John Meed

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Paul Humphrey
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Swindon
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11/2/2022

Re: Representation No: 11 (Cambridge South Infrastructure Enhancements scheme)
Your reference: 158454-NWR-00-ZZ-LET-MPM-00070

Dear Paul

Thankyou very much for your detailed reply to my concerns about the development of South Cambridge Station as it impacts on the land between the Nine Wells LNR and the railway line/Addenbrooke's Road bridge. As promised, here are my thoughts in response.

The area between the fence and the bridge slope: I am reassured that the work will not encroach on this area and hope that this will protect the colonies of small copper, brown argus, small heath and common blue butterflies and other invertebrates which live in the area. I also welcome the proposal that any new habitat will be managed and provide further areas of value for invertebrates.

Use of the area for materials storage during construction: water voles have been consistently living in this stretch of Hobson's Brook since I first observed them there in 2017, and probably before then. So it will be essential to plan any work close to the brook to minimise disruption to this protected species. Also, Guy Stone did not mention the fact that water voles also make use of the nearby seasonal ditch so please also make sure contractors are aware of this.

It is most unfortunate that the works currently envisage the removal of two thirds of the hedgerow starting at Point 70. This is a well-established hedge and hedgerow bottom, used extensively be breeding birds including grey partridge, corn bunting, linnet, yellowhammer, reed bunting and whitethroat. It would take many years to recreate habitat of this quality, and this could have a negative impact on the breeding success of these important species. Please can you revisit this aspect of your plans to look for possible ways to retain more of the existing hedge than currently proposed?

Indicative landscape plans: I would welcome the opportunity to contribute to the process of finalising plans for new habitat creation at the appropriate time with the appropriate person from Network Rail. Guy Stone is absolutely right to stress the importance of corn bunting and skylark. However, in his evidence I have not found reference to grey partridge which is one of the most important species found across the square kilometre I study with up to 18 spring pairs and 90+ birds in the autumn.

The grey partridge has recently been categorised as vulnerable to extinction in the UK, so any habitat improvements should help to meet their needs for high-quality nesting habitat, insect-rich foraging habitat for the chicks, and cover and food during the winter – all of which have value for the other red-listed farmland birds that use the area.

The Cambridge South Station is just one of several developments that may have an impact on the area I study, including further expansion of the biomedical campus, the proposed guided busway, and further development proposed in the draft local plan. All these will require new habitat creation on-site and near-site in the interests of Biodiversity Net Gain, and this should be co-ordinated in the interests of the red-list species which make the area so special. There is a real opportunity to create new habitat in the fields the other side of Granham's Road from the area I study to provide further space for displaced farmland birds to colonise as development pressures increase.

As these plans develop I would be keen to provide an input and would be happy to meet with Guy Stone, yourself, or another representative at an appropriate point.

Yours sincerely

John Meed
Ecological surveyor (BTO/RSPB/UKBMS)

PS I also attach the final version of my survey report for 2021

The value of the green belt south of Cambridge to populations of farmland birds (2021)

Report of a ten-year survey

John Meed, February 2022

Introduction

For the last ten years I have conducted ecological surveys – focusing in particular on farmland birds – in a square kilometre of green belt south of the Cambridge Biomedical Campus to assess the levels of the biodiversity of an area close to the city.

The area studied is largely arable land, with mature hedgerows, watercourses, ponds, scrub and woodland, including the Nine Wells local nature reserve (LNR – right). It includes a cycle path and footpath, and land management has created several permissive footpaths, flower-rich field margins and additional woodland (see Appendix 1). It is widely used by walkers, cyclists and families.

Why do farmland birds matter?

Farmland birds have suffered major declines in recent decades.

- Grey partridge declined by 93% between 1970 and 2018 and corn bunting (right) by 89% while yellow wagtail declined by 68%, yellowhammer by 60% and skylark and linnet by 56% (1).
- Farmland birds are indicators for the UK Government Sustainable Development Strategy (2) and 11 of the 19 indicator species are 'red list' birds of 'high conservation concern' (3).
- Grey partridge are now classified as 'vulnerable' to extinction in the UK while corn bunting and yellow wagtail are classified as 'near threatened' with extinction (3).

Birds are indicator species because of their place as consumers in the ecosystem, and declines in bird populations indicate wider problems. The *State of Nature 2019* report (4) states that 'bird species most closely associated with farmland have declined more severely than birds in any other habitat, with a fall of 54% in the Farmland Bird Indicator since 1970'.

Methodology

I monitor the area using a combination of methods. I adopt the British Trust for Ornithology (BTO) Breeding Bird Survey methodology (5), which involves a habitat survey and walking two parallel transects, each of 1 km, on 2–3 occasions early and later in the breeding season; this approach gives a good snapshot of the species present in an area. I did my transect walks on April 20, May 12 and June 6.

In summer I build a more accurate picture of the number of breeding pairs, drawing on my experience as a surveyor for the Royal Society for the Protection of Birds (RSPB) Volunteer and Farmer Alliance (6). In these visits I observe breeding signs such as singing males, territorial behaviour, courtship displays, nest building and juvenile birds. In summer I also survey butterflies and dragonflies on behalf of the UK Butterfly Monitoring Scheme.

I also visit the site regularly in the autumn and winter, monitoring passage migrants and winter visitors, and in particular grey partridge populations. In 2021 I made 51 visits.

Findings

Over the ten years I have recorded 93 bird species including 21 red list species and 29 amber list species. See Appendices 2 and 3.

In 2021 I recorded 81 species on the three transect walks and other visits:

- On the first transect walk: 29 species and 215 individuals
- On the second transect walk: 34 species and 224 individuals
- On the third transect walk: 33 species and 224 individuals

The 81 species recorded included 17 of the 19 farmland bird indicator species for the Sustainable Development Strategy, of which 14 bred (Appendix 4). In total I recorded 18 red list species and 25 amber list species. This table shows the indicator species recorded.

Breeding red list indicator species	Other indicator species
• 52 pairs of skylarks • 18 pairs of grey partridge • 16 pairs of linnets • 11 pairs of corn buntings • 11 pairs of yellowhammers (above) • 4 pairs of greenfinches • 3 pairs of yellow wagtails • 3 pairs of starlings • Lapwing displayed but bred nearby	All the other amber and green-listed indicator species were present, and most bred: • 18 pairs of whitethroats • 5 pairs of reed buntings • 3 pairs of stock dove • Goldfinch, wood pigeons and jackdaws all bred in good numbers • Kestrels and rooks nest nearby and visit regularly

In total 48 species bred, including red listed house martins and mistle thrushes, as well as several other amber-listed species including song thrush, dunnock, tawny owl and bullfinch. I recorded 20+ hares in spring, and a thriving population of water voles. I recorded 25 species of butterfly, plus 14 dragonflies and damselflies.

The area continues to attract migrating birds, including this year three red-listed species: in late spring 2021 a ring ouzel spent three days here, while tree pipit also visited in spring and whinchat on autumn passage.

