impacting on safety is reported and resolved as soon as possible.
17th November 2008	**5. Rural Works Update / Rees (08/09)** The Nature Trail Interpretation Boards have been installed and are being used and appreciated by the public. **8. Cattle Grazing Trial / Sheep.** 40 Cattle have been grazing the area. They are 14 month old Angus Cross bullocks and heifers. They were moved onto the danger area after concerns were raised by the General public who regularly visit the site. Some members of the public are nervous about cattle and still remember a serious incident involving members of the public and 2 long horned bulls almost 10 years ago. Concerns were raised about the hebridean sheep on the road. Some signs have been erected, and more signs were suggested. An increase in night time traffic is anticipated when the local road works begin at the Hopgrove Roundabout and the diversion directs traffic across the access road on the area. The golf course have had members commenting that the sheep can sometimes be aggressive and have been known to 'charge' golfers. **7. Any Other Business** New Boundary signs compliant with current requirements are being positioned on the perimeter.
27th April 2009	**7. Heather Burn Plan** The pink circle (covering a blue hatched areas) was burned by accident on 13/04/09. The Fire Brigade were called, the area closed and no-one injured. This was not a controlled burn (but fell on an area planned for burning in subsequent years).
29th October 2009	**No Comments**
11th June 2010	**7. Farm Update** Distressing – there have been some incidents of sheep being worried by dogs. The most significant being one where 28 sheep were lost (23 of which were lambs). Warnings are in Standing Orders, on Routine Orders and also on signs on the area. Suggestions were for inclusion in new Bye Laws. Signs should also emphasise the importance of dog control in relation to ground nesting birds. The Senior DE Advisor will look to other area for best practice and advice on sign wording.

	[Redacted] has a radio slot on 25 June, during which he will emphasise the need for dogs to be controlled. There is a new Dog Warden – details will be circulated with minutes. A newspaper article was suggested to publicise the effects of an incident of sheep worrying. The COYC rep requested a copy prior to publication. **10. Any Other Business** The group were informed of incidents of Adders 'chasing' people. Adders are not usually noted for such aggressive behaviour and so conservationists and others were urged to careful during encounters with Adders. Dogs have been bitten this year.
20th October 2010	**7. Farm Update** A herd of cows have been bought. They have been grazing the training area. There are mixed views from the public. **9. Access** Signage was discussed – whether it be information sheets explaining about the types of cows and why they were selected to graze here, or whether a warning sign stating "Cows Grazing" would be sufficient. The intention is just to let the public know that cattle are grazing.
1st April 2011	**7. Farm Update** With the spring lambs expected at the end of April, the farm are currently very busy preparing the lambing area for their arrival. The issue was raised about dogs being allowed off their leads during lambing season. Several lambs were lost due to dogs last year. Signs will be erected instructing walkers to keep their dogs on leads. Comdt advised the Farmers to take photographic evidence of any dogs that they see off leads (not in owners control) as this is will allow action to be taken if necessary. **8. Orienteering** A request to conduct a large scale Orienteering Event had been received for March 2012. Natural England have been in contact with the Ornithologist to establish anticipated sites of ground nesting birds. Natural England have written to the event organisers outlining the restrictions.
19th September 2011	**2. Minutes of Previous Meeting** <u>New Track (Mar 2011)</u> The new track way through the woods adjacent to the Nature trail has been completed for the dog walkers who visit the site daily. (Mar 11) **6. Higher Level Scheme** It was reported that the introduction of cows were proving to have a positive effect on naturally controlling the longer grasses on the site. There have been no issues surrounding dogs and cows. **10. Access/Byelaws** Access on the area has been improved by the provision of Rural Walks which will be way marked.

19th April 2012	**5. Natural England (NE) Update** The tenant is looking to increase the heifers to 24 in the near future. A discussion regarding warning signs to inform the general public of the cows on the site. Another initiative was to use fluorescent collars on the beasts to help the public to see the animals. Pets on Leads, visitors to the area are asked to keep their dogs under close control (preferably on a lead) all the times. All visitors are asked to be vigilant, photograph and report people whose dogs are not under control to the MOD police. More Lambing sings were requested. **11. Rural Walks** The RLSO gave an update on public access to the site: the public are allowed on this area, and the site is visited frequently on a daily basis, the only restriction is when live firing is taking place. There has been a considerable amount of money spent on the area to improve access including: gates, horse gates, woodlands etc. Visitors are just asked to act responsibly during their time on the area. There is no desire to alienate the public in any. The Rural Walks will be maintained in future to ensure that there are always places for people to walk. A brochure is being printed and copies will be available to the public. **13. Any Other Business** The issue of dog waste being left in bags around the site was discussed. It is hoped that with the improvements being made to access for the general public might encourage visitors to deposit their pet waste in the bins provided.
16th October 2012	**2. Minutes of Previous Meeting** Rural Walks. All the way markers are in place. The public are please and have requested more walks. The Parish Counsellor requested a walk to link with one of their walks on the other side of the road to make a circular route. **4. REES Update** Improvements to the rural walks are being planned with funding we hope will be approved. **11. Farm Update** Spring saw the re-introduction of cattle to the area. 25 cows and 1 bull were placed on the top of the area. After complaints from the public the cattle were moved into the danger area. This resulted in over grazing of the danger area. Letters of complaint. **12. Any Other Business** Orienteers' have requested use of the area for their annual event at the end of December and also for a smaller event weekend 20th October.
22nd April 2013	**2. Minutes of Previous Meeting** Sheep Worrying

	The group were informed of incidents of sheep worrying. This is a serious problem to the farmer who lost 23 sheep to worrying last year. Other sheep were lost to poaching and road traffic accidents. Members of the group were asked to remind dog walkers of the need to have dogs under close control and preferably on a lead – should anyone witness any incidents then please report them. **2. Tennant Farmer Update** Dog worrying: Dogs are an increasing problem to the farmer. Various incidents have been reported and the police and cases are being pursued. There have been incidents of animal slaughtering taking place on the area. Vigilance is requested and reporting of incidents to allow the build-up of information.
27th September 2013	**2. Minutes of Previous Meeting** <u>Sheep Worrying</u> This is still an issue - there are varied understandings of the phrase 'close control'. An incident earlier in the year resulting in legal proceedings, resulting in a fine and court costs. **8. Tenant Farmer Update** As a result of the new board walks on Yellow route the farmer is having difficulty driving his sheep down the trail. Dog worrying. This is still an issue - some offenders have been taken to court. The Farmer offered thanks to all those that were vigilant and reported incidents. Public sometimes complain about the cow pats - however they are an excellent breeding area for a multitude of flies and micro bugs. Fresh signage is needed (potentially a Rees Project) and removal of old signs. 38 Sheep have been lost his year to theft, sheep worrying and traffic. **9. MOD Bird Survey** It was noted that dogs are not only an issue for the sheep on the site but also for ground nesting birds. **13. Any Other Business** <u>Police</u> [Redacted] is now our York North Wildlife Crime Officer ([redacted]@northyorkshire.pnn.police.uk). We hope to work with [redacted] when the New Bye Laws are due out to help the public understand their responsibilities. [Redacted] is already working with [redacted] the Farmer towards the prosecution of an irresponsible dog walker who allowed his dog to worry the tenants sheep.
1st April 2014	**7. Farm Update** The issue was raised about dogs being allowed off their leads during lambing season. Several lambs were lost due to dogs last year. Signs will be erected instructing walkers to keep their dogs on leads. Comdt advised the Farmers to take photographic evidence of any dogs that they see off leads (not in owners control) as this is will allow action to be taken if necessary.
10th April 2014	**2. Minutes of Previous Meeting**

	The group were asked to be vigilant on the area and report any unacceptable or suspicious behaviour. A picture of intelligence can be compiled and used to justify attendance at specific times. **6. Rural Walks** Yellow route (otherwise known as the Nature Walk) has some boardwalks. After some complaints from the public about the height of the walks, a path to the side has been created. There was heated discussion about the new developments with Strensall and the impact on the Military Training Area. Issues of concern include: a) Increased number of visitors b) Increased incidence of uncontrolled dogs c) Disturbance of ground nesting birds **8. LSS Rural Update** Dog Pooh bins – A new contractor is being sought for this task. **11. Rural Volunteer** Littler picking **13. Any Other Business** <u>Poaching</u> The Rural Volunteer reported an incident that occurred before Christmas. He had reported it to the police, the police referred him to the Military Police <u>Drug Use</u> The Parish Counsellor informed the group that he was aware of regular drug users and that this was being handled/reported to the police.
21st October 2014	**2. Minutes of Previous Meeting** Rural Walk – Complaints about the state of Yellow Rural Walk had been received from the public. Repair works had been scheduled and have now been completed. **5. Rural Works Update** Dog mess – In Strensall this is being collected from the dog poo bins and is being deposited in a skip which is later emptied. **6. Tennant Farmer Update** The previous herd of cows are no longer grazing on the area. In future the calves will be mechanically reared as having Cows and Calves on the site at the same time raised concerns from the local community. No breeding animals will be grazed on the area. Dog worrying is still an issue – at certain times of the year adder signs can be used to encourage dog walkers to keep their dogs on leads. The farmer is supported in his right to shoot animals found worrying his sheep. It was also recognised that free roaming dogs also cause lethal damage to ground nesting birds. **13. Any Other Business**

	Concerns were expressed about wild fires. Fears were allayed, there have been fire rehearsals and live responses in the past and the emergency services are well versed in how to react.
October 2015	**3. Rural Update** Chairman said he had heard from QEB that they use the wood behind the 25m range and they have complained that people are walking their pets in the area. A balance had to be struck because the area had not been policed properly for 20 years so people expected to be able to use it. Chairman asked if anyone in the Group saw it being used to please advise people to use a different route. Chairman wanted to avoid the problems that occurred when people were told not to enter the range danger area. A lady nearly walked through the range danger area on 16 September and the previous week a cycle team tried to rise through it. Chairman said that the Byelaws mentioned keeping dogs under control but the wording was ambiguous. They had come up with a suggestion that if dogs were on the training area then they should be kept on a lead at all times but they also proposed providing a closed off area on the yellow route which would be a dog lead free zone. Chairman provided a detailed description of the location and asked if anyone had any thoughts or ideas on the proposal. [Redacted] said some of the trappers had been involved in a confrontation with an aggressive dog walker when moth trapping. Other dog walkers came over to them and said that he spoilt the situation for them and others. Comd confirmed he received a lot of complaints from people who all said they responsible dog owners. [Redacted] had seen a dog off its lead using Horse Pasture Pond which used to be used for dog paddling. DIO LMS suggested putting a stock fence around it and Simon agreed. [Redacted] stated that his concerns were that dogs with flea prevention medication on their coats can affect the water in the pond which in turn has a poisonous effect on the newt population. He suggested that people should be discouraged from letting their dogs paddle in the pond. [Natural England] asked about the timetable for the Byelaws and said that a lot of people would be unhappy about the proposed changes. [Natural England] suggested that giving up one pond as a compromise might lessen the complaints. EO suggested that this would give a mixed message if dogs were allowed to use one pond and not others and he did not think it would make any difference to the 3% who ignored regulations anyway. There had been dog issues since he started working in the area in 2001.
8th July 2016	**1. Introduction by Chairman** Chairman confirmed money had been received for public access works on rural routes, including foot bridges. The Interpretation Boards would also be updated with an enlarged copy of the route leaflets. DIO LMS mentioned the issues with dogs and dog walkers. Chairman confirmed that apart from the leaflet, the board would be a blank canvas which could include instructions on dogs and where they could be taken,

	Byelaws etc. [Natural England] asked to be informed if there were going to be any changes made to the footpaths. **2. Minutes of Previous Meeting** Chairman had tried to arrange for a 'Warning Military Training' signs to be put up at the access points. He hoped to arrange for more signage under the Byelaws. None of this could happen until the Byelaws were published but two members of the Byelaws Team at DIO HQ had left under the voluntary redundancy scheme. Comd stated that the Byelaws were to protect public safety. Chairman had stopped a couple with their dog who were walking on the range road during firing. The couple had not realised that the ranges were in use on both sides of the road. **9. Any Other Business** Chairman said there was a free Outreach leaflet published once a month and suggested a list of walks for the coming year could be collated and put into the leaflet. [Redacted] said that it appeared felled wood was being stolen from the area. Chairman stated that the problem was that the training area was described as the Common even though it is a military site. Unfortunately newcomers to the area believe as the Common they have commoners' rights of access. Chairman and [redacted] had discussed the possibility of putting in a public footpath from the far side of Flaxton Road through the wood to the golf course. [Redacted] said that the track was used heavily so it would be good to pave it properly. Chairman confirmed this was not part of the 4 permanent paths on the Common and a lot of people had asked for additional paths to be created but there were not enough funds to meet these requests. Comd stated that all proposals should be reviewed but he did not want to create lots of new walkways.
September 2016	**2. Minutes of Previous Meeting** Chairman confirmed funding approval had been received for the public access works on the permissive Rural walks, including foot bridges, and the Interpretation Boards. Civilian Incursions were becoming a real problem and were likely to increase as the surrounding area was developed. This could cause the MOD to put restrictions on public access because civilians were getting onto the range danger area during live firing. Chairman hoped that the Byelaws might help to restrict access. At present there were 400-500 civilians in the area every week and their activities were not being policed. The area was still referred to as The Common. He had done a lot of work to ensure that visitors knew the ranges were live. Unfortunately some individuals walked around the back of the area and tried to gain entry from the east of the RDA near F Range. **3. Rural Update**

	Stretches of the Red Route and the walkways, along with the replacement signage, would now be done after funding had been approved. Chairman confirmed that he would be looking at other routes. An additional walkway and a bridge were to be constructed along the Red Route. Chairman confirmed that the two interpretation boards at the car park would also be replaced as part of the work after they had been vandalised. **8. Other Agency Reports** Lambshill Farm Courtyard. [Redcated] stated that the biggest problem he had was dog walkers. [Redacted] was concerned about dog walkers as the morning siren indicating live firing could only be heard by locals so anyone arriving from elsewhere did not know. DTSO stated that he had locals say to him 'it's my risk' when challenged but he had no authority to remove people. Chairman said that the problem was policing the Common. There used to be dedicated MOD police but they were no longer available. He ensured there were plenty of signs around the area which was as much as he could do at the this time. On one occasion the person was a local who wanted to camp out on the Common. [Redacted] stated that there were two separate issues; people going onto the ranges during live firing and general abuse by dog walkers outside the firing area. **9. Any Other Business** [Natural England] said he had been contacted about possible fires when the Common was dry and asked whether there was a Fire Risk Assessment (RA). [Redacted] stated there had been no controlled burns recently. DTSO said that DIO mitigated the chances of a fire by banning pyrotechnics. [Redacted] commented that, while walking with her son on the track round the golf course, a jogger shoulder barged her son and shouted at them for getting out of his way. [Redacted] had reported the incident to the police who agreed to follow it up should a similar incident occur again.
13th April 2017	**3. Rural Update** Last year's track and boardwalk works had been completed as well as the new signage for the car parks. Chairman confirmed the enhancement of the track down the side of the first green of the golf club had been done but a bit more work was required. Work would be done on the yellow route, there was a quagmire 4-5 metres up where the route kinked. This had been worked on before but people would not wait to let it settle so the work done was ruined. [Redacted] stated that the new path along the Gold Club was well used and created a nice link between the Common and the village.

