

APPENDIX A: Breeding bird survey visit details

Table 11: Details of the breeding bird field surveys.

Visit	1	2	3	4
Surveyors*	DDL	DDL	DDL	DDL
Date	11 May 2018	25 May 2018	3 June 2018	1 July 2018
Start time	04:06	04:23	04:06	03:58
Finish time	08:03	08:59	09:19	09:15
Temp (°C)	8-10	14-16	12-16	14-23
Wind direction	SE	N/A	N/A	NE
Wind speed (kph)	<10	0	0	11
Cloud cover (%)	10	100	0	5
Snow	None	None	None	None
Rain	None	None	None	None
Notes	Fog first thing			

*Surveyors: David Darrell-Lambert (DDL)

APPENDIX B: Breeding bird species recorded during the desk study

Table 12: Breeding bird species recorded during the desk study – only records from within 2km of the site boundary and from within the last 10 years

Common name	Scientific name	Designation	Number of records	Recent summer (Apr-Jul)	Records on site?	Nearest location (distance from the centre of the site and bearing)	Confirmed breeding? (Yes, no or possible)	Potential to be breeding on the site?
Barn Owl	<i>Tyto alba</i>	WCA Sch1 Pt1, Notable Bird	6	02/07/2016	No	Bewbush Hyde Wood / Hill (1396m SW)	Y	Y
Bullfinch	<i>Pyrrhula pyrrhula</i>	NERC S41, UK BAP Priority, Bird Amber, Notable Bird	30	12/06/2011 - 26/06/2011	No	Crawley Gossops Green (894m SW)	P	Y
Common Crossbill	<i>Loxia curvirostra</i>	WCA Sch1 Pt1, Notable Bird	3	09/04/2014	No	Crawley (2445m SW)	P	Y
Corn Bunting	<i>Emberiza calandra</i>	NERC S41, UK BAP Priority, Bird Red, Notable Bird	1	09/04/2013	No	Crawley Gossops Green (1062m S)	N	Y
Cuckoo	<i>Cuculus canorus</i>	NERC S41, UK BAP Priority, Bird Red, Notable Bird	5	18/05/2016	No	Ifield nr Crawley (894m SW)	P	N
Dartford Warbler	<i>Sylvia undata</i>	Birds Dir A1, WCA Sch1 Pt1, RedList Global post2001 NT, Bird Amber, Notable Bird	2	11/03/2016	No	Faygate Holmbush Tip (2847m SW)	N	N
Dunnock	<i>Prunella modularis</i>	NERC S41, UK BAP Priority, Bird Amber, Notable Bird	55	31/05/2011	No	Crawley Gossops Green (894m SW)	Y	Y

Common name	Scientific name	Designation	Number of records	Recent summer (Apr-Jul)	Records on site?	Nearest location (distance from the centre of the site and bearing)	Confirmed breeding? (Yes, no or possible)	Potential to be breeding on the site?
Firecrest	<i>Regulus ignicapilla</i>	WCA Sch1 Pt1, Notable Bird	1	21/04/2013	No	Ifield Mill Pond (1062m S)	P	Y
Green Woodpecker	<i>Picus viridis</i>	Notable Bird	50	05/05/2016	Yes	Onsite	Y	Y
Grey Wagtail	<i>Motacilla cinerea</i>	Bird Red, Notable Bird	22	23/09/2015	No	Crawley Gossops Green (894m SW)	Y	Y
Hawfinch	<i>Coccothraustes coccothraustes</i>	NERC S41, UK BAP Priority, Bird Red, Notable Bird	1	25/02/2011	No	Buchan Country Park, Buchan Park (3047m S)	N	Y
Herring Gull	<i>Larus argentatus</i>	NERC S41 UK BAP Priority, Bird Red, Notable Bird	18	29/05/2011	No	Crawley (2766m W)	Y	Y
Hobby	<i>Falco subbuteo</i>	WCA Sch1 Pt1, Notable Bird	4	30/08/2015	No	Ifield Mill Pond (1062m S)	N	Y
House Martin	<i>Delichon urbicum</i>	Bird Amber, Notable Bird	25	06/09/2015	No	Crawley Gossops Green (894m SW)	P	Y
House Sparrow	<i>Passer domesticus</i>	NERC S41, UK BAP Priority, Bird Red, Notable Bird	51	17/05/2015	No	Crawley Gossops Green (894m SW)	Y	Y
Kestrel	<i>Falco tinnunculus</i>	Bird Amber, Notable Bird	21	12/05/2016	Yes	Onsite	P	Y