I will discuss in more detail at my findings about the populations of two key red list species that do unusually well in the fields around Nine Wells:

- Grey partridge (right)
- Corn bunting

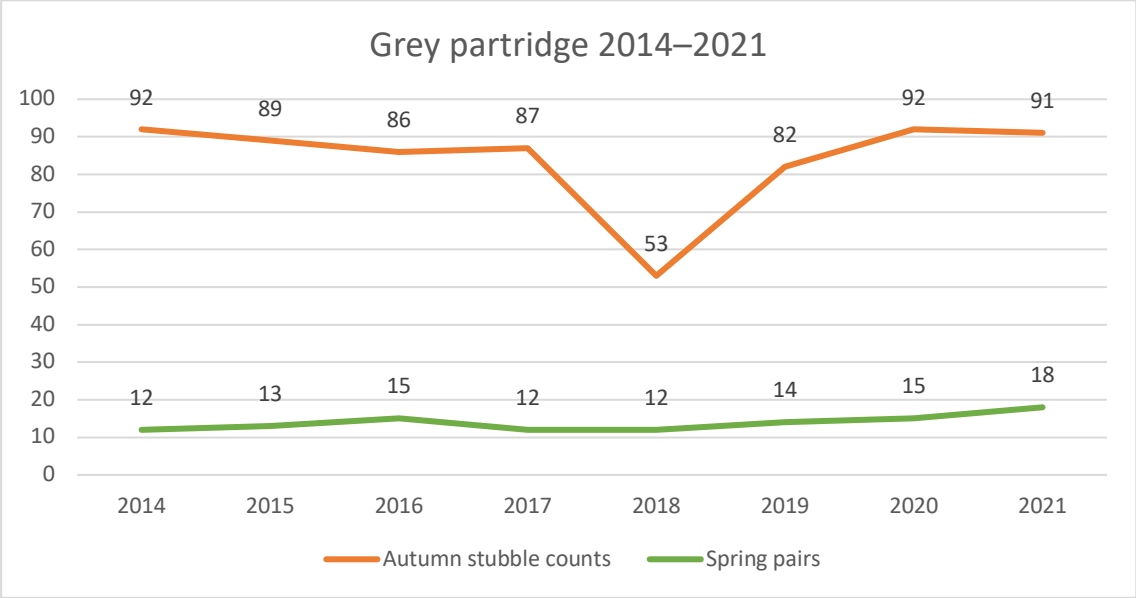
I will then go on to examine my findings for other species.

Grey partridge 2014–21

Grey partridge numbers have been remarkably high over the study.

- Between 2014 and 2021 autumn counts consistently revealed between 82 and 92 individuals, except in 2018.
- Pairs have varied between 12 and 18.

The following chart shows numbers for the last seven years.



These counts are high: other studies suggest that the arable farms typical of Cambridgeshire support between 0–5 pairs/km^2 in spring and 0–20 birds/km^2 in the autumn. Only with high levels of management aimed at the species do numbers approach those at Nine Wells. For example, the GWCT's Grey Partridge Demonstration Project near Royston saw the density of grey partridge pairs rise from under 3 pairs/km^2 before management to around 15 pairs/km^2, while autumn densities increased from 8 birds/km^2 to around 80 birds/km^2 (7).

Several factors help to explain the success of grey partridge here. Above all, the mosaic of habitats helps provide their three key requirements:

- Nesting and roosting habitat: the birds feed in open fields, but need suitable cover during the day in hedges and margins. Grassy, raised hedge bottoms, notably between Fields 4 and 5 and on the slope of Field 6 (see Figure 1 on page 6), provide good nesting sites.
- Food for chicks – potential chick food in the form of invertebrates live in the field margins and on arable weeds.
- Winter food – autumn stubbles provide foraging for the coveys, while in 2020-21 a cover crop in one part of Field 6 helped contribute to high survival rates, with 39 birds present in around three hectares (as well as meadow pipits, larks and finches).

By contrast, the land on the other side of Granham's Road comprises larger fields and fewer hedges and margins, and while partridge occasionally feed there they are unlikely to breed.

Autumn and winter coveys

Grey partridges have large broods and in the autumn families form groups known as 'coveys'. Numbers are at their highest in November and December, once youngsters have matured but before spring pairing starts. Most coveys range between 5 and 15 birds.

Generally speaking, the number of autumn coveys has reflected the number of spring pairs, suggesting that most pairs reared young successfully. Autumn 2018 was a significant exception, when 12 pairs produced just 8, generally smaller, coveys. This may reflect a national problem that year, possibly caused by a shortage of chick food and water. In 2020 15 pairs produced at least 12 coveys and in 2021 18 pairs produced at least 14 coveys.

- Coveys show a distinct preference for stubbles over freshly ploughed land and in 2019 all coveys remained in Fields 3, 4, 5 and 6 which retained stubble throughout the autumn; in autumn 2016 four coveys were regularly present in Field 2 but moved to Field 1 after ploughing. Later they seem more comfortable where winter wheat is starting to grow.

- Coveys often feed in the early morning and before dusk, probably to avoid predation. They roost in areas of longer grass, hedge bottoms or patchy scrub. They generally avoid woodland and I have rarely recorded them near to the wood at the top of White Hill. When feeding one or two birds keep watch for predators while the rest of the covey eats.

- These two factors – cropping and access to cover – have a major influence over where coveys spend their autumn. In late 2021 there were four coveys in Fields 7 and 8 which were lightly cultivated so that some food was always available. In 2019 the Field 4 stubble was direct drilled without ploughing and held five coveys of 34 birds which also used Field 5, roosting along the hedge bottom between the two fields. Field 6 had five coveys of 40 birds on stubble in 2019.

- Generally speaking, coveys move relatively little between fields. However, this does vary: while a group of 15 in Field 4 in 2020/21 stayed in a small area, groups of 5 and 11 ranged more widely across the field and spent time in Field 5. A group of 10 at the top of Field 6 ventured further away from their cover than other groups.

- Covey feeding times also vary. In 2020/21, the group of 7 in Field 2 emerged in the hour or so before dark, while the group of 11 in Field 4 often emerged earlier and were more often out in the morning.

- There can be interaction between coveys – normally calling, but sometimes two coveys move closer together and may even intermingle. In late October 2021 two coveys of 6 birds met in Field 7 – several individuals made contact and two chased each other.

The autumn coveys appear to suffer relatively little loss from predators, though possibly slightly more in 2021 than in other years.

Spring pairs

Pairs begin to form in the new year, and may be starting slightly earlier now than when I began my survey. Pairing can vary from field to field: in 2017 the partridge in Field 6 were paired on January 18th, whereas those in Field 4 paired a week later.

Initial pairing is often concentrated in specific fields – in early 2021 this was true of a small area of Field 6. In 2016 (prior to development) there were 12 pairs (out of 15) in Fields 1 and 2. Following pairing, the pairs disperse more widely across the area. Figure 1 shows the distribution of pairs in Spring 2021.

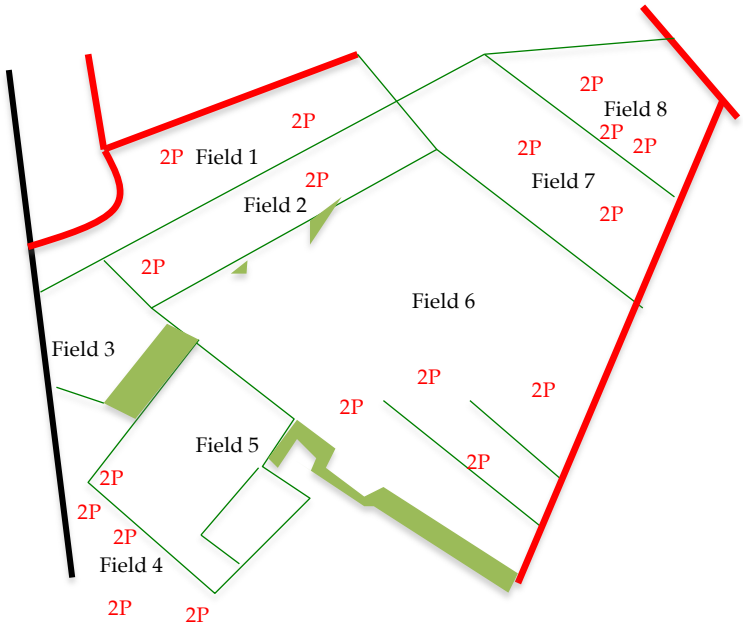


Fig 1: Pairs of grey partridge in Spring 2021

- Partridge behaviour changes during pairing. In the process of seeking a mate birds call repeatedly – one bird calling could spark off others – and display their breast patches much more obviously. Birds will run and on occasion chase each other, which can end in flying to another spot.