	DIO Ecologist confirmed she had also received funding from the Conservation Stewardship Scheme for footpath works on the brown route. Chairman was pleased with this news. **4. Dark Bordered Beauty Moth** [Redacted] confirmed more Creeping Willow was being planted on the YWT land. **8. Other Agency Reports** [Redacted] said that the sheep were currently on their winter grazing and would be back in the next 3 weeks for lambing. They would be out on the Common in early May. Chairman suggested it would be useful to put up new signs warning the public that it was lambing and that dog walkers should keep their pets on leads during this period. [Redacted] confirmed that the NFU had some good signs and he hoped to obtain some from them to put up. [Redacted] stated the main issue he had was he needed support with regard to dog walking during the lambing season. [Redacted] said there was also a problem with dog fouling and it could prove problematic if the public was not warned. DTSO asked whether Simon D had access to NFU signs, if so they should be put up. [Redacted] confirmed he did. [Redacted] said there had been suggestions that a ranger would come down. Chairman said this was a very rare possibility. [Strensall Parish Council] asked whether Strensall had any rules about dog fouling. Chairman confirmed that the Byelaws merely stated that the local community had access to the Common when there was no military training, unfortunately there was no funding available for an on-site warden. Chairman expected dog walkers to abide by the Countryside Act but, unless it was policed, it was impossible to stop the minority from ignoring the Act. [Strensall Parish Council] asked whether it was appropriate for others to tell dog walkers to pick up after their pets. Chairman confirmed it was. [Redacted] said that the Byelaws required dogs to be under control but he would prefer they required dogs to be on leads. Chairman confirmed that dogs should be on leads during lambing and bird nesting seasons but he did not have the resources to police this. DIO LMS asked whether a TSM could police the area at weekends. Chairman had previously asked the Comd about this. Dep Comd agreed to ask the Comd again. [Redacted] stated that, if enough evidence could be provided, he could arrange for a dog warden to come out and he could arrange for any fouling to be sprayed as evidence. [Redacted] suggested it would be useful to put a reminder about controlling dogs and picking up after them in the Outreach leaflet. [Redacted] asked that ground-nesting birds also be mentioned. **9. Any Other Business** Chairman mentioned that a lady had been assaulted on the yellow route. A man with his hood down had accosted her and grabbed her by the throat. The incident had raised a lot of concerns. The police and Comd were aware of the incident. Chairman asked if anyone saw anything

	strange to please let him know so he could pass the information on to police.
September 2017	**3. Rural Update** Chairman confirmed more boardwalks were being installed over the boggiest parts of the existing walks. Incidentally, Chairman had received a complaint from a runner since the boardwalk had been installed between the golf course and the Training Area. He complained that the ground was not boggy enough now for his run. **4. Dark Bordered Beauty Moth** [Natural England] had received complaints from the public saying that the grass had been under grazed and complaints from others saying it had been over grazed. **8. Other Agency Reports** [Strensall Parish Council] asked whether there had been any issues with dog fouling. [Redacted] confirmed there were no specific issues. [Strensall Parish Council] referred to a recent article in the Parish Council newsletter about the issue. Chairman suggested that this was a perpetual problem that should be raised periodically to remind the public of their responsibilities. DIO A&RA said the dog walking leaflet was no ready to be distributed and he would send a batch to the Chairman. He would also provide an internet link for the Parish Council to include in their newsletter. **9. Any Other Business** [Redacted] had been visiting Worlds' End and noticed some motorbikes and evidence of camping. Chairman stated there were always incursions. [Strensall Parish Council] mentioned a fire earlier in the year and asked about the outcome. Peter mentioned a fire in a tree stump near Galtres. [Redacted] regularly walked the Common and noticed 2 incidences of vandalism on the track from the car park parallel to Flaxton Road. Between the track and the road there was a bridge and the guard rail appeared to have been smashed and put back up again but it was very unstable. Also by the track there were 3-4 saplings that had been smashed. Access – Chairman had found a couple of teenagers cutting trees and using the branches to make cycle ramps. He had instructed them to use the branches that were already on the ground rather than cutting the trees. Civilians were always walking on the area and traversing through areas where troops were training.
March 2018	**2. Minutes of Previous Meeting** Chairman stated that the boardwalks discussed in the previous meeting had been installed and he hoped to install another 4 this financial year on the most boggy parts of the site. **3. Rural Update** Footpath work has been undertaken, with further improvements planned.

	Fence construction work to restrict vehicle access at the southern end of the site (to deter illegal motorbike use on the site) and work to secure the 25m range from pedestrians had gained consent from Natural England and would be undertaken before the end of the financial year. Sy&PA states that funding had been requested for new public information boards from the Conservation Stewardship Fund (CSF) but there had been a delay in the funding. **7. Mycology & Dragon Fly Report** Vandals had set fire to some gorse near the cattle grid on the road going out of Strensall Common towards Flaxton and Malcolm had found a rare species of fungus, Daldinia fissa, growing on the burnt gorse. **8. Other Agency Reports** [Strensall Parish Council] confirmed the Council was producing its April Newsletter and asked for confirmation of when sheep would be put on the Common so that the information could be publicised. [Strensall Parish Council] suggested that a reminder be included about keeping dogs under control during the ground nesting bird season. Lambing would take place from 10-12 April and lambs would be on the Common from the beginning of May. Chairman asked that signs be put in the car parks to remind dog walkers. [Redacted] suggested there should be licences in place for dog walkers so that action could be taken if there were any issues. Chairman took the point but there would be problems policing it. There were concerns about the number of civilians on the estate even when military training was taking place. Sy&PA stated the problems were caused by the Public Rights of Way which crossed the estate. Some Tenant Farmers had found it necessary to shoot dogs which were worrying their sheep. [Strensall Parish Council]suggested that the problem stemmed from the area being called 'The Common' which people thought gave them the right to access the area any time they wanted. **9. Any Other Business** At the very top of the area where Flaxton Road goes over the cattle grid. A number of motor and quad bikes had been used on the area creating a figure of eight driving circuit, there had also been instances of fly tipping in the area. Dog Walking Businesses – Chairman said 5 businesses had been seen on site even though they were not permitted to ply their trade on the Common without authorisation. [Redacted] asked about horse riding. Chairman confirmed that people were permitted to ride horses on the Common as long as they were not bringing horses from stables. Sy&PA stated work was being done on wild fire plans which may result in additional signs being put up.
12th September 2018	**5. Security / Access** Chairman stated that a new gate had been erected outside the 25mtr range. The need for this was identified because members of the public

	were walking through the car park and mixing with soldiers during live firing exercises. **6. Other Agencies** North Yorkshire Police [Redacted] reported that, during the drought, he had been called out 3 or 4 times to youths setting fires just near an area of the MOD fence line which had been trampled. [Natiural England] asked about other illegal activities, such as off road driving. Chairman stated that since a new fence had been put up at the access area this had appeared to have stopped. Comd mentioned that wild fires were a major issue across the estate. [Redacted] said he had come across the remnants of a fire on a manhole cover in July and he could still smell burning in the area. The peat there was hot and smoking so he called the Fire Brigade to put it out. With more houses being built in the area there could be more problems in the future. Chairman stated there had been a number of fires on the site but Strensall had been lucky as they had not spread. [Redacted] mentioned seeing more horses on the area. [Redacted] stated he had seen a van that was advertising dog walking going into Scott Moncrieff Road but the owner, when challenged previously, had said they were his own dogs. **10. Tenant Farmers Matters** [Redacted] suggested that the longer it was without a controlled burn the more likely it was that there would be a major fire. [Natural England] agreed that it was very fortunate that there had not been a major fire this year. **11. Any Other Business** Wildfire Plans Chairman was working with the NY Fire & Rescue at Huntingdon to conduct an annual exercise on site. [Redacted] said the only issue for a member of the public reporting a fire was that they did not always know where they were on the Common as there were no signs indicating locations.
13th March 2019	**2. Previous Minutes** [Redacted] said that the boardwalks had been put down the centre of the area, over the central track, which was great for pedestrians but it meant that he had to drive along the side of what used to be the track which was often boggy. [Redacted] suggested that the boardwalks should have been put alongside the tracks rather than on top of them. [Redacted] proposed that the boardwalk be moved 3 metres to the side so that there was a track down the middle of the area with the boardwalk alongside it. **5. Security / Access** Works service requests had been submit to put barriers in the car parks at Galtres and Scott Moncrieff Road. The purpose of this was to be able to close the car parks at night to prevent improper use of the site.

	People thought they could do whatever they wanted on the Common but this would make it clear that it was military land. **6. Other Agencies** Three volunteer task days have been carried out on Yorkshire Wildlife Trust's nature reserve over the winter. These focused on controlling scrub regeneration through compartments east of the railway line, checking fence lines, litter picking and removal of fly-tipping. **10. Tenant Farmers Matters** Sheep would be grazing from beginning of May so there were likely to be the usual issues with dogs from then. [Strensall Parish Council] confirmed he had issued the dog walking rules within the Parish Newsletter but had received a lot of flak afterwards. At present there were not enough signs and not a lot of people took any notice of them. [Redacted] confirmed that there was a sign with a cow on it on the area. [Redacted] mentioned that cows could be protective when dogs were around. [Redacted] had seen a dog walker van in the car park on several occasions but did not know whether the owner was walking one dog or more.
24th April 2019	**4. Minutes of Previous Meeting** Item 8.4 & 5 - Cattle / Sheep It appears that the concern of sheep being injured or killed along the Flaxton road during the period of the local road works has not happened so far. Attention was brought to the New Forrest Model or a 20 speed limit between cattle grids. This was discussed but felt to be inappropriate at present. Current measures seem to be effective. **6. Rural Works Update / Rees (08/09)** Way markers will be installed to complement the Interpretation Boards. Draining will be improved on the Nature trail. Heather Burn Plan. The pink circle (covering a blue hatched areas) was burned by accident on 13/04/09. The Fire Brigade were called, the area closed and no-one injured. This was not a controlled burn.
11th September 2019	**5. Security / Access** Chairman said his team were also monitoring civilian interruption of military training as this was unacceptable. DIO LMS confirmed that the Byelaws were being reviewed but this had stalled and needed to get moving again. Progress had been stalled now for 4 years. [Strensall Parish Council] said that someone had complained that their dog had been bitten by an Adder and had suggested they be removed from the site. **6. Other Agencies**

	[Redacted] suggested that closing the car parks could displace people into the YWT area, which was a concern for him. **10. Tenant Farmers Matters** [Redacted] said there had only been one case of sheep worrying this year but the animal had to be put down as it was badly injured.

H. City of York Air Quality Modelling Assessment

Air Quality Assessment

Air Quality Modelling Assessment

April 2018

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Client Name:	York City Council
Document Reference:	WIE13194-103-R-1-2-3-CB
Project Number:	WIE13194-103

Quality Assurance – Approval Status

This document has been prepared and checked in accordance with Waterman Group's IMS (BS EN ISO 9001: 2015, BS EN ISO 14001: 2015 and BS OHSAS 18001:2007)

Issue	Date	Prepared by	Checked by	Approved by
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Final	25 April 2018	Chris Brownlie Principal Consultant	Kirsty Rimondi Technical Director	Guido Pellizzaro Associate Director

Comments

Comments

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Appendices

1. Introduction

1.1. The City of York Council (CYC) is developing its Local Plan. This will deliver the strategic vision and objectives in York over a 20-year period described in the Pre-Publication Draft Local Plan (Regulation 18) Consultation document[1]. When adopted, the Local Plan will influence all future development within the City Council's boundaries. Atmospheric emissions from additional vehicles because of the Local Plan have the potential to impact on ecological sites within York

1.2. The purpose of this air quality assessment is to predict the potential effect of the Local Plan on local air quality specifically in relation to ecological sites. The most significant pollutant associated with road traffic emissions in relation to ecological sites is Nitrogen Dioxide (NOx) and Nitrogen Deposition. Therefore, this assessment focuses on these pollutant.

1.3. The results of the air quality modelling are presented in this report and are compared to the relevant Critical Level for NOx and the Critical Load for Nitrogen Deposition (defined in Chapter 2: Air Quality Legislation and Planning Policy) for each ecological designated site. The results are considered against the relevant screening criteria, where these results cannot be screened as being insignificant, further consideration of the significance in relation to the relevant ecological sites is provided in the Habitats Regulations Assessment (HRA).

1.4. Section 2 of this air quality assessment gives a summary of legislation, planning policy and guidance relevant to air quality. Section 3 provides details of the assessment methodology and Section 4 sets out the baseline conditions. The results of the assessments are presented in Section 5. A summary of the findings and conclusions of the assessment is given in Section 6. The air quality assessment is supported by: **Appendix A: Air Quality Assessment Detailed Methodology**.

[1] https://www.york.gov.uk/downloads/download/4036/pre-publication_draft_local_plan_reg_18_consultation

2. Air Quality Legislation and Planning Policy

Legislation

European Union Framework Directive

2.1. Air pollutants at high concentrations can give rise to adverse impacts on the health of humans and ecosystems. European Union (EU) legislation on air quality forms the basis for national UK legislation and policy on air quality.

2.2. The European Union Framework Directive 2008/50/EC[2] on ambient air quality assessment and management came into force in May 2008 and was implemented by Member States, including the UK, by June 2010. The Directive aims to protect human health and the environment by avoiding, reducing or preventing harmful concentrations of air pollutants.

Air Quality Standards Regulations

2.3. The Air Quality Standards Regulations 2010[3] implement Limit Values prescribed by the Directive 2008/50/EC. The Limit Values are legally binding and the Secretary of State, on behalf of the UK Government, is responsible for their implementation.

The UK Air Quality Strategy

2.4. The Environment Act 1995[4] required the preparation of a national air quality strategy setting health-based air quality objectives for specified pollutants and outlining measures to be taken by local authorities in relation to meeting these (the Local Air Quality Management (LAQM) regime).

2.5. The current UK Air Quality Strategy (UK AQS) was published in 2007[5] and sets out air quality objectives for local authorities to meet when undertaking their LAQM duties. Objectives in the UK AQS are in some cases more onerous than the Limit Values set out within the relevant EU Directives and the Air Quality Standards Regulations 2010. In addition, objectives have been established for a wider range of pollutants.

2.6. Currently it is a Local Authority's responsibility to determine the effect of a development against the UK AQS objectives.

Critical Level

2.7. Critical Levels relate to effects on plant physiology, growth and vitality, and are expressed as atmospheric concentrations over an averaging time and are defined by the UN ECE[6] as:

"concentrations of pollutants in the atmosphere above which direct adverse effects on receptors, such as human beings, plants, ecosystems or materials, may occur according to present knowledge".

2.8. The critical levels for NOx are set by in the EU Ambient Air Quality Directive and transposed into law by the Air Quality Standards Regulations. The Critical Levels for NOx relevant to this assessment are summarised in Table 1 below.

[2] European Council Directive 2008/50/EC of 21 May 2008 on ambient air quality and cleaner air for Europe
[3] Defra, 2010, 'The Air Quality Standards Regulations'
[4] Office of the Deputy Prime Minister (ODPM), 1995, 'The Environment Act 1995'
[5] Defra, 2007, 'The Air Quality Strategy for England, Scotland, Wales & Northern Ireland'
[6] http://www.unece.org/env/lrtap/WorkingGroups/wge/definitions.htm

Table 1: Summary of Relevant Critical Level for Ecological Sites

Pollutant	Critical Level	Averaging Period
Nitrogen Oxides (NO_x)	30µg/m^3	Annual Mean
	75µg/ m^3	24 Hour Mean

2.9. Several studies[7,8] have indicated that the 'UN/ECE Working Group on Effects strongly recommended the use of the annual mean value, as the long-term effects of NOx are thought to be more significant than the short-term effects'. Therefore, this assessment only considers the annual mean NOx concentration.

Critical Loads

2.10. A Critical Load is defined by the Air Pollution Information System (APIS) [9] as:

"A quantitative estimate of exposure to deposition of one or more pollutants, below which significant harmful effects on sensitive elements of the environment do not occur, according to present knowledge. The exceedance of a critical load is defined as the atmospheric deposition of the pollutant above the critical load."

2.11. When pollutant loads (or concentrations) exceed the Critical Load, it is considered that there is a risk of harmful effects. The excess over the critical load is termed the exceedance. A larger exceedance is often considered to represent a greater risk of damage.

2.12. Maps of Critical Loads and their exceedances are used to show the potential extent of pollution damage and aid in developing strategies for reducing pollution. Decreasing deposition below the Critical Load is seen as means for preventing the risk of damage. However, even a decrease in the exceedance may infer that less damage will occur.