- Paired birds resume their normal placid behaviour, even if the above activity carries on in the same field, though they sometimes call. Interaction between pairs, even when close together, is also usually calm, with occasional breast patch display. As the spring develops and crop cover increases the pairs become increasingly discrete.

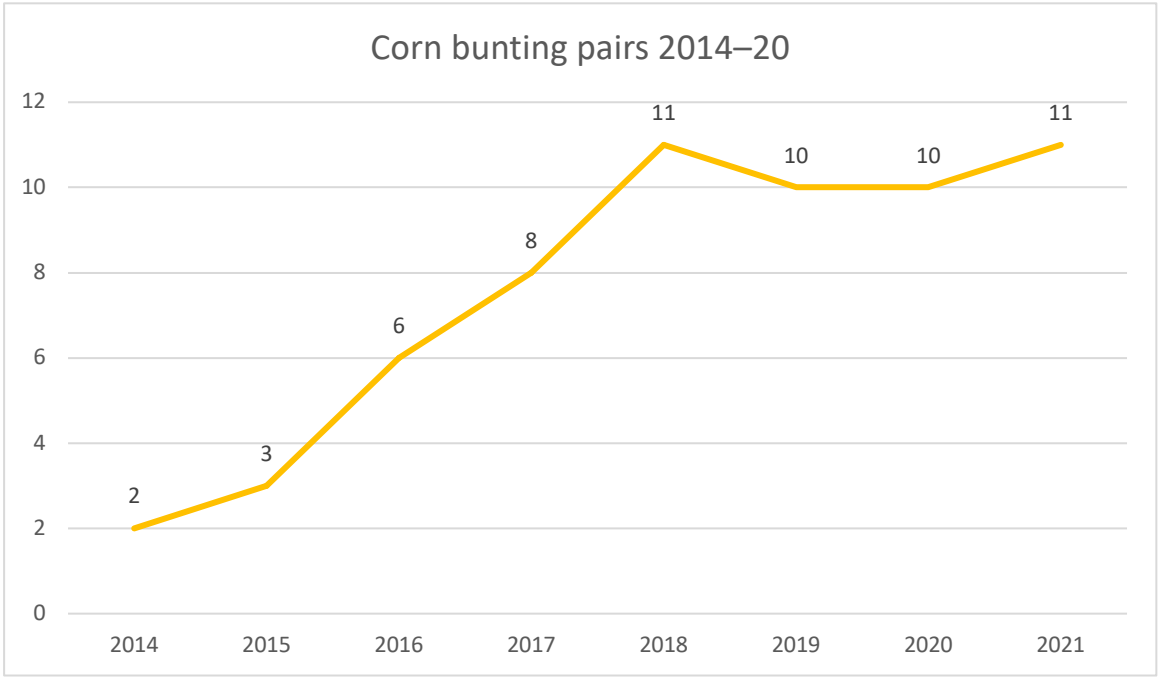
- However some unpaired male birds remain (most noticeably in 2018). Unpaired males call and display their breast patch more than those in pairs.

In 2021 most pairs in Fields 4–8 reared a family. However of the four pairs in Fields 1 and 2, I only recorded one group of four. This may reflect nest failure or simply movement to other fields – greater disturbance from development is one possible factor.

I have written up my observations of grey partridge behaviour in far greater detail in my forthcoming book *A haven for farmland birds*.

Corn bunting 2014–21

2021 was another excellent year for **corn bunting** with 11 singing males.

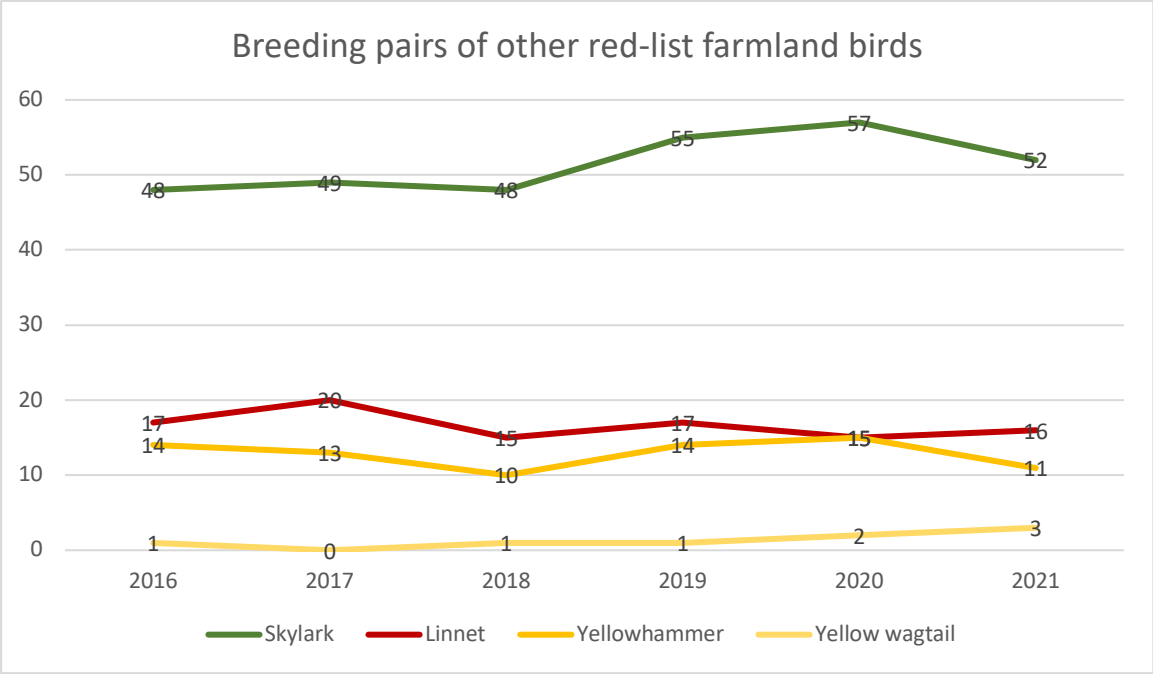


Corn bunting populations in the UK declined by 89% between 1970 and 2018, and their breeding range has contracted by 56% over the same period. There are now only 11,000 territories in the UK and the BTO's 2019 Breeding Birds Survey recorded them in just 148 of 4,005 squares surveyed. The species' recent extinction in Ireland risks being repeated in large parts of Britain if its breeding sites are not protected. Despite the fact that East Anglia is now one of their main remaining areas, a recent survey of populations found a very patchy distribution of singing males across Cambridgeshire (9).

So, the number of birds recorded in this study is important. This importance increases when added to the population across the railway line in Hobson's Park – the 2018 Bioblitz there recorded 8 singing males.

I have also recorded some interesting behaviour – which could only be observed because of the good numbers of populations. In May 2018 I twice recorded gatherings of over 10 corn buntings on the corner of the hedge between Fields 4 and 5 – too late to be a winter flock, and too early to be a family group. In Autumn 2020 I observed gatherings of 25+ birds on August 2nd and 21 (below left in the hedge between Fields 4 and 5) on September 21st. In October 2021 I recorded some 15 birds in Field 7, at least three of which were singing.

Other red-list farmland indicator species



- **Skylark** populations (right), with around 52 breeding pairs, had another good year. I base estimates of skylark numbers on singing males observed (greatest on May 30th). This population density is higher than the mean recorded for similar crops in the BTO's skylark survey (10). Winter counts regularly number over 80 birds.
- I estimated the **linnet** population at 16 pairs; linnets tend to nest more communally than other species (11) so populations are harder to estimate than species with distinct territories; from April onwards I regularly recorded 20-30 birds. Winter flocks were also present, with 80+ birds on September 16th.

- **Yellowhammer** populations, at around 11 breeding pairs, were lower than the 15 recorded last year, but still compare well with populations found by Bradbury et al (12). Densities were highest in the hedge along Granhams Road and the ditch along the cycle path. Birds were also present in winter, with 40+ birds on February 16th.
- Three pairs of **yellow wagtail** (below) also bred, in or near to Field 7. Both 2020 and 2021 have been their best breeding seasons for several years.

- Four pairs of **greenfinch** bred. This species has declined sharply across the country but numbers have risen here.
- At least two pairs of **starlings** bred; flocks of up to 400 were present in the winter.

In 2021 a **lapwing** displayed in spring, raising hopes that they may breed again. I recorded a juvenile turtle dove in 2019, but have never recorded tree sparrow, the final indicator species.

Other farmland bird indicator species

All the other farmland bird indicator species are present:

- Whitethroat with 18 breeding pairs, were slightly down on the 21 in 2020, but higher than the 14 in 2018. Densities were highest along the hedges around Nine Wells and in the hedges along Granham's Road. The most birds on one occasion was 11, on May 12th.
- At least three pairs of stock dove bred.
- Reed bunting (right) populations (5 pairs) were similar to 2020.
- Kestrel and rooks breed nearby and visit regularly.

Goldfinch, jackdaws and wood pigeon all bred.

Lesser whitethroat and buzzard also breed while pairs of stonechat spent the winters of 2017/18 and 2020/21 on the site. In 2021 a pair of reed warblers bred in the bushes along Hobson's Brook. Passage migrants included several wheatears, while winter visitors included little egret and kingfisher, as well as fieldfares and redwings.

Reed warbler

Wheatear

Little egret

Habitat survey and plant species

The habitat survey showed 10 (2.5km) mature hedgerows with thick growth and good variety; 2 newly planted hedges; extensive grassy and flower-rich margins; 2 important watercourses (1km) and 3 ponds; and 4+ha of scrub and woodland including the Nine Wells nature reserve.

I have recorded over 40 trees and shrubs, most of which are native species. The hedge between Fields 2 and 6 is home to several willows and the rare and imposing black poplar (right).

A 2017 survey (14) recorded 45 species of flowering plant in the Nine Wells nature reserve alone, as well as 12 trees/shrubs, 9 mosses and 7 grasses.

Across the site I have recorded well over 100 species of flowering plants, including iconic arable flowers such as knapweed, fumitory, mallow, poppy, speedwell and viper's bugloss.

Mammals

Mammals include good numbers of **water vole** in Hobson's Brook – important as water vole numbers in Britain have fallen disastrously; and regular spring counts of 20+ **brown hare** – Hutchings and Harris (13) recorded a mean density of 7.12 hares/km^2 on arable land.

Other mammals include badger, fox, stoat, weasel, muntjac and roe deer, rabbit, mole, field and bank vole, and wood mouse, as well as common pipistrelle, soprano pipistrelle and noctule bats (14).

Invertebrates

In 2019 I began formally surveying butterflies and have so far recorded 25 species across the site (see Appendix 2). These include colonies of brown argus, small copper, common blue and small heath butterflies. The small heath is now a priority species because of the decline in its population.

In late August 2021 I recorded a clouded yellow on three occasions – the first time I have seen this stunning species. This butterfly does not have a permanently resident population this far north, so individuals are either migrants or their immediate offspring. The area has a good amount of clover, their favourite egg-laying plant, so it is possible that this was a male patrolling a good breeding spot in the hope that female might pass through.

Small copper

Common blue

Brown argus

In 2020 I extended my survey to include dragonflies and damselflies and have recorded 14 species breeding in the area, including the willow emerald (around Nine Wells LNR) and small red-eyed damselfly (in one of the new ponds) which are very recent UK species.

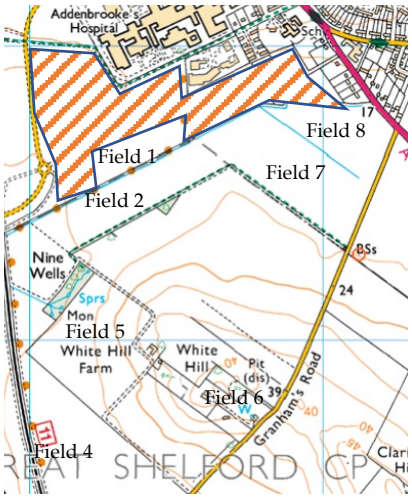
Banded demoiselle

Migrant hawker

Willow emerald

The site supports good populations of other invertebrates including grasshoppers, crickets, beetles, ants, bees and wasps. A moth trap in June 2017 recorded 30 species of moth (14).

The impact of development



Since I began my study of the area there have been some important changes – principally the expansion of the Biomedical Campus, but also the Nine Wells housing development and infrastructure projects. The map on the right shows in orange shading the area of land that has been developed over the ten years. I have compensated for this by extending my study area by an equivalent amount to maintain an area of around 1km^2, principally into more southern areas of Fields 4, 5 and 6.

The shaded area no longer provides suitable habitat for farmland birds, and I no longer record any of the red list farmland species there. The impact on the wider area has been more complex.

So far, the loss of habitat does not appear to have led to a significant reduction in numbers of farmland birds across the whole site, though this is in part because I have maintained a 1km^2 area. Corn bunting, yellowhammer and linnet continue to use Fields 1 and 2 adjacent to the new development, and indeed have used the young trees that line the ditch beside the Abcam building as song posts. Grassland on the southern slope of the road bridge now supports small colonies of brown argus and small copper (as well as common blue and small heath) butterflies. New pond areas are also used as breeding sites by dragonflies.

By contrast, while grey partridge had a good year across the site as a whole, I have concerns that what remains of Field 1 and Field 2 may be becoming less hospitable for them. This has led to a concentration of grey partridge in Fields 4–8. We will need to wait to assess what the longer-term impact may be, especially as what remains of Field 1, and the whole of Field 2 are scheduled for development.

Grey partridge in Field 4

Other parts of the site also face potential threats. Fields 7 and 8 have been recommended for development by the local councils in their next local plan. Such development would remove the last breeding sites of yellow wagtail, halve the population of corn bunting and reduce breeding sites for grey partridge and the other red list birds. And the south east guided busway is currently proposed to run through Field 4, risking further disruption and habitat fragmentation.

The problem is where wildlife can go if good existing habitat is lost. The square kilometre of land on the other side of Granham's Road comprises just three fields, two hedges, one of which is in a poor state with large gaps, and far less margin habitat. The land does support skylark, but is less welcoming to the other red list species.

Conclusions

The data I have gathered over the last ten years provide a picture of an area of green belt arable land on the outskirts of the city of Cambridge that supports important breeding populations of threatened farmland birds, as well as mammals, plants, butterflies and other invertebrates.