2.13. Critical Loads have been designated within the UK based on the sensitivity of the receiving habitat and have been reviewed for this assessment. Further information on the Critical Loads considered in this air quality assessment are discussed below (under the heading Background Concentrations).

[7] Sutton et al. (2013), The European Nitrogen Assessment: Sources, Effects and Policy Perspectives. Page 414. Cambridge University Press. 664pp. ISBN-10:1107006120
[8] June 20111. Manual on Methodologies and Criteria for Modelling and Mapping Critical Loads & Levels and Air Pollution Effects, Risks and Trends. Chapter 3: Mapping Critical Levels for Vegetation
[9] http://www.apis.ac.uk/

3. Assessment Methodology and Significance

Assessment Methodology

3.1. This air quality assessment was undertaken using a variety of information and procedures as follows:

- a review of the APIS website[10] to identify the baseline conditions within the relevant ecological sites and those habitats sensitive to changes in NOx and nitrogen deposition;
- application of the ADMS-Roads dispersion model to predict the Process Contribution (PC) from the traffic flows associated within the Local Plan (details of the dispersion modelling are presented in Appendix A);
- the calculation of the total Predicted Environmental Concentration (PEC) which includes the PC combined with the existing baseline concentration;
- comparison of the predicted air pollutant concentrations with the relevant Critical Level and Critical Load; and
- determination of the likely significant effects of the Local Plan on air quality within the ecological sites using the Defra and Environment Agency online guidance document[11].

Model Verification

3.2. Model verification is the process of comparing monitored and modelled pollutant concentrations and, if necessary, adjusting the modelled results to reflect actual measured concentrations, to improve the accuracy of the modelling results. The model has been verified by comparing the predicted annual mean NO_2 concentrations for the baseline year of 2016, with results from the CYC monitoring locations. The verification and adjustment process is described in detail in **Appendix A**.

Atmospheric Chemistry

Nitrogen Deposition

3.3. Nitrogen deposition rates were calculated using the conversion factors provided within the EA AQTAG[12] document.

3.4. Predicted pollutant concentrations were multiplied by the relevant deposition velocity and conversion factor to calculate the dry deposition flux. The conversion factors used for the determination of nitrogen deposition are presented within Table 2.

[10] http://www.apis.ac.uk/
[11] Defra and Environment Agency (2016) Guidance: 'Air emissions risk assessment for your environmental permit' https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit last updated 2 August 2016
[12] Environment Agency (2006), Technical Guidance on Detailed Modelling approach for an Appropriate Assessment for Emissions to Air AQTAG 06

Table 2: Conversion Factors to Determine Dry Deposition

Pollutant	Deposition Velocity (m/s)	Conversion Factor (µg/m²/s to ka/ha/yr of pollutant species)
NO_x	0.0015	96

3.5. The PC and PEC proportion of the Critical Level or Critical Load were then calculated using the critical loads as presented on the APIS website[13] and presented in the subheading Baseline Critical Loads below.

Sensitive Receptors

3.6. Tailpipe emissions from the additional vehicles as a result of the Local Plan have the potential to impact on ecological sites within York. The study was completed using the APIS website to identify habitats that may be sensitive to changes in NO_x as well as Nitrogen Deposition. A summary of those habitats is provided in Table 3.

3.7. Results have been modelled along a transect at intervals of 1-5m; 10m; 15m; 20m; 25m; 50m; 100m; and 150m intervals from the roadside, additionally concentrations were modelled as a grid with a resolution of 20m across each of the ecological sites. **Figures 1 - 7** show the locations of the transects within each of the ecological sites.

[13] www.apis.ac.uk

Table 3: Habitat Description

Site	
Strensall Common	• Dwarf shrub heath (Calluna vulgaris - Deschampsia flexuosa heath) & (Erica tetralix - Sphagnum compactum wet heath); • Fen, marsh and swamp (Molinia caerulea - Potentilla erecta mire) • Northern wet heath: Erica tetralix dominated wet heath • European dry heaths (H4030)
Clifton Ings	• Neutral grassland (Alopecurus pratensis - Sanguisorba officinalis grassland), (Cynosurus cristatus - Caltha palustris grassland)
Fulford Ings	• Neutral grassland (Alopecurus pratensis - Sanguisorba officinalis grassland) • Fen, marsh and swamp (Juncus subnodulosus - Cirsium palustre fen meadow)
Askham Bog	• Broad-leaved, mixed and yew woodland (Alnus glutinosa - Urtica dioica woodland); Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland) • Fen, marsh and swamp (Juncus effusus / acutiflorus - Galium palustre rush pasture) • Fen, marsh and swamp (Juncus subnodulosus - Cirsium palustre fen meadow)
Church Ings	• Neutral grassland (Alopecurus pratensis - Sanguisorba officinalis grassland)
Acaster South Ings	• Neutral grassland (Alopecurus pratensis - Sanguisorba officinalis grassland)
River Derwent	• Fen, marsh and swamp (Carex echinata - Sphagnum recurvum (fallax) /auriculatum (denticulatum) mire) • Fen, marsh and swamp (Juncus effusus / acutiflorus - Galium palustre rush pasture) • Fen, marsh and swamp (Filipendula ulmaria - Angelica sylvestris mire) • Broad-leaved, mixed and yew woodland (Salix cinerea - Galium palustre woodland) (Alnus glutinosa - Fraxinus excelsior - Lysimachia nemorum woodland)
Lower Derwent	• Acid grassland (Festuca ovina - Agrostis capillaris - Galium saxatile lowland acid grassland (U4a)) • Neutral grassland (Cynosurus cristatus - Centaurea nigra grassland)

Note: Habitat descriptions taken from APIS website

Assessment Criteria

3.8. The Defra and Environment Agency online guidance[11] states that the PC can be considered insignificant if:

- the short-term PC is less than 10% of the short-term environmental standard (Critical Level for NOx or Critical Load for nitrogen deposition); and
- the long-term PC is less than 1% of the long-term environmental standard.

3.9. If these criteria are exceeded the following guidance is provided on when further consideration of potential impacts may be useful:

- the short-term PC is less than 20% of the short-term environmental standard minus twice the long-term background concentration; and
- the long-term PEC is less than 70% of the long-term environmental standard.

3.10. If these criteria are achieved, then predicted impacts are insignificant. Where these criteria are not achieved the results have been passed to the project ecologist for further consideration.

4. Baseline Conditions

City of York Review and Assessment

4.1. CYC completed a First Stage Review and Assessment of air quality in December 1998[14]. This determined that the AQS objectives for CO, Benzene (C_6H_6), 1,3 butadiene (C_4H_6), and lead (Pb) were not at risk of being exceeded. However, it also concluded that further stages of review and assessment were required for NO_2, SO_2 and PM_{10}.

4.2. A Second and Third Stage Review and Assessment of air quality was undertaken in February 2000[15]. This report concluded that the air quality objectives for SO_2 and PM_{10} would be met. The report also predicted breaches of the annual average NO_2 objective at five locations around the inner ring road.

4.3. Therefore, CYC declared an AQMA at these five locations around the inner ring road, for the annual mean NO_2 AQS objective in January 2002, this AQMA was subsequently amended in 2012 to include the 1-hour mean NO_2 AQS objective as several properties within the AQMA. An AQMA was also declared in 2010 for the annual mean NO_2 objective for an area along Fulford Road, Main Street and Selby Road.

4.4. CYC undertook an Updating and Screening Assessment (USA) in 2015[16] and an Annual Status Report in 2017[17], the findings of both confirmed that 1,3 butadiene, CO, Pb, Benzene and SO_2 still met the objective levels and therefore did not require a Detailed Assessment. While there had been a slight increase in concentrations in 2016 compared with 2015 there was evidence of a steady downward trend in nitrogen dioxide concentrations within York over the last 7 years.

4.5. Air quality modelling work undertaken by CYC indicates that with the proposed third Air Quality Action Plan (AQAP3) measures in place, the air quality objectives for NO_2 will be met across York by 2021.

City of York Air Quality Monitoring Data

4.6. CYC currently undertakes monitoring at nine locations within the City of York using automatic monitors. Of these nine locations, eight of the locations monitor NO_2, four monitor PM_{10} and three monitors $PM_{2.5}$. NO_2 was also measured at 234 locations using diffusion tubes.

4.7. The results for the Fulford Road monitoring location classified as a roadside location, are presented in **Table 4** below for 2016 and 2017. Fulford Road monitoring location is presented as it is located approximately 0.5km form the Fulford Ings ecological site.

Table 4: Measured Concentrations at the Fulford Road Roadside Automatic Monitor

Pollutant	2016	2017
NO_x	59	55
NO_2	25	23

4.8. The monitoring results in **Table 4** indicate that the annual mean NO_x objective of 30µg/m^3 (for ecological sites) was exceeded in 2016 and 2017. The results for the nearest nitrogen diffusion tube roadside locations to the selected ecological sites are presented in **Table 5**.

[14] City of York Council (1998) First Stage Review and Assessment of Air Quality
[15] City of York Council (2000) Second and Third Stage Review and Assessment
[16] City of York Council, Updating and Screening Assessment for City of York Council, April 2015.
[17] City of York Council, 2017 Air Quality Annual Status Report, June 2017.

Table 5: Measured Concentrations at the City of York Diffusion Tubes

Site ID	Name	Distance to nearest ecological Site	2013	2014	2015	2016
47	Strensall Road	4.3km Strensall Common	28.2	28.0	27.6	28.3
A12	7 Clifton Green (Lamppost)	1.0km Clifton Ings	30.7	33.8	28.7	29.0
A96	Ousecliffe Gardens (signpost, outside 31 Water End)	0.9km Clifton Ings	31.5	34.4	28.4	31.7
C29	34 Selby Road (Lamppost)	0.7km Fulford Ings	30.2	33.5	28.8	30.0
C30	2 Selby Road (Lamppost)	0.7km Fulford Ings	34.0	35.2	29.3	30.8
C34	103 Main St	0.3km Fulford Ings	26.6	28.6	23.7	25.2
C36	50 Main St	0.3km Fulford Ings	26.9	30.8	29.7	28.5
C38	8 Main St (Lamppost)	0.3km Fulford Ings	30.7	30.8	28.2	28.1
C39	18 Main St	0.4km Fulford Ings	31.5	35.3	35.1	32.6
C58	4 Main St (Drainpipe)	0.4km Fulford Ings	36.3	39.5	36.8	35.5
95a/b/c	Fulford AQS	0.5km Fulford Ings	25.2	26.0	24.7	23.7
C43/43a/44	39 Fulford (Lamppost)	0.5km Fulford Ings	29.4	31.1	28.0	29.4

4.9. The monitoring results in **Table 5** indicate that the annual mean NO_2 objective of 40µg/m^3 has been met at all monitoring locations between 2013 and 2016.

Background Concentrations

4.10. The ADMS Roads model has been used to model pollutant concentrations at the ecological receptors. To estimate the total concentrations due to the contribution of any other nearby sources of pollution, background pollutant concentrations need to be added to the modelled concentrations.

4.11. Current NO_x and nitrogen deposition concentrations within the ecological sites have been taken from the APIS website. The website presents a range of concentrations for each ecological site, **Table 6** presents the maximum NO_x and Nitrogen Deposition concentrations from the APIS website for each ecological site which have been used in the assessment. The year 2033 is presented as this is the final year which the Local Plan covers.

Table 6: APIS Background Concentrations (µg/m^3)

Site		NOx (µg/m^3)		Nitrogen Deposition (KgN ha/yr)	
		2015	2033	2015	2033
Strensall Common	• Dwarf shrub heath (Calluna vulgaris - Deschampsia flexuosa heath) & (Erica tetralix - Sphagnum compactum wet heath) • Fen, marsh and swamp (Molinia caerulea - Potentilla erecta mire) • Northern wet heath: Erica tetralix dominated wet heath • European dry heaths (H4030)	13.13	8.40	24.08	15.41
Clifton Ings	• Neutral grassland (Alopecurus pratensis - Sanguisorba officinalis grassland), (Cynosurus cristatus - Caltha palustris grassland)	26.65	17.06	21.84	13.98
Fulford Ings	• Neutral grassland (Alopecurus pratensis - Sanguisorba officinalis grassland) • Fen, marsh and swamp (Juncus subnodulosus - Cirsium palustre fen meadow)	19.69	12.60	21.14	13.53
Askham Bog	• Broad-leaved, mixed and yew woodland (Alnus glutinosa - Urtica dioica woodland); Quercus robur - Pteridium aquilinum - Rubus fruticosus woodland) • Fen, marsh and swamp (Juncus effusus / acutiflorus - Galium palustre rush pasture) • Fen, marsh and swamp (Juncus subnodulosus - Cirsium palustre fen meadow)	22.02	14.09	34.58	22.13
Church Ings	• Neutral grassland (Alopecurus pratensis - Sanguisorba officinalis grassland)	15.26	9.77	20.58	13.17
Acaster South Ings	• Neutral grassland (Alopecurus pratensis - Sanguisorba officinalis grassland)	14.78	9.46	18.90	12.10
River Derwent	• Fen, marsh and swamp (Carex echinata - Sphagnum recurvum (fallax) /auriculatum (denticulatum) mire) • Fen, marsh and swamp (Juncus effusus / acutiflorus - Galium palustre rush pasture) • Fen, marsh and swamp (Filipendula ulmaria - Angelica sylvestris mire) • Broad-leaved, mixed and yew woodland (Salix cinerea - Galium palustre woodland) (Alnus glutinosa - Fraxinus excelsior - Lysimachia nemorum woodland) • Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation (H3260) • Petromyzon marinus - Sea lamprey (S1095) • Lampetra fluviatilis - River lamprey (S1099) • Cottus gobio - Bullhead (S1163) • Lutra lutra - Otter (S1355)	16.26	10.40	14.56	9.32

Lower Derwent	• Acid grassland (Festuca ovina - Agrostis capillaris - Galium saxatile lowland acid grassland (U4a)) • Neutral grassland (Cynosurus cristatus - Centaurea nigra grassland • Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) (H6510) • Lutra lutra - Otter (S1355) • Anas penelope (Western Siberia/North-western/North-eastern Europe) - Eurasian wigeon (A050) • Anas crecca (North-western Europe) - Eurasian teal (A052) • Anas clypeata (North-western/Central Europe) - Northern shoveler (A056) • Pluvialis apricaria [North-western Europe - breeding] - European golden plover (A140) • Philomachus pugnax (Western Africa - wintering) - Ruff (A151) • Cygnus columbianus bewickii (Western Siberia/North-eastern & North-western Europe) - Tundra swan (A037)	17.18	11.00	17.36	11.11

Note: As per the DMRB guidance the APIS background concentrations have been reduced by 2% per year to estimate concentrations for the assessment year

Baseline Critical Loads

Nitrogen Deposition

4.12. The critical loads for nitrogen deposition for each of the ecological sites to be considered have been taken from APIS and are presented in **Table 7**. The 2033 deposition rates from **Table 6** are presented to represent the current levels experienced within the ecological sites so a comparison with the Critical Loads can be made and identify if the Critical Loads within the ecological site are likely to be exceeded.