1 Over the period of my study the site has supported exceptional populations of grey partridge and corn bunting (species that have declined by around 90% since 1970) and the site may well be among the best in Cambridgeshire for both species.

2 Other red list farmland species also thrive in the area, notably yellow wagtail, linnet, skylark and yellowhammer. The area also supports good populations of water vole and brown hare, as well as plants and invertebrates.

3 Habitat variety and land management contribute to the richness of the area. The combination of arable crops with grassy hedgerow bottoms and margins benefit grey partridge, skylark, corn bunting and yellow wagtail; the ditches benefit yellowhammer and reed bunting, as well as water vole, while hedges are well used by linnet, yellowhammer, whitethroat and dunnock, and by grey partridge for cover. Hedges which are around 2 metres high with slightly raised bottoms (such as that between Fields 4 and 5) provide excellent nesting habitat for grey partridge in particular and must be conserved.

4 Development and infrastructure work has resulted in lost farmland habitat and some habitat fragmentation. This has not yet reduced significantly populations of red list birds, but may well have led to a concentration of birds in the relatively undisturbed areas, and I will continue to assess the longer-term impact.

5 Proposed further construction and infrastructure development would place real pressure on populations. If this were to go ahead, considerable, and urgent, new habitat creation would be needed in adjoining fields to provide a refuge for displaced wildlife.

6 The area provides an important green space and area for walking, cycling and relaxation for local residents who are clearly able to co-exist with nature; the land also forms part of the area covered by the local councils' *Strategic Green Infrastructure Initiative 3*.

John Meed, February 2022

John Meed is a researcher, writer and musician who lives in south Cambridge. He conducts regular surveys on behalf of the BTO and RSPB. His forthcoming book *A haven for farmland birds* provides much more detail about the ecology, behaviour and social lives of the birds he has studied in this area.

See: http://johnmeed.net/john-meed/nine-wells/

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6 RSPB (2012) *RSPB Volunteer and Farmer Alliance Training Manual*

7 Aebischer, N J and Ewald, J A (2012) The grey partridge in the UK: population status, research, policy and prospects. *Animal Biodiversity and Conservation*, 35.2: 353–362. (Other comparisons: The largest UK partridge study, the Sussex Study, recorded under 2 pairs/km^2 with typically 5 birds/km^2 in the autumn. Major changes in management – including game keeping and predator control – on one area of the Sussex Study led to autumn densities of 64 birds/km^2 by 2008 with around 20 breeding pairs/km^2 by 2014. The RSPB's *Hope Farm Annual Review 2019*, describes how on their farm also near Cambridge, there were no grey partridge prior to management. Following management changes the population rose to 3 pairs in 2019.)

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Appendix 1: The area covered

Looking towards White Hill

The Nine Wells LNR from White Hill

Mature hedge and permissive path

Cycle path and flower-rich margin

Grey partridge on Field 4, autumn 2020

Yellowhammer on Field 4/5 hedge, 2020

Appendix 2: Species recorded (2012–21)

This list shows the 93 bird species recorded over the last 10 years: 21 red list birds, 29 amber list birds, and 42 green list species. The numbers show the number of breeding pairs/territories (except n/c where not counted); (S) denotes summer visitor, (W) winter visitor, (P) passage migrant and *italic* = not recorded in 2021.

Species		Species		Species		Species	
Black-headed gull		Golden plover	W	Long-tailed tit	5	*Siskin*	W
Blackbird	12	Goldfinch	5	Magpie	c7	Skylark	52
Blackcap	7 (S)	Great black-back gull	W	Mallard	3	Snipe	W
Blue tit	c10	Gt spot woodpecker	1	*Marsh harrier*		Song thrush	5
Bullfinch	1?	Great tit	c10	Meadow pipit	W	Sparrowhawk	
Buzzard	1	Green woodpecker	2	Merlin	W	Starling	2
Canada goose	W	Greenfinch	4	Mistle thrush	2	Stock dove	3
Carrion crow	n/c	Grey heron		Moorhen	3	Stonechat	W
Chaffinch	1?	Grey partridge	18	Mute swan		Swallow	2
Chiffchaff	5 (S)	Greylag goose		Peregrine		Swift	S
Coal tit	1	Herring gull	W	Pheasant	3	Tawny owl	1?
Collared dove	1	Hobby	P	Pied wagtail	2	Tree pipit	P
Common gull	W	House martin	4 (S)	*Raven*		*Turtle dove*	P
Common tern	S	*House sparrow*		Red kite		Wheatear	P
Cormorant		*Jack snipe*		Red-legged partridge	5	Whinchat	P
Corn bunting	11	Jackdaw	n/c	*Redstart*	P	Whitethroat	18
Crane		Jay	2	Redwing	W	Willow warbler	P
Cuckoo		Kestrel		Reed bunting	5	Wood pigeon	n/c
Dunnock	20	Kingfisher	W	Reed warbler	2	Wren	15
Egyptian goose		Lapwing		Ring ouzel	P	Yellow wagtail	3
Feral pigeon	R	Lesser black-back gull	W	Robin	27	Yellowhammer	11
Fieldfare	W	Lesser whitethroat	3	Rook			
Garden warbler	3 (S)	Linnet	16	*Sand martin*	P		
Goldcrest	1	Little egret	W	Sedge warbler	P		

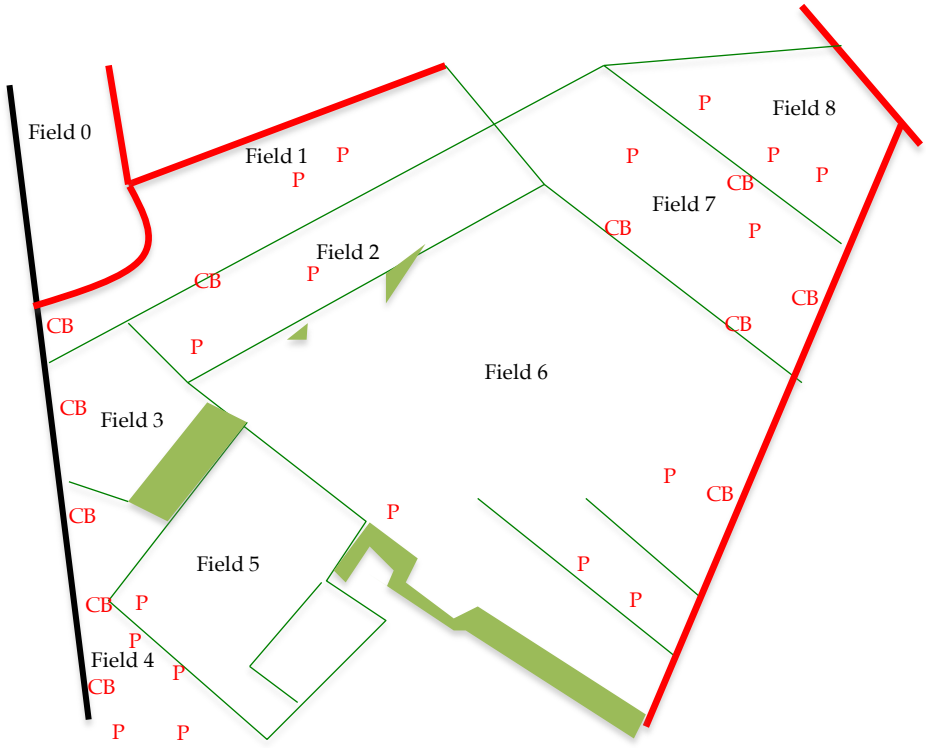
This table shows the 25 butterfly species and 14 dragonfly/damselfly species recorded:

Butterflies			
Brimstone	Green-veined white	Orange tip	Small skipper
Brown argus	Grizzled skipper	Painted lady	Small tortoiseshell
Clouded yellow	Holly blue	Peacock	Small white
Comma	Large skipper	Red admiral	Speckled wood
Common blue	Large white	Ringlet	
Essex skipper	Marbled white	Small copper	
Gatekeeper	Meadow brown	Small heath	
Dragonflies			
Azure damselfy	Brown hawker	Large red damselfly	Southern hawker
Banded demoiselle	Common darter	Migrant hawker	Willow emerald
Black-tailed skimmer	Emperor	Ruddy darter	
Broad-bodied chaser	Four-spotted chaser	Small red-eyed damselfly	

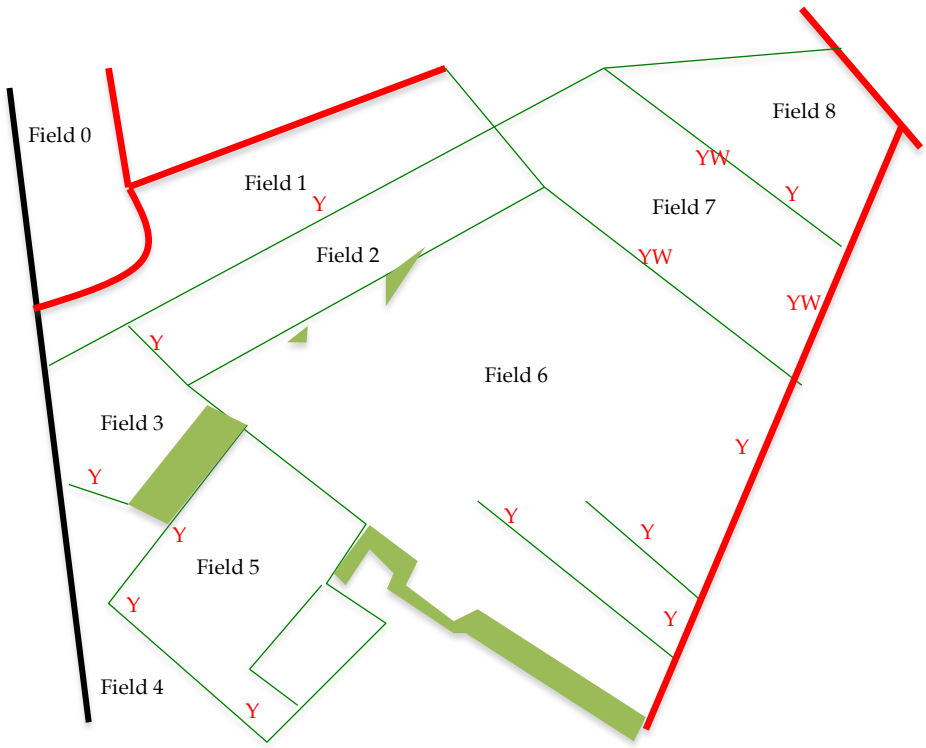
Appendix 3: Maps showing breeding pairs

These maps show estimated breeding pairs in 2020 of the red- or amber-listed farmland bird indicator species, plus green-listed whitethroat, breeding in the one kilometre square:

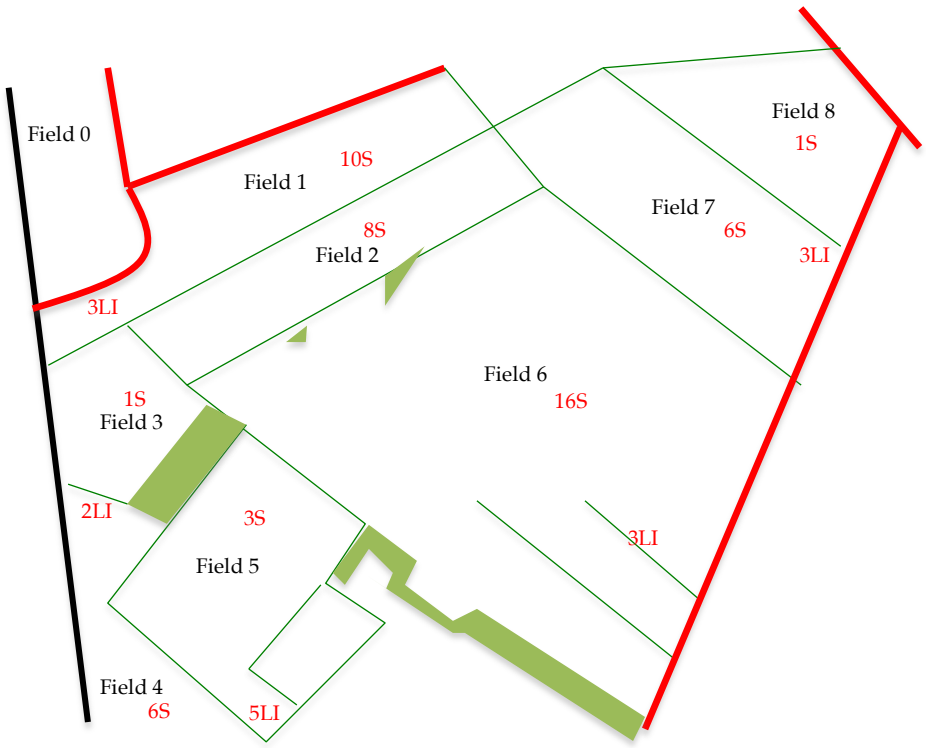
Grey partridge (P) and corn bunting (CB)



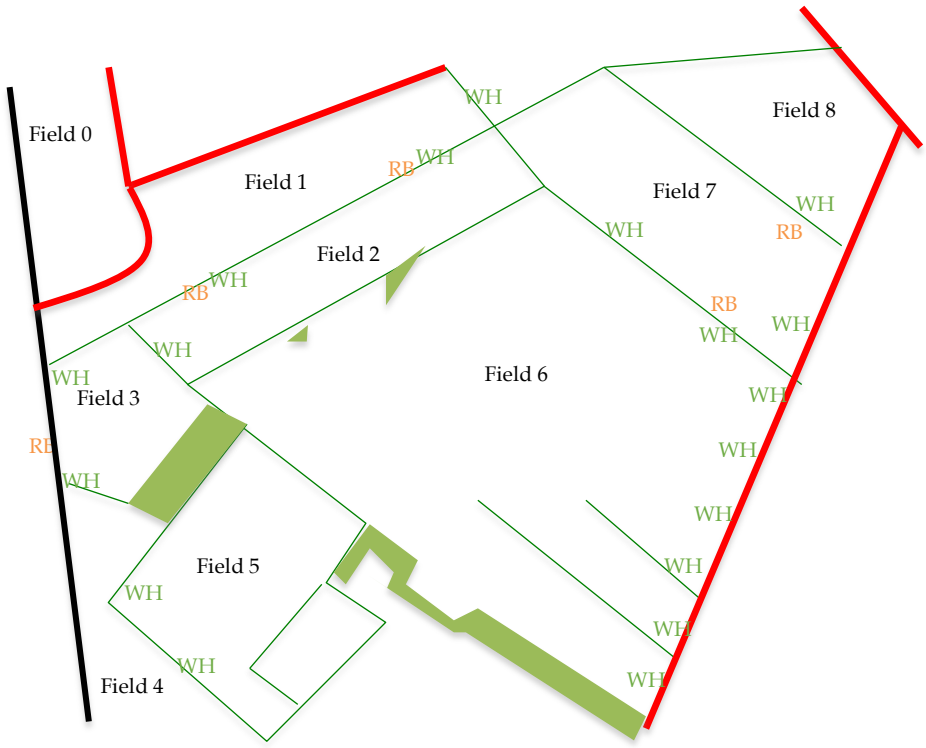
Yellowhammer (Y) and yellow wagtail (YW)