Table 7: Critical Loads for Nitrogen Deposition (2033)

Habitat		Critical Load (kgN/ha/yr)		Nitrogen Deposition (kgN ha/yr)	Headroom (kgN/ha/yr)	
		Low Limit	High Limit		Low Limit	High Limit
Strensall Common	Dwarf Shrub Heath / Northern Wet Heath / European Dry Heaths	10	20	15.41	-5.41	4.59
	Fen, Marsh and Swamp	15	25	15.41	-0.41	9.59
Clifton Ings	Neutral Grassland	20	30	13.98	6.02	16.02
Fulford Ings	Neutral grassland	20	30	13.53	6.47	16.47
	Fen, Marsh and Swamp	15	30	13.53	1.47	16.47
Askham Bog	Broad-leaved, Mixed and Yew Woodland	10	20	22.13	-12.13	-2.13
	Fen, Marsh and Swamp	15	25	22.13	-7.13	2.87
	Fen, Marsh and Swamp	15	30	22.13	-7.13	12.87
Church Ings	Neutral Grassland	20	30	13.17	6.83	16.83
Acaster South Ings	Neutral Grassland	20	30	12.10	7.90	17.90
River Derwent	Fen, Marsh and Swamp	10	15	9.32	0.68	5.68
	Fen, Marsh and Swamp	15	25	9.32	5.68	15.68
	Fen, Marsh and Swamp / Broad-leaved, Mixed and Yew Woodland	15	30	9.32	5.68	20.68
Lower Derwent	Acid Grassland	10	15	11.11	-1.11	3.89
	Neutral Grassland / Lowland Hay Meadows	20	30	11.11	8.89	18.89

4.13. As shown in **Table 7**, the current Critical Loads in 2033 for the Lower Limits are exceeded at the Strensall Common and Askham Bog and Church Ings ecological sites. The lower level is also exceeded for the Acid Grassland habitat at the Lower Derwent ecological site. The Higher Limit is also exceeded for the Broad-leaved, mixed and yew woodland habitat at the Askham Bog ecological site all other Higher Limits for the remaining habitats and sites are met.

5. Air Quality Assessment

Annual Mean NOx

5.1. The modelling results for the maximum predicted annual mean NO_x concentration at the ecological receptors due to traffic emissions are summarised in **Table 8**. **Figure 8** shows the location of the maximum predicted concentration within each of the ecological sites.

Table 8: Maximum Predicted Annual Mean NO_x Concentrations

Receptor	Grid Reference of Receptor	Predicted Annual Mean NO_x Concentration (µg/m^3)		Proportion of Critical Level (%)	
		PC	PEC	PC	PEC
Strensall Common	463590, 460035	1.95	10.35	6.5	34.5
Clifton Ings	458510, 452590	0.14	17.20	0.5	57.3
Fulford Ings	461087, 448678	3.46	16.06	11.5	53.5
Askham Bog	456840, 447700	0.53	14.62	1.8	48.7
Church Ings	459465, 445780	0.02	9.79	0.1	32.6
Acaster South Ings	459360, 444360	0.01	9.47	0.0	31.6
River Derwent	470500, 451120	1.39	11.79	4.6	39.3
Lower Derwent	470480, 446350	0.03	11.03	0.1	36.8

5.2. As shown in **Table 8** predicted NO_x concentrations are below the annual mean Critical Level of 30µg/m^3 at all ecological receptor locations. The PC is below the criteria for insignificant impacts at the Clifton Ings, Church Ings, Acaster South Ings and Lower Derwent ecological sites, the PEC is also below the criteria for insignificant impacts at the Strensall Common, Fulford Ings, Askham Bog and River Derwent ecological sites, as such the predicted effects on annual mean NOx concentrations are considered insignificant.

Nitrogen Deposition

5.3. The results of the maximum nitrogen deposition modelling are summarised in **Table 9**.

Table 9: Maximum Predicted Nitrogen Deposition

Receptor		Process Contribution (kgN/ha/yr)		Proportion of Critical Load (%)			
				PC		PEC	
		PC	PEC	Low	High	Low	High
Strensall Common	Dwarf shrub heath Northern wet heath European dry heaths (H4030)	0.28	15.69	2.8	1.4	157	78
	Fen, marsh and swamp	0.28	15.69	1.9	1.1	105	63
Clifton Ings	Neutral Grassland	0.02	14.00	0.1	0.1	70	47
Fulford Ings	Neutral grassland	0.50	14.03	2.5	1.7	70	47
	Fen, marsh and swamp	0.50	14.03	3.3	1.7	94	47
Askham Bog	Broad-leaved, mixed and yew woodland	0.08	22.21	0.8	0.4	222	111
	Fen, marsh and swamp	0.08	22.21	0.5	0.3	148	89
	Fen, marsh and swamp	0.08	22.21	0.5	0.3	148	74
Church Ings	Neutral grassland	0.002	13.17	0.0	0.0	66	44
Acaster South Ings	Neutral grassland	0.001	12.10	0.0	0.0	61	40
River Derwent	Fen, marsh and swamp	0.20	9.52	2.0	1.3	95	63
	Fen, marsh and swamp	0.20	9.52	1.3	0.8	63	38
	Fen, marsh and swamp / Broad-leaved, mixed and yew woodland	0.20	9.52	1.3	0.7	63	32
Lower Derwent	Acid Grassland	0.004	11.11	0.0	0.0	111	74
	Neutral Grassland	0.004	11.11	0.0	0.0	56	37

5.4. As shown in **Table 9**, the maximum PCs are below the criteria for insignificant impacts considering both the low and high Critical Loads at the Clifton Ings, Askham Bog, Church Ings, Acaster South Ings, and Lower Derwent ecological sites, it is considered the impact is **insignificant** at these ecological sites. The maximum PEC is below the criteria for insignificant impacts, considering the high Critical Load, for the Fen, Marsh and Swamp habitat at the Strensall Common ecological site, the Fulford Ings ecological site, and the River Derwent ecological site, it is considered the impact is **insignificant** at these ecological sites.

5.5. The PC and PEC for the Dwarf shrub heath at the Strensall Common ecological site is above the criteria for insignificant impacts and can therefore not be screened out at this stage, further consideration to the significance of impacts at this site is considered further in the HRA.

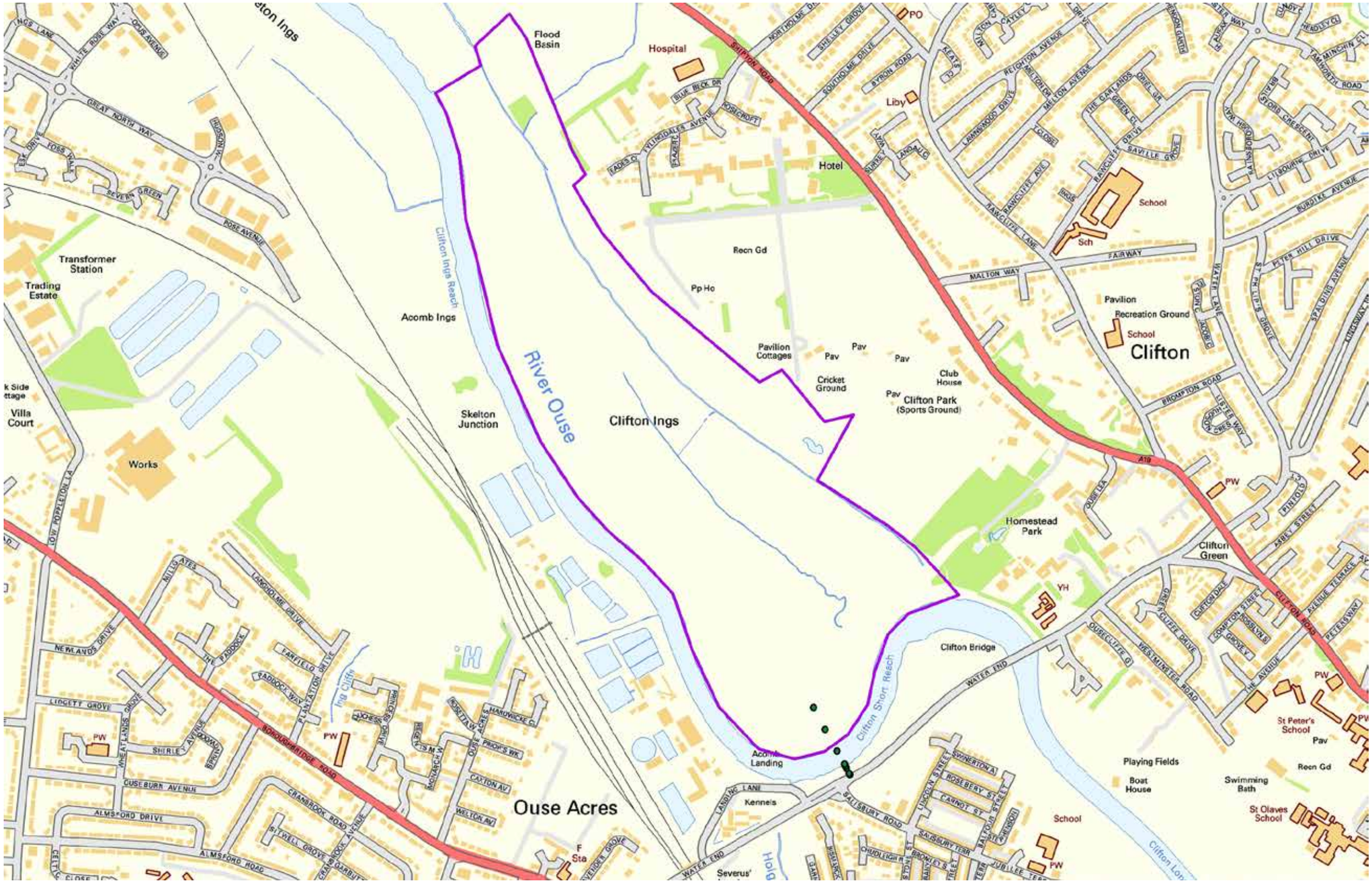
6. Summary and Conclusions

6.1. Overall the assessment has identified that following the adoption of the Local Plan:

- the predicted effects on annual mean NOx concentrations are considered insignificant at all ecological sites;
- the predicted effects on nitrogen deposition is insignificant at most ecological sites, however the impacts at the Dwarf shrub heath at the Strensall Common ecological site cannot be screened out at this stage. Therefore, further consideration to the significance of impacts at this site is considered within the HRA.

N

Project Details	WIE13194-103: York Air Quality Assessment
Figure Title	Figure 1: Strensall Common Transect Location
Figure Ref	WIE13194-103_GR_AQ_1A
Date	April 2018
File Location	\\s-lncs\wiel\projects\wie13194\103\graphics\aq\issued figures



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Project Details	WIE13194-103: York Air Quality Assessment
Figure Title	Figure 2: Clifton Ings Transect Location
Figure Ref	WIE13194-103_GR_AQ_2A
Date	April 2018
File Location	\\s-lncs\wiel\projects\wie13194\103\graphics\aq\issued figures

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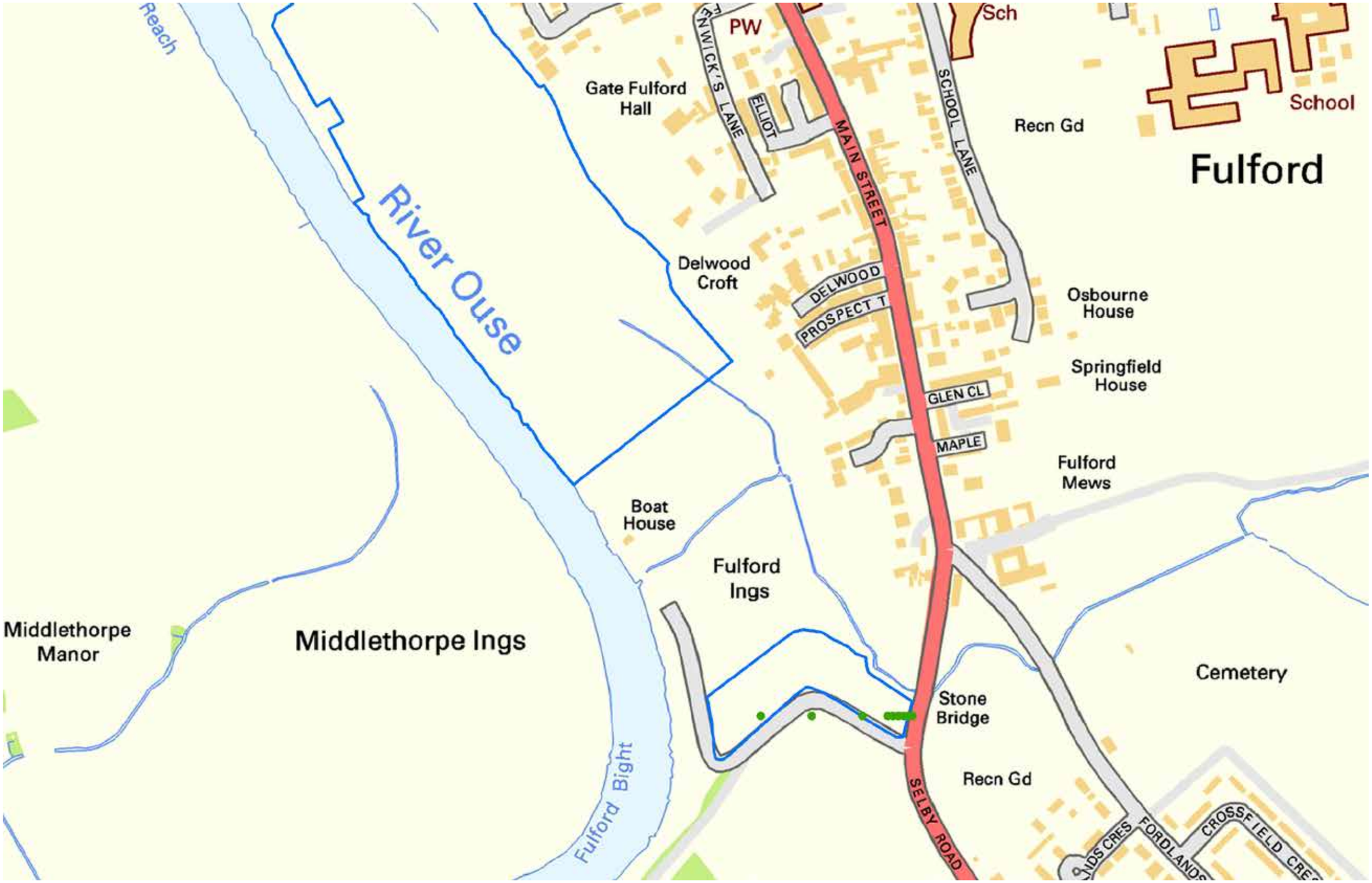

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Figure Title	Figure 3: Fulford Ings Transect Location
Figure Ref	WIE13194-103_GR_AQ_3A
Date	April 2018
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Project Details	WIE13194-103: York Air Quality Assessment
Figure Title	Figure 4: Askham Bog Transect Location
Figure Ref	WIE13194-103_GR_AQ_4A
Date	April 2018
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Project Details	WIE13194-103: York Air Quality Assessment
Figure Title	Figure 5: Church Transect Location
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Date	April 2018
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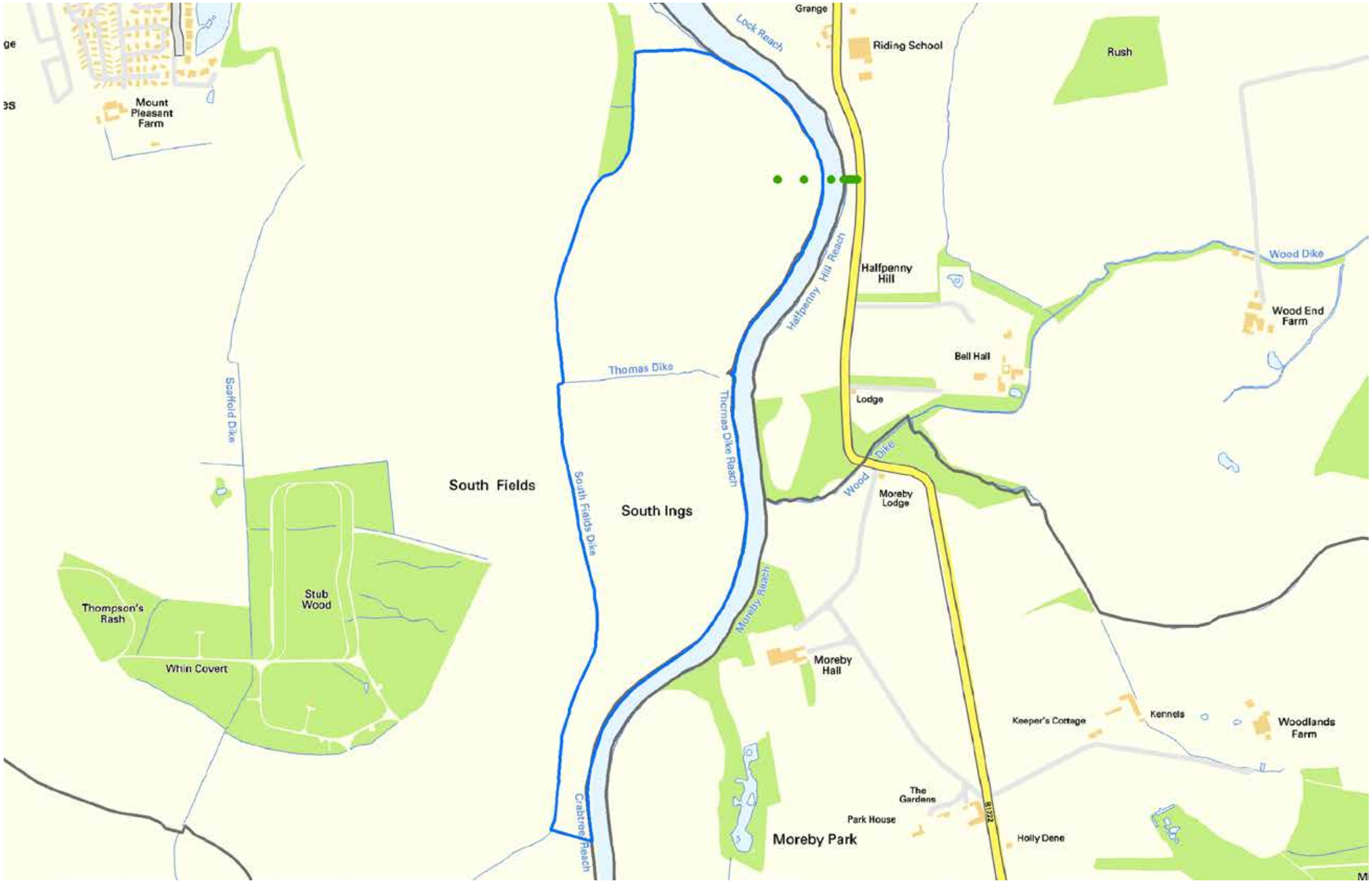

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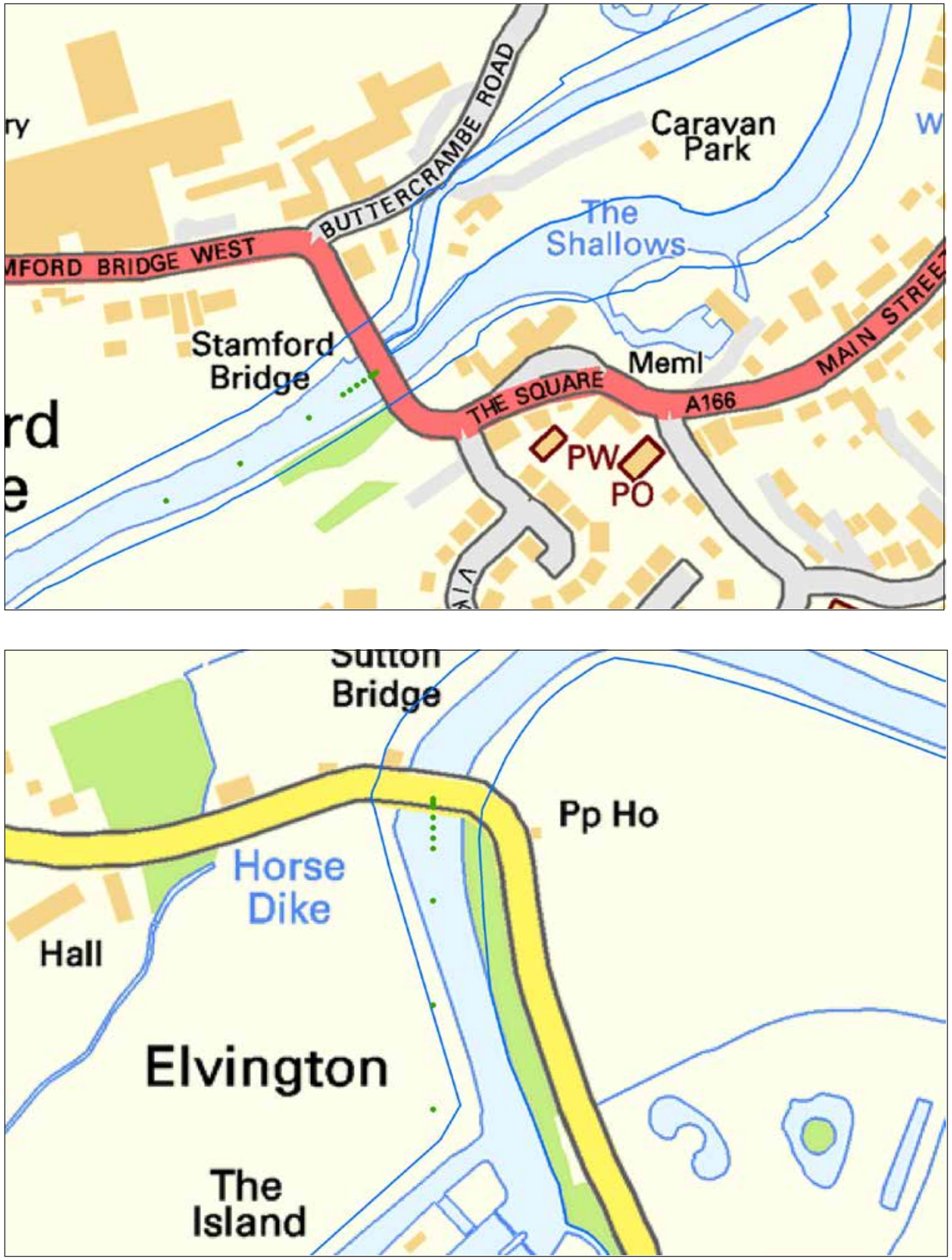
Figure Ref	WIE13194-103_GR_AQ_6A
Date	April 2018
File Location	\\s-lncs\wiel\projects\wie13194\103\graphics\aq\issued figures



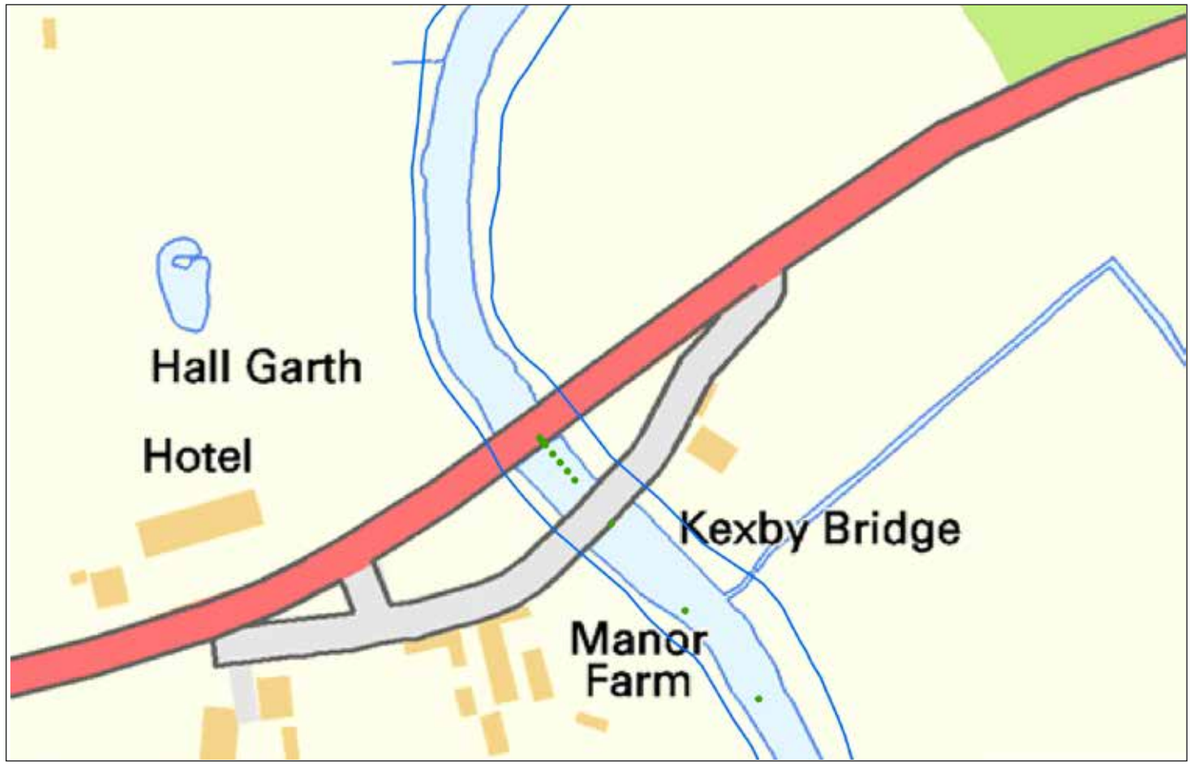


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Figure Title	Figure 7: River Derwent Transect Locations
Figure Ref	WIE13194-103_GR_AQ_7A
Date	April 2018
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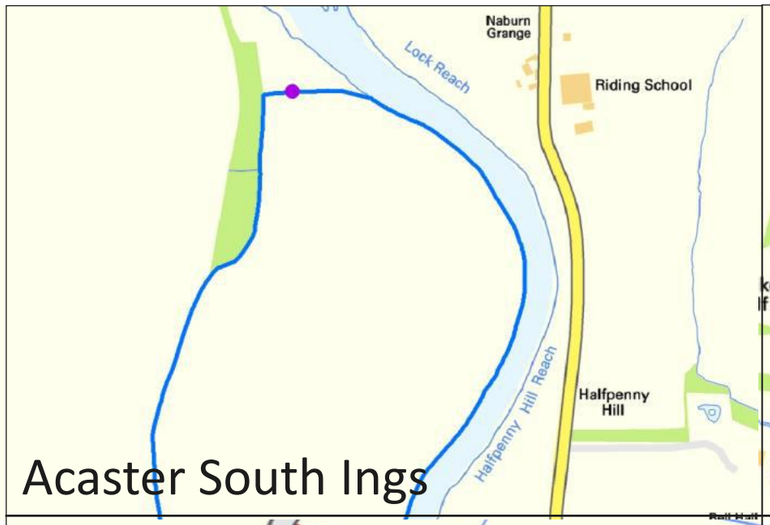
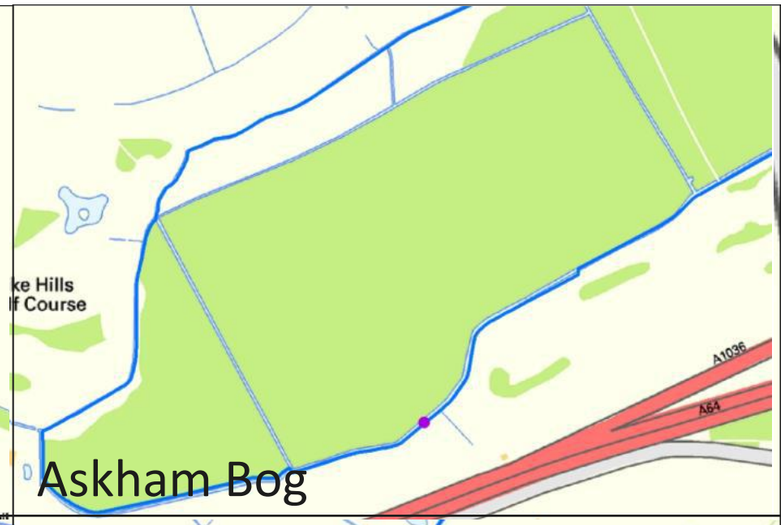
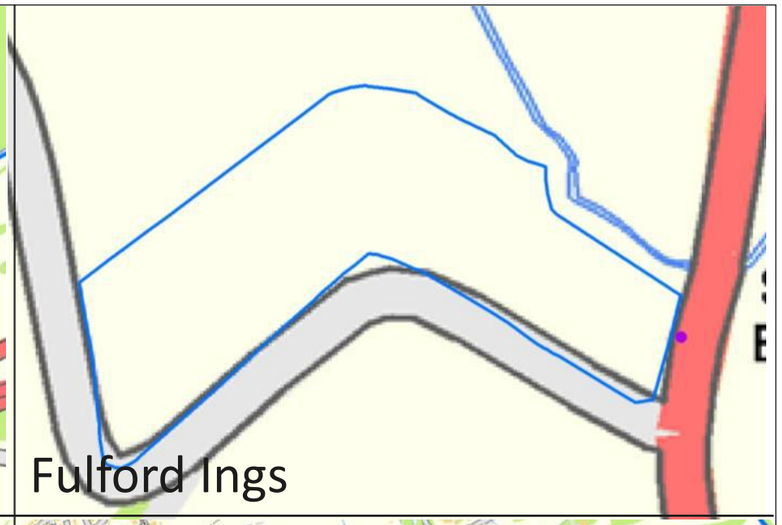