Linnet (LI) and skylark (S)



Whitethroat (WH) and reed bunting (RB)



Appendix 4: Farmland bird indicator species

This table shows the 19 species on the UK Farmland Bird Indicator; the second column shows which I recorded on the site in 2021; the second column shows which bred on the site; and the final column shows the percentage change in their national populations for the period 1970-2018:

Species	Present?	Breeding?	Per cent change**
Turtle dove	(2019*)	–	-98%
Grey partridge	☒	☒	-93%
Tree sparrow	–	–	-90%
Corn bunting	☒	☒	-89%
Starling	☒	☒	-82%
Yellow wagtail	☒	☒	-68%
Lapwing	☒	–	-64%
Greenfinch	☒	☒	-64%
Yellowhammer	☒	☒	-60%
Skylark	☒	☒	-56%
Linnet	☒	☒	-56%
Kestrel	☒	–	-48%
Reed bunting	☒	☒	-28%
Whitethroat	☒	☒	-13%
Rook	☒	–	+5%
Woodpigeon	☒	☒	+121%
Stock dove	☒	☒	+127%
Jackdaw	☒	☒	+157%
Goldfinch	☒	☒	+197%

* A juvenile turtle dove passed through on migration in 2019.

** Source: Burns F, Eaton MA, Balmer DE, Banks A, Caldow R, Donelan JL, Douse A, Duigan C, Foster S, Frost T, Grice PV, Hall C, Hanmer HJ, Harris SJ, Johnstone I, Lindley P, McCulloch N, Noble DG, Risely K, Robinson RA, Wotton S (2020) *The state of the UK's birds 2020*. The RSPB, BTO, WWT, DAERA, JNCC, NatureScot, NE and NRW, Sandy, Bedfordshire

Mr John Meed

Paul Humphrey
Network Rail
Capital Delivery
SN1 Building
Station Road
Swindon
SN1 1DG

Submitted Electronically to:

T 07971 69262
E paul.humphrey@networkrail.co.uk

Ref: 158454-NWR-00-ZZ-LET-MPM-000070

24 January 2022

Dear Mr Meed,

The Network Rail (Cambridge South Infrastructure Enhancements) Order

Further to our recent email correspondence, we have asked our biodiversity expert witness for the upcoming public inquiry, Mr Guy Stone, Associate Technical Director - Ecology at Arcadis, to review the documentation you provided in your original objection to our section 19 Acquisition of Land Act application and subsequent details and documents provide via email correspondence.

We understand that your original objection to the section 19 application has subsequently been transferred to Representation 11 to Network Rail's Transport and Works Act Order (TWAO) application for the Cambridge South Infrastructure Enhancements (CSIE) scheme. We therefore provide the below information in response to that representation.

Following the review Mr Stone has provided the responses below, for clarity we have included the original points that you have raised in bold italic text:

"I attach a photograph which shows the area of greatest importance to the butterflies and other invertebrates ie between the fence and the slope up the bridge - it is possible that areas 54, 61 and even 59 on Sheet 3 may impinge on this. Please can you clarify this?"

In line with Paul Humphrey's previous email responses, we are not encroaching on the area between the fence and the bridge slope. We are planning on creating new habitats within and beyond the project boundary as part of measures for biodiversity net gain. These will include species rich grassland, wetland features and tree and scrub planting. These will be managed and provide further areas of value for invertebrates.

"It is worth saying that some other aspects of the plans on Sheet 3 may raise biodiversity issues. For example, Hobson's Brook, the watercourse that runs from Nine

Wells and under the railway line, is home to a good population of water voles. I am not clear what impact the plans will have on this, but the proposed cycle track diversion appears to necessitate a new, if temporary, bridge over the brook. You would need to assess carefully the impact that this, and any other work or storage, might have on a protected species."

Surveys to identify signs of water vole were undertaken to support the Environmental Statement. We have identified water vole burrows on Hobson's Brook. As water vole is a dynamic species with population booms and crashes, further surveys will be undertaken to support future works such as for the temporary bridge. These will determine the location of water vole burrows, enabling avoidance or mitigation measures to be put in place. Furthermore, we are planning on managing and enhancing the marginal habitats along Hobson's Brook where it falls within the scheme boundary. This will aim to provide higher quality habitats for water vole foraging and burrows.

"Furthermore, the wider area is also home to important populations of threatened farmland birds, and the bushes along the brook and, above all, the hedge that begins at the arrow point for 070 on Sheet 3, are breeding sites for species like grey partridge and corn bunting. It would be helpful to have a clearer idea of what is planned, when, and how long the area would be affected for."

The indicative landscape plans illustrate the proposals as submitted. Around two thirds of the hedge starting at point 70 would be removed to allow for the works compound and re-routed cycle path. This would be re-instated following the works and underplanted with species rich grassland. We would retain scrub along Hobson's Brook although minor clearance may be required at the location of bridge works. Further scrub habitat would be created within the triangle of land where the Rail Systems Compound is proposed and in the exchange land that is also adjacent to the brook. Wetland features and species rich grassland will also be incorporated into this area. Offsite habitat creation will be required nearby to ensure biodiversity net gain targets are met. These will also include scrub and grassland habitats that will benefit farmland birds. Measures are in place to reduce visual and noise disturbance to farmland birds through hoarding and monitoring of noise and nest localities for corn bunting and skylark during construction.

In addition to the specific responses provided above, we would refer you to the Proof of Evidence provided by Mr Stone, referenced as NRE 12.1 to 12.3 on the Public Inquiry Programme Officer's website:

https://gateleyhamer-pi.com/en-gb/csie/inquiry-documents/network-rail-proofs-evidence/

Network Rail are committed to delivering 10% biodiversity net gain as part of the CSIE scheme and will be providing further details on our proposals through the submission of deemed planning conditions for approval to the relevant local planning authorities, should we be successful in securing approval of the TWAO application from the Secretary of State.

If you require any further information in response to your representation, please do not hesitate to contact me.

Yours sincerely,

Paul Humphrey
TWAO Consents Manager
Network Rail
Capital Delivery

Dear Paul

Thankyou for clarifying this - all is much clearer now and I'm greatly reassured that the principal area of concern for the butterfly colonies will be left untouched by the materials storage work. I am grateful to you for taking the time to respond to my concerns.

I had also written to Racheal Beard withdrawing my original objection so thank you for confirming the representation number.

I am away at the moment but will read Guy's comments properly as soon as I get the opportunity, but it's useful to have them and they look helpful.

Regards

John

On 24 Jan 2022, at 17:19, Paul Humphrey <Paul.Humphrey@networkrail.co.uk> wrote:

OFFICIAL

Dear John,

Further to my email last week, please find attached further information in response to your queries on biodiversity impacts, which have now been registered by the DfT Transport Infrastructure Planning Unit as Representation 11 to the Network Rail Cambridge South Infrastructure Enhancements TWAO application.