Acaster South Ings

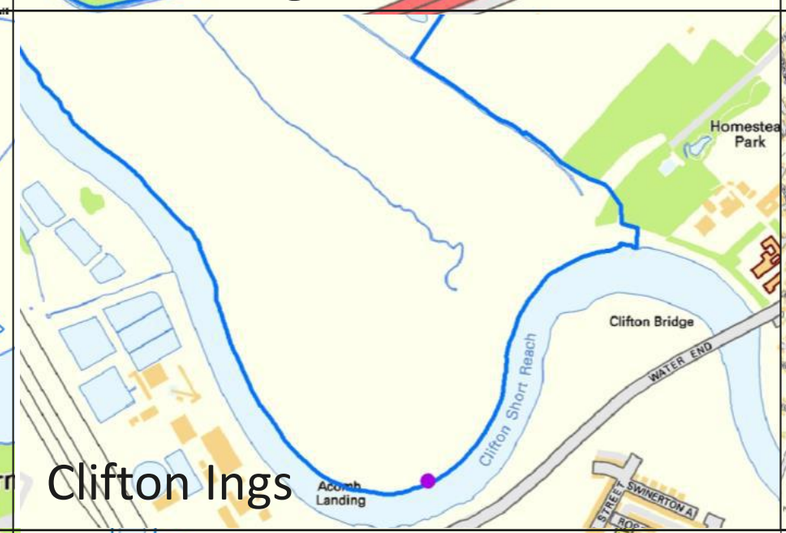


Askham Bog

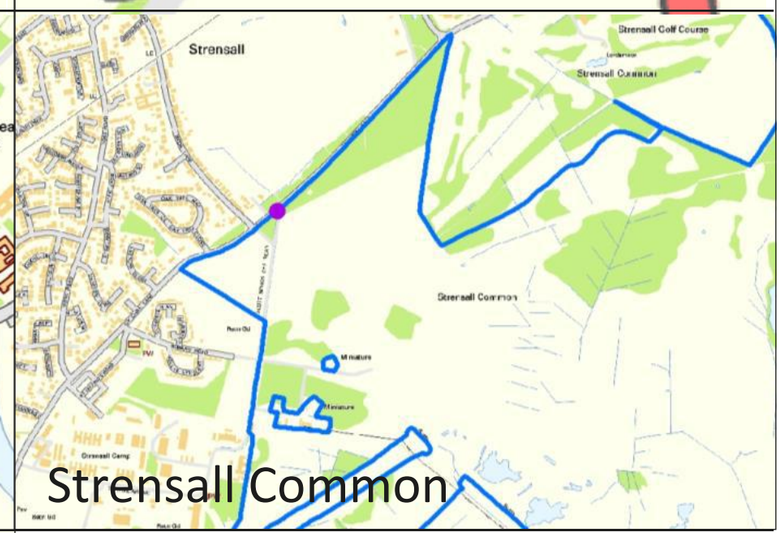


Fulford Ings

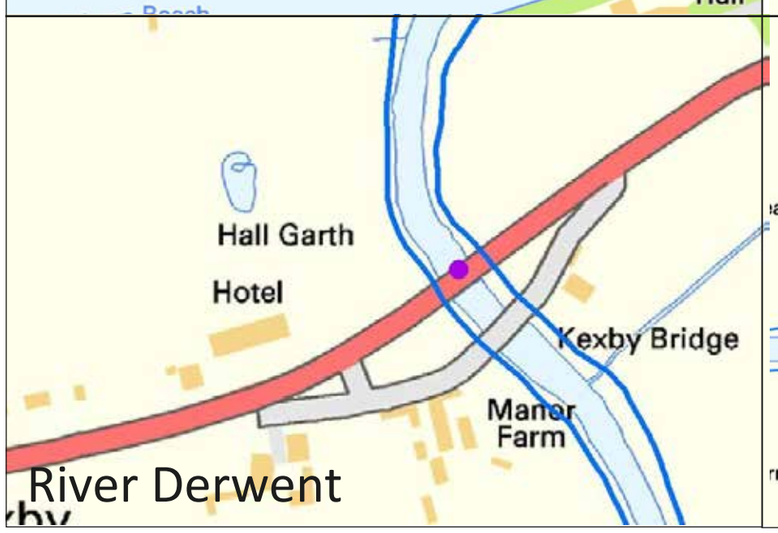
Church Ings



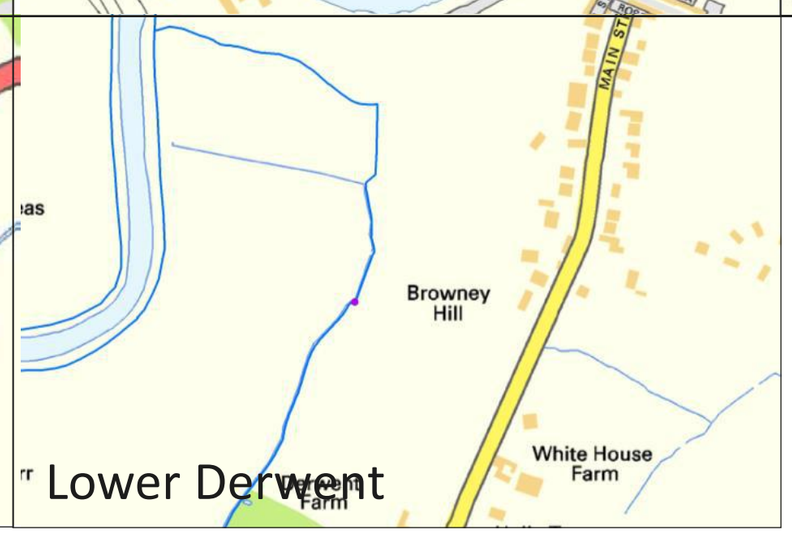
Clifton Ings



Strensall Common



River Derwent



Lower Derwent

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Project Details	WIE13194-103: York Air Quality Assessment
Figure Title	Figure 8: Maximum Concentration Locations
Figure Ref	WIE13194-103_GR_AQ_8A
Date	April 2018
File Location	\\s-lncs\wiel\projects\wie13194\103\graphics\aq\issued figures

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APPENDICES

Appendix A Air Quality Assessment Detailed Methodology

Appendix A: Air Quality Assessment Detailed Methodology

1.1 This appendix presents the technical information and data upon which the air quality assessment is based.

ADMS-Roads

1.2 In urban areas, pollutant concentrations are primarily determined by the balance between pollutant emissions that increase concentrations, and the ability of the atmosphere to reduce and remove pollutants by dispersion, advection, reaction and deposition. An atmospheric dispersion model is used as a practical way to simulate these complex processes; which requires a range of input data, which can include pollutant emissions rates, meteorological data and local topographical information.

1.3 The potential effects of the Development on local air quality was assessed using the advanced atmospheric dispersion model ADMS-Roads, taking into account the contribution of emissions from forecast road-traffic on the local road network by the completion year (taken to be 2033).

1.4 The ADMS-Roads model is a comprehensive tool for investigating air pollution in relation to road networks. On review of the Site, and its surroundings, ADMS-Roads was considered appropriate for the assessment of the potential long and short-term effects of the Development on air quality. The model uses advanced algorithms for the height-dependence of wind speed, turbulence and stability to produce improved predictions of air pollutant concentrations. It can predict long-term and short-term concentrations, including percentile concentrations.

1.5 ADMS-Roads model is a formally validated model, developed in the United Kingdom (UK) by CERC (Cambridge Environmental Research Consultants). This includes comparisons with data from the UK's air quality Automatic Urban and Rural Network (AURN) and specific verification exercises using standard field, laboratory and numerical data sets. CERC is also involved in European programmes on model harmonisation and their models were compared favourably against other E.U and U.S. EPA systems. Further information in relation to this is available from the CERC website at www.cerc.co.uk.

Traffic Data

1.6 Traffic flow data comprising Annual Average Daily Traffic (AADT) flows, traffic composition (% Heavy-Duty Vehicles (HDVs)) were used in the model as provided by City of York Council for the surrounding road network.

1.7 The City of York Transport Model has been developed using the Cube modelling platform. The Cube Platform uses Cube software to calculate the existing and future year travel demand (i.e. trip generation, distribution and mode choice), Cube Voyager is used to model the PT network (Bus and Rail), and the highway network is modelled in SATURN. The model is a WebTag compliant multimodal variable demand model.

1.8 The Model area is divided up into zones for the purposes of loading demand onto the network. In total, 352 zones have been defined, as follows:

- 223 zones in the simulation network representing York city centre and the area outside York city centre
- 36 zones in a buffer network representing Yorkshire and the Humber Region
- 4 buffer zones representing the rest of the UK outside of the Yorkshire and Humber Region

1.9 For the zones in the simulation area representing York city centre and the area outside York city centre bespoke trip generation (and mode share) rates were generated for each Local Plan allocation based on its location within 9 broader zoning areas. These trips were loaded onto the network from within its respective modelling zone. For trips originating outside of the of the simulation area , existing trip rates were 'growthed' using TEMPRO Growth factors. Trips were then assigned on the network using SATURN to calculate forecast future year traffic information such as vehicle flows and journey times, on the modelled highway network.

1.10 As the SATURN model is an assignment model, flows on individual links can go down if an alternative route becomes quicker due to highway improvements downstream (such as the A1237 junction improvements, for example). Another circumstance whereby flows on a link can reduce is if it becomes difficult to exit the link at some point downstream, due to increases in traffic on opposing turns, for example. Links with low traffic volumes, for example, Flaxton Road or Towthorpe Moor Lane, are generally more sensitive to these effects.

1.11 The transport modelling typically provided forecast future year traffic information (in this case for 2032/33) in the am and pm peak periods, whereas air quality modelling requires daily traffic flow information. However, conversion factors can be used to provide a useful estimate of the annual average daily flows (AADFs). These conversion factors are based on average flows as measured by automatic traffic counters.

1.12 To ensure the in-combination effect of neighboring authorities has been assessed, local traffic growth factors were applied to the future year flows to consider traffic growth and cumulative developments in the area. **Table A1** presents the traffic data used within the Air Quality Assessment.

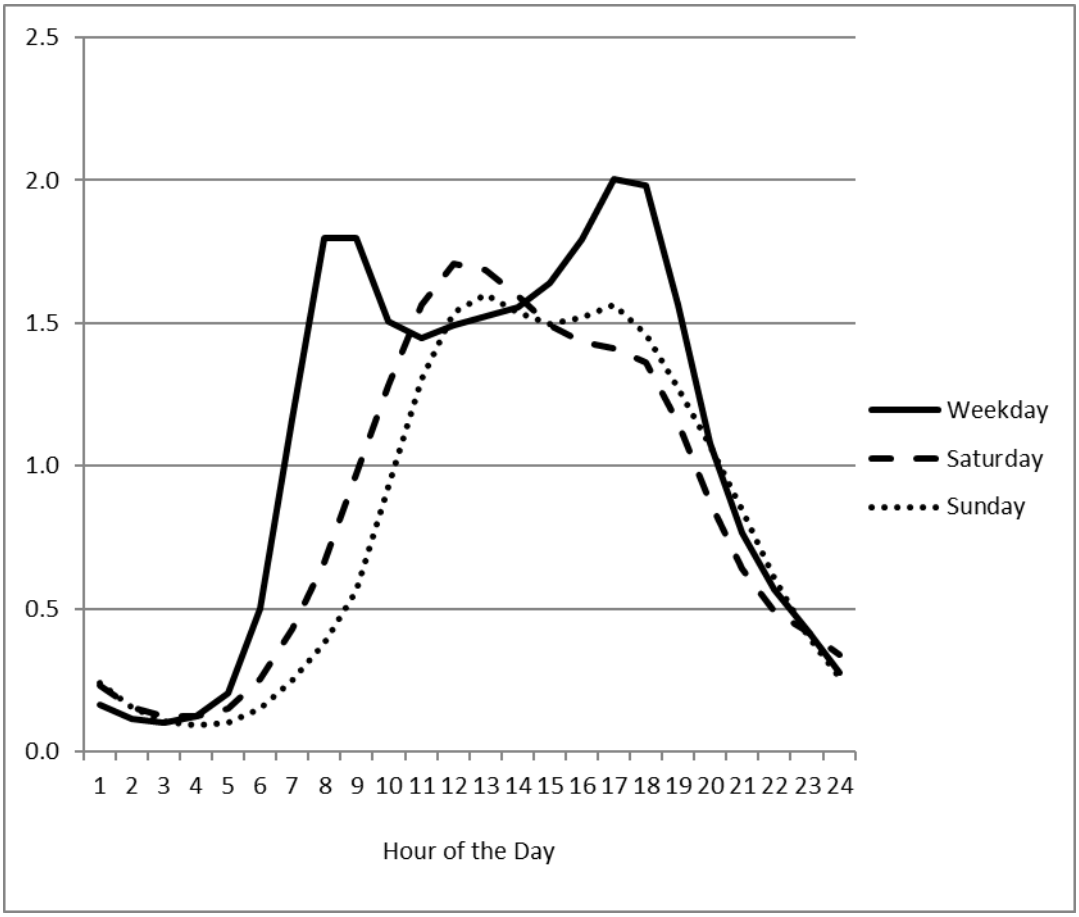
Table A1: 24-hour AADT Data Used within the Assessment

Ecological Site	Link Name	Speed (kph)	Base 2016		Without 2033		With 2033	
			AADT	%HDV	AADT	%HDV	AADT	%HDV
Strensall Common	Strensall Road	46	11,709	6.0	12,786	6.0	14,353	6.0
	Flaxton Road	62	1,925	6.0	2,102	6.0	3,416	6.0
	A1237	45	27,378	4.0	29,897	4.0	40,267	4.0
Clifton Ings	Water End	37	18,839	6.0	18,839	6.0	19,823	6.0
Fulford Ings	Radway Green Road	44	17,544	6.0	19,965	6.0	22,429	6.0
Askham Bog	A64	98	53,662	6.0	61,067	6.0	64,015	6.0
	Tadcaster Road	62	9,133	6.0	10,393	6.0	10,501	6.0
Acaster South Ings	B1222	67	2734	6.0	2,734	6.0	2,709	6.0
Church Ings	B1222	67	2734	6.0	2,734	6.0	2,709	6.0
River Derwent	A166	59	11,573	5.6	12,927	5.6	12,746	5.6
	A1079	61	16,655	7.4	18,604	7.4	19,527	7.4
Lower Derwent	B1228	53	4,641	7.1	5,184	7.1	5,606	7.1

Diurnal Profile

1.13 The ADMS-Roads model uses an hourly traffic flow based on the daily (AADT) flows. Traffic flows follow a diurnal variation throughout the day and week. Therefore, a diurnal profile was used in the model to replicate how the average hourly traffic flow would vary throughout the day and the week. This was based on data collated by Waterman from the Department for Transport (DfT) statistics Table TRA0307: 'Traffic Distribution by Time of Day on all roads in Great Britain', 2016[1] , which was used to be consistent with the traffic data used. **Figure A1** presents the diurnal variation in traffic flows which has been used within the model.

Figure A1: Department for Transport Diurnal Traffic Variation



Meteorological Data

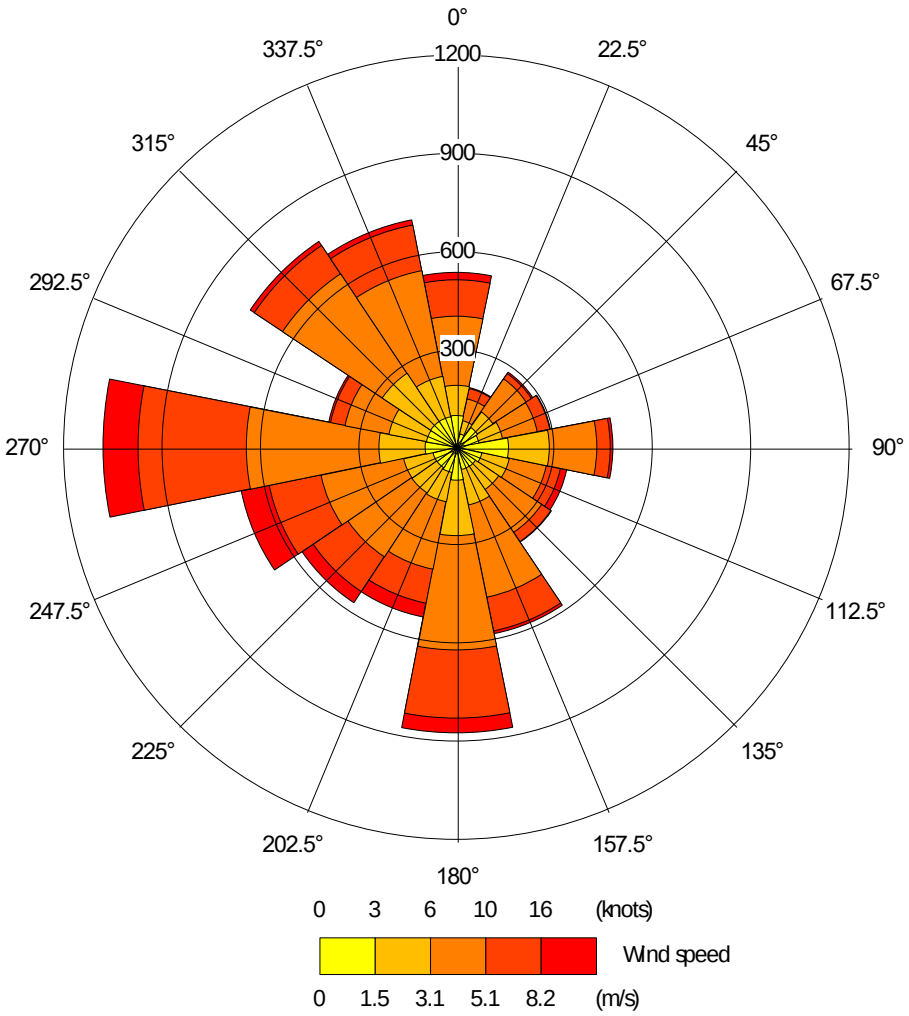
1.14 Local meteorological conditions strongly influence the dispersal of pollutants. Key meteorological data for dispersion modelling include hourly sequential data including wind direction, wind speed, temperature, precipitation and the extent of cloud cover for each hour of a given year. As a minimum ADMS-Roads requires wind speed, wind direction, and cloud cover.

1.15 Meteorological data to input into the model were obtained from the Linton on Ouse Airport Meteorological Station, which is the closest to the Site and considered to be the most representative. The 2016 data were used to be consistent with the base traffic year and model

1 Department for Transport (DfT) Statistics, www.dft.gov.uk/statistics/series/traffic

verification year. It was also used for the 2033 scenario for the air quality assessment. **Figure A2** presents the wind-rose for the meteorological data.

Figure A2: 2016 Wind Rose for the Linton on Ouse Airport Meteorological Site



1.16 Most dispersion models do not use meteorological data if they relate to calm winds conditions, as dispersion of air pollutants is more difficult to calculate in these circumstances. ADMS-Roads treats calm wind conditions by setting the minimum wind speed to 0.75 m/s. It is recommended in LAQM.TG(16) that the meteorological data file be tested within a dispersion model and the relevant output log file checked, to confirm the number of missing hours and calm hours that cannot be used by the dispersion model. This is important when considering predictions of high percentiles and the number of exceedances. LAQM.TG(16) recommends that meteorological data should only be used if the percentage of usable hours is greater than 85%. 2016 meteorological data from Linton on Ouse Airport includes 8,660 lines of usable hourly data out of the total 8,784 for the year, i.e. 98.6% of usable data. This is above the 85% threshold, and is therefore adequate for the dispersion modelling.

1.17 A value of 0.2 was used for the Linton on Ouse Airport Meteorological Station, which is representative of agricultural areas and is considered appropriate following a review of the local area surrounding the Meteorological Station.

Model Data Processing

1.18 There are a number of other parameters that are used within the ADMS-Roads model which are described for completeness and transparency:

- The model requires a surface roughness value to be inputted.
  - A value of 0.5 was used for the Site, which is representative of parkland and open suburbia;
  - A value of 0.2 was used for the Linton on Ouse Airport Meteorological Station, which is representative of agricultural areas; and
- The model requires the Monin-Obukhov length (a measure of the stability of the atmosphere) to be inputted. A value of 30m (representative of large towns) was used for the modelling; and

Model Verification

1.19 Model verification is the process of comparing monitored and modelled pollutant concentrations for the same year, at the same locations, and adjusting modelled concentrations if necessary to be consistent with monitoring data. This increases the robustness of modelling results.

1.20 Discrepancies between modelled and measured concentrations can arise for a number of reasons, for example:

- Traffic data uncertainties;
- Background concentration estimates;
- Meteorological data uncertainties;
- Sources not explicitly included within the model (e.g. car parks and bus stops);
- Overall model limitations (e.g. treatment of roughness and meteorological data, treatment of speeds); and
- Uncertainty in monitoring data, particularly diffusion tubes.

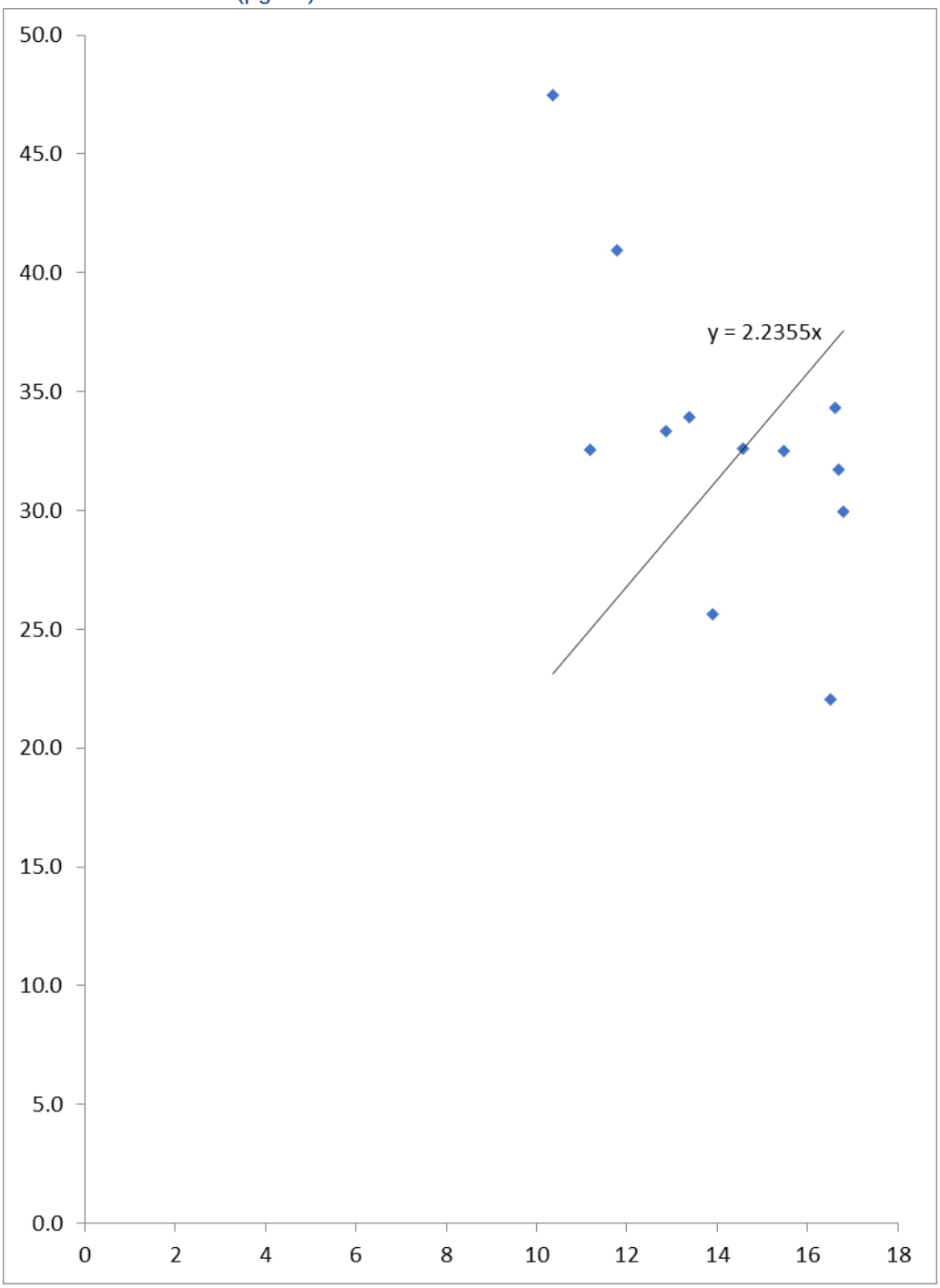
1.21 Box 7.15 in LAQM.TG(16) indicates a method based on comparison of the road NOx contributions and calculating an adjustment factor. This requires the roadside NOx contribution to be calculated. In addition, monitored NOx concentrations are required, which were calculated from the annual mean NO_2 concentration at the diffusion tube site using the NOx to NO_2 spreadsheet calculator as described above. The steps involved in the adjustment process are presented in **Table A2**.

Table A2: Model Verification Result for Adjustment NO_x Emissions (µg/m^3)

Site ID	Monitored NO_2	Monitored NO_x	Monitored Road NO_2	Monitored Road NO_x	Modelled Road NO_X	Ratio of Monitored Road Contribution NO_x/Modelled Road Contribution NO_x
47	28.3	48.7	16.9	33.3	12.9	2.6
A12	29.0	52.5	16.7	30.0	16.8	1.8
A96	31.7	54.2	16.2	32.5	15.5	2.1
C29	30.0	51.2	16.4	32.6	14.6	2.2
C30	30.8	52.9	17.2	34.3	16.6	2.1
C34	25.2	41.9	13.2	25.6	13.9	1.8
C36	28.5	48.9	16.5	32.6	11.2	2.9
C38	28.1	48.0	16.1	31.7	16.7	1.9
C39	32.6	57.7	20.3	41.0	11.8	3.5
C58	35.5	64.2	23.2	47.5	10.4	4.6
95a/b/c	23.7	38.7	11.4	22.0	16.5	1.3
C43/43a/44	29.4	50.7	17.1	34.0	13.4	2.5

1.22 Figure A3 shows the mathematical relationship between modelled and monitored roadside NOx (i.e. total NOx minus background NOx) in a scatter graph (data taken from Table A2), with a trendline passing through zero and its derived equation.

Figure A3:Unadjusted Modelled versus Monitored Annual Mean Roadside NO_x at the Monitoring Sites (µg/m^3)



1.23 Consequently, in **Table A11** the adjustment factor (2.2355) has been applied to the modelled NO_x Roadside concentrations.

Table A3: Model Verification Result for Adjustment NO_x Emissions (µg/m^3)

Site ID	Adjusted Modelled Road NO_x	Adjusted Modelled Total NO_x	Modelled Total NO_2	Monitored Total NO_2	% Difference
47	26.6	42.1	25.1	28.3	-11.2
A12	34.8	53.9	31.2	29.0	7.7
A96	32.1	53.8	31.5	31.7	-0.6
C29	30.2	48.8	28.9	30.0	-3.8
C30	37.1	55.7	32.1	30.8	4.2
C34	28.8	45.1	26.7	25.2	6.0
C36	23.2	39.5	24.0	28.5	-15.8
C38	34.5	50.8	29.4	28.1	4.7
C39	24.4	41.1	24.9	32.6	-23.7
C58	21.4	38.1	23.4	35.5	-34.1
95a/b/c	34.2	50.9	29.5	23.7	24.5
C43/43a/44	27.7	44.4	26.5	29.4	-10.0

1.24 Based on the results from **Table A3**, the NO_x adjustment process was applied to all roadside NO_x modelling for 2016 and 2033 'without' and 'with' the Plan in place, at the specific receptor locations assessed.

Verification Summary

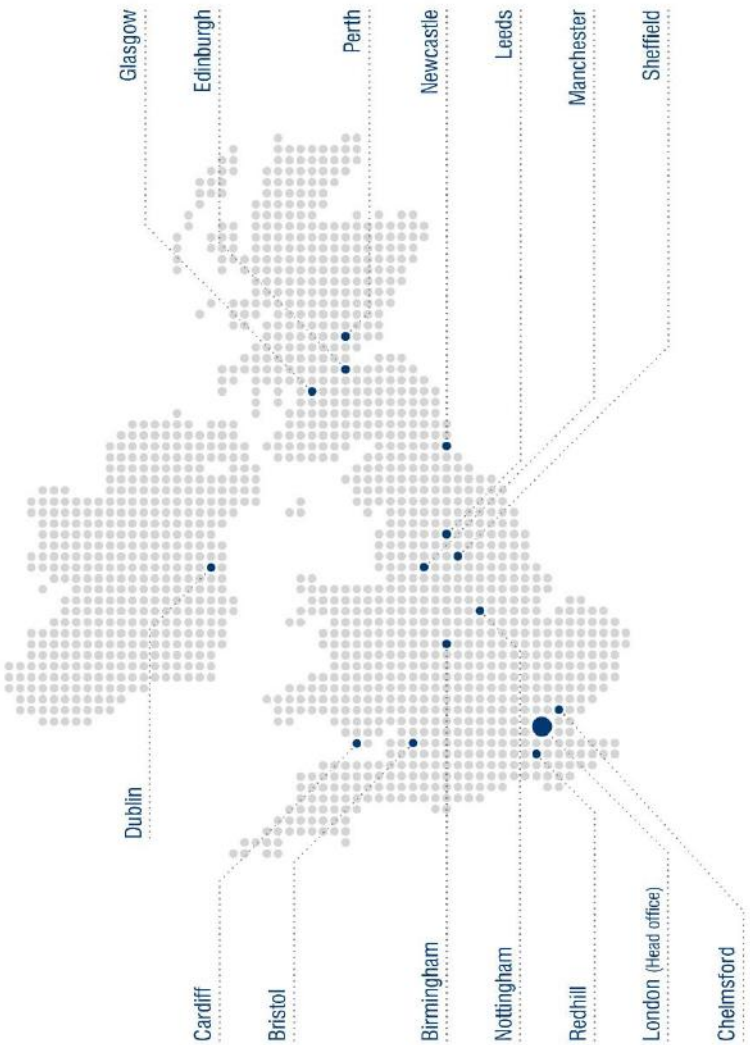
1.25 Any atmospheric dispersion model study will always have a degree of inaccuracy due to a variety of factors. These include uncertainties in traffic emissions data, the differences between available meteorological data and the specific microclimate at each receptor location, and simplifications made in the model algorithms that describe the atmospheric dispersion and chemical processes. There will also be uncertainty in the comparison of predicted concentrations with monitored data, given the potential for errors and uncertainty in sampling methodology (technique, location, handling, and analysis) as well as processing of any monitoring data.

1.26 Whilst systematic under or over prediction can be taken in to account through the model verification / adjustment process, random errors will inevitably occur and a level of uncertainty will still exist in corrected / adjusted data.

1.27 Model uncertainties arise because of limited scientific knowledge, limited ability to assess the uncertainty of model inputs, for example, emissions from vehicles, poor understanding of the interaction between model and / or emissions inventory parameters, sampling and measurement error associated with monitoring sites and whether the model itself completely describes all the necessary atmospheric processes.

1.28 Overall, it is concluded that with the adjustment factors applied to the ADMS-Roads model, it is performing well and modelled results are considered to be suitable to determine the potential effects of the Development on local air quality.

UK and Ireland Office Locations



I. Maps of Nature Conservation designations, open space and public rights of way

Nature Conservation

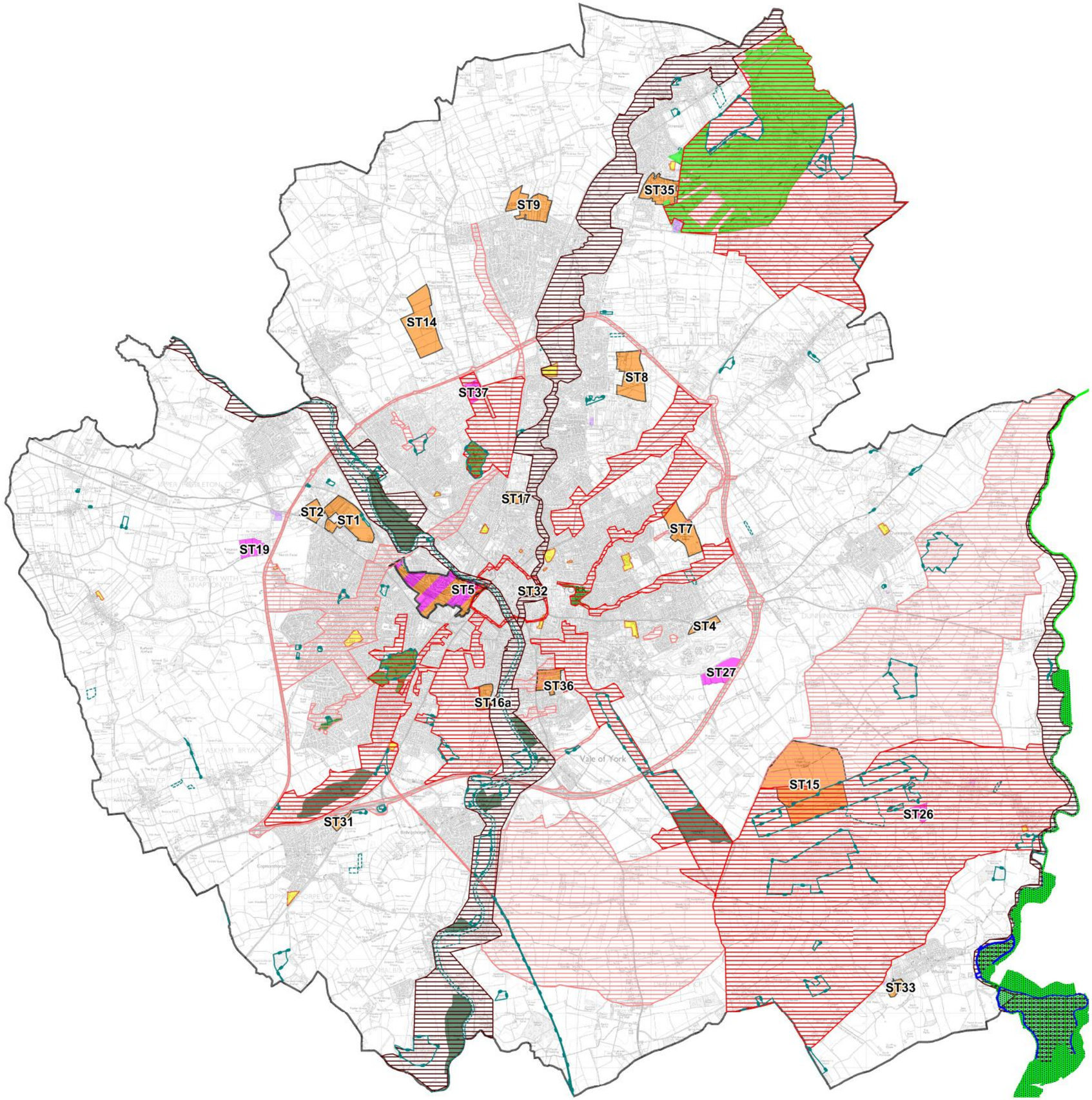
Source CYC Biodiversity Action Plan and Natural England