Best regards,

Paul

<image002.png>

Paul Humphrey
TWAO Consents Manager
Network Rail – Capital Delivery

M: 07971 692629
paul.humphrey@networkrail.co.uk
www.networkrail.co.uk

<image003.png>

From: Paul Humphrey
Sent: 19 January 2022 15:35
To: John Meed [redacted]>
Cc: Stone, Guy <Guy.Stone@arcadis.com>
Subject: RE: Cambridge Section 19 application - your letter of objection

OFFICIAL

Dear John,

Unfortunately, I have not been able to source a more detailed plan setting out our temporary land take proposals during the construction of the Cambridge South scheme, from the photograph you previously provided which I have inserted below I can confirm that the timber post and rail fence running up the centre is the boundary to our land parcel 054 which I have delineated as an orange line on the extract from our Deposited Plans attached below the photograph. I can confirm that Network Rail has not sought any rights or powers to occupy the land on the left hand side of the fence (as viewed in the photograph below), we will be using the existing access road shown on the photo to access the area of land to the right of the access track which will be utilised as a construction compound. We will also be using the track that passes beneath the Addenbrookes Road bridge (currently the National Cycle Network Route 11) to access up the side of the railway to the propose site of the new station which is located next to the Guided Busway bridge to the north.

<image004.png>

<image005.png>
In order to provide you with some further details on our biodiversity proposals, I have passed your documents onto Arcadis who produced the ES and have ask Guy Stone (Associate Technical Director – Ecology) who drafted the Biodiversity section of the ES and the Biodiversity Assessment to review and provide me with some feedback on the points you have raised. I have cc'd Guy into this email so that he has the latest information on which to base his response.

Best regards,

Paul

Paul Humphrey
TWAO Consents Manager
Network Rail – Capital Delivery
M: 07971 692629

From: John Meed <[redacted]>
Sent: 08 December 2021 09:32
To: Paul Humphrey <Paul.Humphrey@networkrail.co.uk>
Subject: Re: Cambridge Section 19 application - your letter of objection

Dear Paul

That's great, thankyou.

Just to underline - I will be as constructive as possible. My principal concern is to share my detailed knowledge of the area to reduce any impacts on biodiversity that can be readily avoided. I am though supportive of the Cambridge South station project.

Regards

John

On 7 Dec 2021, at 13:48, Paul Humphrey <Paul.Humphrey@networkrail.co.uk> wrote:

OFFICIAL

Dear John,

Thank you for the additional comments and information, we will review and revert back to you with a clearer plan detailing the areas of land we will be occupying during the construction of the Cambridge South scheme. In the interim, you may wish to review the Environmental Statement and it's appendices (Application document NR16) that we produced as part of our Transport & Works Act Order application, as this may provide you with further clarity on the background biodiversity surveys we have undertaken and our proposals for mitigating the construction and operational impacts.

The TWAO application was submitted in June 2021, and is a separate process to the section 19 notice to which you have responded. The TWAO is where we are seeking the general powers to construct and operate the scheme, whereas the section 19 application is specifically related to the acquisition of public open space, the designated areas of public open space are within Hobsons Park on the west of the railway and the grounds of the Long Road Sixth Form college located on the east of the railway just south of Long Road.

The ES and other TWAO application documents can be located on the Network Rail website using the link below.

Cambridge South station - Network Rail

Best regards,

Paul

<image001.png>

Paul Humphrey
TWAO Consents Manager
Network Rail – Capital Delivery

M: 07971 692629
paul.humphrey@networkrail.co.uk
www.networkrail.co.uk

<image002.png>

From: John Meed [redacted]>
Sent: 07 December 2021 12:39
To: Paul Humphrey <Paul.Humphrey@networkrail.co.uk>
Subject: Re: Cambridge Section 19 application - your letter of objection

Dear Paul

I have now been able to visit the site with your revised plans. Two things: it is a little difficult to match the plans in Sheet 3 with what is on the ground and I'm still not sure exactly which areas would be affected; and Sheet 3 does not give any indication of what the different areas numbered would be used for.

I attach a photograph which shows the area of greatest importance to the butterflies and other invertebrates ie between the fence and the slope up the bridge - it is possible that areas 54, 61 and even 59 on Sheet 3 may impinge on this. Please can you clarify this?

It is worth saying that some other aspects of the plans on Sheet 3 may raise biodiversity issues. For example, Hobson's Brook, the watercourse that runs from Nine Wells and under the railway line, is home to a good population of water voles. I am not clear what impact the plans will have on this, but the proposed cycle track diversion appears to necessitate a new, if temporary, bridge over the brook. You would need to assess carefully the impact that this, and any other work or storage, might have on a protected species.

Furthermore, the wider area is also home to important populations of threatened farmland birds, and the bushes along the brook and, above all, the hedge that begins at the arrow point for 070 on Sheet 3, are breeding sites for species like grey partridge and corn bunting. It would be helpful to have a clearer idea of what is planned, when, and how long the area would be affected for.

For information, I attach my interim report for this year of the ecological surveys I have been carrying out in the area for the last ten years. If it would be helpful to visit the site together I'd be happy to. Otherwise a presentation might help to clarify these issues.

Regards

John

PS I assume that you are also aware that the Greater Cambridge Partnership is currently submitting plans for a busway that would run across some of the area on Sheet 3? I'm not sure of their timescales though

<image003.jpg>

On 30 Nov 2021, at 16:08, Paul Humphrey <Paul.Humphrey@networkrail.co.uk> wrote:

OFFICIAL

Dear John,

Rachel Beard has forwarded your letter of objection to Network Rail's section 19 application and supporting document you have produced.

We have reviewed your documents and wish to point out that the embankments that support Addenbrookes Road have specifically been excluded from any land that we are temporarily occupying during construction or permanently acquiring for the Cambridge South Infrastructure Enhancements (CSIE) scheme. We have recent submitted updated Deposited Plans for the scheme (copy attached), as we have removed the proposed use of the north west embankment which led down into Hobsons Park.

All the areas that we propose to occupy or acquire are coloured in grey scale on the attached plans, please could you review these and confirm whether there are any areas detailed within your letter and document which we are proposing to use. If there are no impacted areas, would you be willing to withdraw your objection to the section 19 application?

If you feel it would be of benefit, in order for you to better understand the proposed works, we would be happy to provide you with a presentation on the CSIE scheme.

Yours sincerely,

Paul

<image001.png>

Paul Humphrey
TWAO Consents Manager
Network Rail – Capital Delivery

M: 07971 692629
paul.humphrey@networkrail.co.uk
www.networkrail.co.uk

<image002.png>

From: John Meed [redacted]>
Sent: 20 November 2021 10:45
To: Rachael Beard <Rachael.Beard@communities.gov.uk>
Subject: Re: Cambridge Section 19 application - your letter of objection

Dear Rachel

Thankyou for the email. Excuse the delay in replying - I was away last week. I attach the documents I had sent you as requested.

Just to underline - I'm not objecting to the South Cambridge station project itself, just drawing attention to the impact on biodiversity of an aspect of site compounds storage in the plans. I am sure another solution could be found for this and would be happy to discuss this with Network Rail.

Regards

John

On 17 Nov 2021, at 14:44, Rachael Beard <Rachael.Beard@communities.gov.uk> wrote:

Dear Mr Meed

Thank you for your letter of objection to the section 19 application. Would it be possible to send me your letter electronically?

Regards Rachael

Rachael Beard

Senior Planning Manager

Planning Casework Unit
Department for Levelling Up Housing & Communities
23 Stephenson Street
Birmingham
B2 4BH

<NR09 Deposited Plans and Sections Rights of Way Plans and Open Space Plan - November.pdf>

<REP11 - J Meed response.pdf>