- Special Areas of Conservation (SACs)
- Special Protection Areas (SPAs)
- Ramsar
- Sites of Special Scientific Interest (SSSI)
- Local Nature Reserves (LNRs)
- Sites of Interest for Nature Conservation (SINC)
- Candidate Sites of Interest for Nature Conservation (SINCs)
- Regional Green Infrastructure Corridor
- District Green Infrastructure Corridor
- Local Green Infrastructure Corridor
- National Nature Reserves (NNRs)

Site Allocation

Source: Submitted draft Local Plan (2018) [CD001]

- Strategic Housing Allocations
- Strategic Employment Allocations
- Mixed Use Strategic Allocation
- Housing Alocations
- Employment Allocations



Existing Open Space by Type
Source: Open Space Study (2017)

All Open space types

CRoW Act 2000
Source: Natural England

Region

Footpaths
Source: CYC Open Data

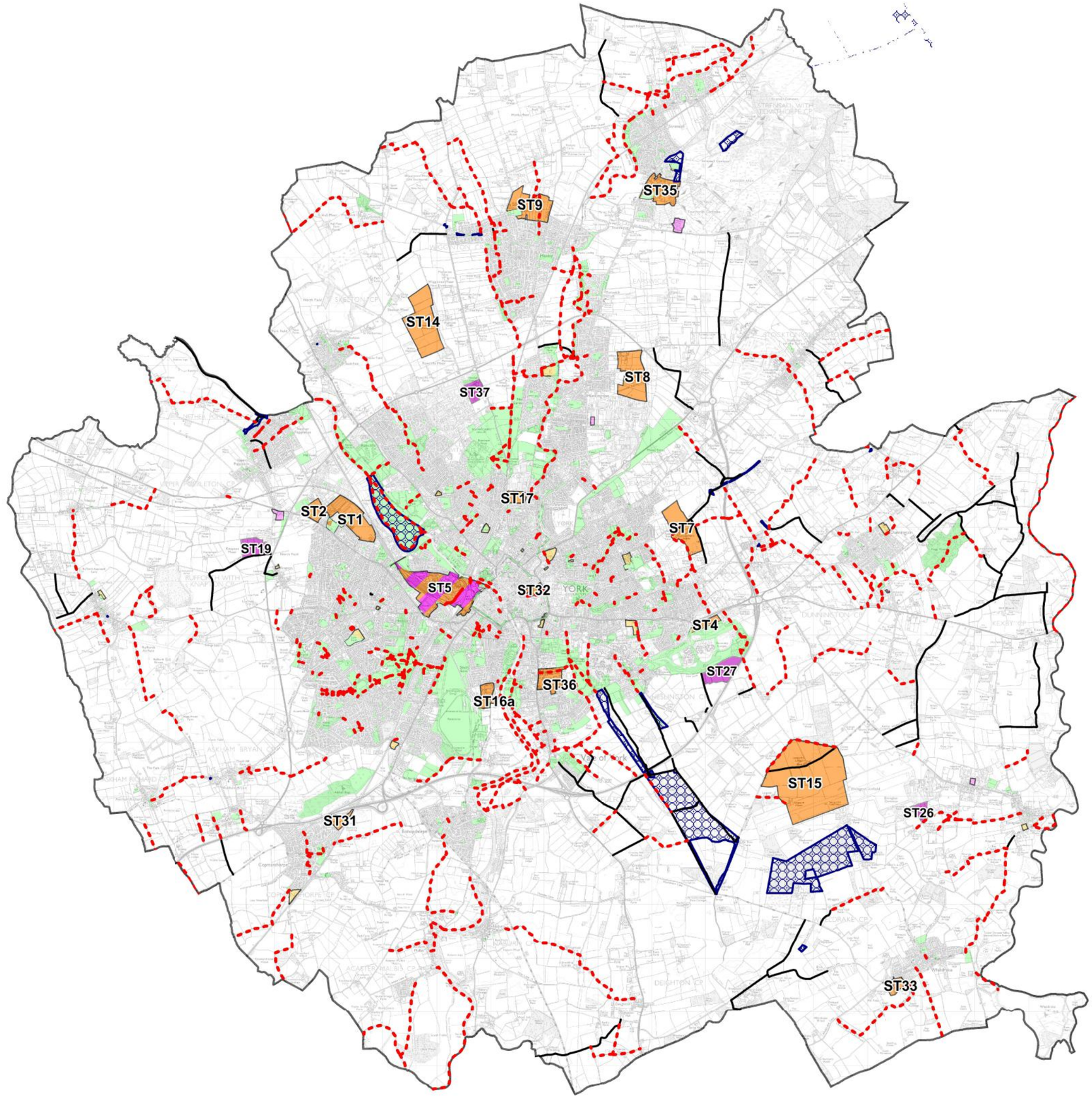
Line

Bridleways
Source: CYC Open Data

Line

Site Allocation
Source: Submitted Draft Local Plan (2018) [CD001]

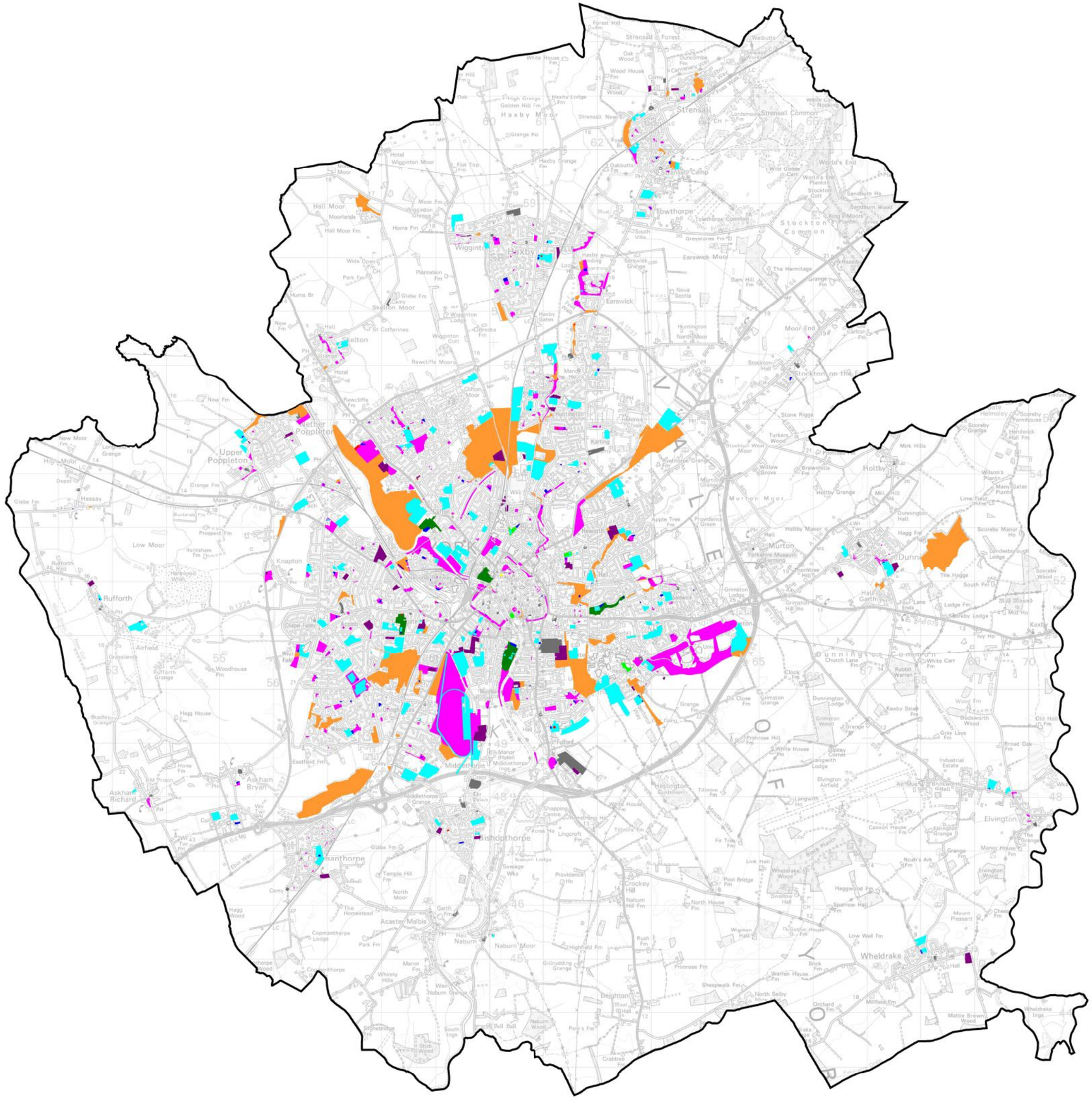
- Strategic Housing Allocations
- Housing Allocations
- Strategic Employment Allocations
- Employment Allocations
- Strategic Mixed Use Allocation



Existing Open Space by Type

Source: Open Space Study (2017)

- Outdoor Sports Facility
- Children's Open Space
- Amenity Green Space
- Cemeteries
- Natural and Semi Natural Space
- Allotments
- Yound Person's Facilities
- Local Parks
- City Parks
- Civic Spaces



J. Natural England Correspondence

Date: 12 March 2020
Our ref: 310351

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BY EMAIL ONLY

Dear Alison Cooke

Planning consultation: February 2020 draft of the Habitats Regulations Assessment of the City of York Council Local Plan

Thank you for your consultation on the above dated 19 February 2020.

Natural England is a non-departmental public body. Our statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

We have commented previously on the Habitats Regulations Assessment of the City of York Council Local Plan previously in our responses dated 04 June 2018 (our ref 247643), 04 May 2018 (our ref 246074), 07 March 2019 (our ref 276024) and 22 July 2019 (our ref 285502). This letter represents our additional comments on the February 2020 draft of the Habitats Regulations Assessment.

Natural England welcomes the revisions to the assessment of allocations SS19/ST35 and H59 which we consider to be, for the most part, detailed and thorough. We agree with the conclusions reached and welcome the proposal to remove these allocations from the plan. We note however that this is a draft version and contains a number of incomplete passages and tables. We note for instance that the 'Calculated % increase in access from QEB & H59' and '% increase in access to the SAC' figures in the table in para 4.25 appear to be incorrect or mislabelled.

We note and welcome the assessment of allocation E18. We consider that as an employment allocation rather than a residential one the proposal poses considerably less of a threat than SS19/ST35 and H59 with regards to recreational pressures and urban edge effects, despite its similar geography in relation to Strensall Common Special Area of Conservation (SAC). We therefore agree with the conclusions reached and welcome the proposed policy modifications.

Natural England notes revised assessment of policies/allocations SS9/ST7, SS10/ST8, SS11/ST9 and SS12/ST14. We note that, in line with the ruling made by the Court of Justice of the European Union (the CJEU) on the interpretation of the Habitats Directive in the case of People Over Wind and Sweetman vs Coillte Teoranta (ref: C 323/17) these polices/allocations have been reassessed as having likely significant effects on Strensall Common SAC as a result of recreational pressures. Natural England agrees with this assessment. Furthermore we welcome the appropriate assessment and agree with the recommended policy changes which strengthen the policies with regards to mitigating for recreational disturbance. We are aware that further consultation with the site promoters for these sites has been undertaken and advise that this information should be provided in support of the assessment along with any other evidence regarding the potential for mitigation provision on these sites.

Finally however we note that there is no parallel recommendation to strengthening policies to deal with allocations such as H46 and windfall development which does not benefit from site specific policy. We recommend that the assessment should be clearer regarding how the impact of recreational pressures from the plan as whole on European designated sites has been assessed. As part of this we advise that the assessment should recommend changes to overarching development management policies which ensure that designated sites are protected and mitigation is delivered so that they make specific reference to the need to consider recreational disturbance for allocations without site specific policies and any windfall sites. This could be delivered through a stand alone recreational disturbance policy or through updates to existing policies. For example policy GI2 Biodiversity and Access to Nature could be updated to identify recreational disturbance on designated sites as a key issue to assess, setting distance criteria and signposting evidence such as the Strensall Common and Lower Derwent Valley Visitor Surveys. In addition policies GI1/GI3/GI5 could identify the need to focus GI delivery on mitigation for recreational disturbance in certain areas.

We would be happy to comment further should the need arise but if in the meantime you have any queries please do not hesitate to contact us.

For any queries relating to the specific advice in this letter please contact Merlin Ash at Merlin.ash@naturalengland.org.uk 02080 266382. For any new consultations, or to provide further information on this consultation please send your correspondences to consultations@naturalengland.org.uk.

Yours sincerely

Merlin Ash
Yorkshire and Northern Lincolnshire Team
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Date: 08 October 2020
Our ref: 329434

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BY EMAIL ONLY

Dear Alison Cooke

Planning consultation: August 2020 draft of the Habitats Regulations Assessment of the City of York Council Local Plan

Thank you for your consultation on the above dated 10 August 2020.

Natural England is a non-departmental public body. Our statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

As noted in our letter dated 12 March 2020 with regards to the February 2020 draft of the Regulations Assessment of the City of York Council Local Plan Natural England is satisfied that the modifications made to the screening assessment are in line with the ruling made by the Court of Justice of the European Union (the CJEU) on the interpretation of the Habitats Directive in the case of People Over Wind and Sweetman vs Coillte Teoranta (ref: C 323/17). We have no further concerns with regards to this judgement in relation to the August 2020 draft of the assessment.

Natural England notes and welcomes the updated Habitats Regulations Assessment of the City of York Council Local Plan (dated August 2020) and proposed modifications to the plan which satisfy the concerns we raised in our letter dated 12 March 2020 (our ref 310351). We particularly welcome proposed policy GI2a which sets out a 400m exclusion zone around Strensall Common SAC and a further 5.5km zone of influence concerning recreational disturbance based on with the analysis provided by Footprint Ecology and in line with approaches we have supported around the country.

Natural England has raised concerns regarding the assessment of windfall development in proximity to the Lower Derwent Valley Special Area of Conservation (SAC), Lower Derwent Valley Special Protection Area (SPA) and River Derwent SAC. However these concerns have been satisfied by the further clarification in your email dated 29 September 2020. As such we are satisfied with the Habitats Regulations Assessment of the City of York Local Plan provided that the changes and explanation set out in your email dated 29 September 2020 is included with the assessment.

We would be happy to comment further should the need arise but if in the meantime you have any queries please do not hesitate to contact us.

For any queries regarding this letter, for new consultations, or to provide further information on this consultation please send your correspondences to consultations@naturalengland.org.uk.

Yours sincerely

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