Common name	Scientific name	Designation	Number of records	Recent summer (Apr-Jul)	Records on site?	Nearest location (distance from the centre of the site and bearing)	Confirmed breeding? (Yes, no or possible)	Potential to be breeding on the site?
Kingfisher	<i>Alcedo atthis</i>	Birds Dir A1, WCA Sch1 Pt1, Bird Amber, Notable Bird	15	15/08/2015	No	Ifield Mill Pond (1062m S)	P	Y
Lapwing	<i>Vanellus vanellus</i>	NERC S41, UK BAP Priority, Bird Red, Notable Bird	3	20/04/2014	No	Faygate Holmbush Tip (2187m S)	N	Y
Lesser Black-backed Gull	<i>Larus fuscus</i>	Bird Amber, Notable Bird	4	14/05/2011	No	Crawley Manor Royal (3081m NE)	Y	Y
Lesser Redpoll	<i>Acanthis cabaret</i>	NERC S41, UK BAP Priority, Bird Red, Notable Bird	1	20/02/2011	No	Crawley (2766m W)	P	N
Lesser Spotted Woodpecker	<i>Dendrocopos minor</i>	NERC S41, UK BAP Priority, Bird Red, Notable Bird	8	05/05/2015	No	Crawley Gossops Green (1062m S)	P	Y
Linnet	<i>Linaria cannabina</i>	NERC S41, UK BAP Priority, Bird Red, Notable Bird	13	29/06/2011	No	Bewbush Hyde Wood / Hill (1396m SW)	P	Y
Little Grebe	<i>Tachybaptus ruficollis</i>	Notable Bird	1	26/04/2009	No	Rusper Oaklands Park (Surrey) (3597m NE)	P	N
Little Ringed Plover	<i>Charadrius dubius</i>	WCA Sch1 Pt1, Notable Bird	1	10/04/2009	No	Faygate Holmbush Farm (2847m SW)	N	N

Common name	Scientific name	Designation	Number of records	Recent summer (Apr-Jul)	Records on site?	Nearest location (distance from the centre of the site and bearing)	Confirmed breeding? (Yes, no or possible)	Potential to be breeding on the site?
Mallard	<i>Anas platyrhynchos</i>	Bird Amber, Notable Bird	46	23/07/2015	No	Crawley Gossops Green (894m SW)	Y	Y
Marsh Tit	<i>Poecile palustris</i>	NERC S41, UK BAP Priority, Bird Red, Notable Bird	9	15/07/2016	No	Scrag Copse, Rusper (2079m NE)	P	Y
Meadow Pipit	<i>Anthus pratensis</i>	Bird Amber, Notable Bird	2	03/04/2016	No	Faygate Holmbush Tip (2847m SW)	P	Y
Mistle Thrush	<i>Turdus viscivorus</i>	Bird Red, Notable Bird	16	24/02/2016	No	Crawley Langley Green (1547m NE)	P	Y
Mute Swan	<i>Cygnus olor</i>	Bird Amber, Notable Bird	16	24/06/2015	No	Crawley Gossops Green (894m SW)	Y	Y
Nightingale	<i>Luscinia megarhynchos</i>	Bird Red, Notable Bird	1	15/05/2012	No	Crawley Langley Green (1466m NE)	P	Y
Nightjar	<i>Caprimulgus europaeus</i>	Birds Dir A1, NERC S41, UK BAP Priority, Bird Amber, Notable Bird	2	09/06/2015	No	Crawley Bewbush (2638m S)	P	Y
Red Kite	<i>Milvus milvus</i>	Birds Dir A1, WCA Sch1 Pt1, RedList Global post2001 NT, Notable Bird	8	16/06/2017	Yes	Onsite	N	Y

Common name	Scientific name	Designation	Number of records	Recent summer (Apr-Jul)	Records on site?	Nearest location (distance from the centre of the site and bearing)	Confirmed breeding? (Yes, no or possible)	Potential to be breeding on the site?
Restart	<i>Phoenicurus phoenicurus</i>	Bird Amber, Notable Bird	1	31/07/2016	No	Crawley (2445m SW)	N	Y
Reed Bunting	<i>Emberiza schoeniclus</i>	NERC S41, UK BAP Priority, Bird Amber, Notable Bird	16	28/07/2011	No	Crawley Gossops Green (894m SW)	Y	Y
Skylark	<i>Alauda arvensis</i>	NERC S41, UK BAP Priority, Bird Red, Notable Bird	37	03/04/2016	Yes	Crawley Gossops Green (894m SW)	Y	Y
Snipe	<i>Gallinago gallinago</i>	Bird Amber, Notable Bird	1	10/04/2009	No	Faygate Holmbush Farm (2847m SW)	N	N
Song Thrush	<i>Turdus philomelos</i>	NERC S41, Bird Red, Notable Bird	61	03/05/2016	No	Crawley Gossops Green (894m SW)	Y	Y
Spotted Flycatcher	<i>Muscicapa striata</i>	NERC S41, Bird Red, Notable Bird	1	04/08/2016	No	Buchan Country Park, Buchan Park (3047m S)	Y	Y
Starling	<i>Sturnus vulgaris</i>	NERC S41, Bird Red, Notable Bird	45	03/05/2016	No	Crawley Gossops Green (894m SW)	Y	Y
Stock Dove	<i>Columba oenas</i>	Bird Amber, Notable Bird	32	15/07/2016	Yes	Onsite	P	Y
Swallow	<i>Hirundo rustica</i>	Notable Bird	23	31/07/2011	No	Crawley Gossops Green (894m SW)	P	Y

Common name	Scientific name	Designation	Number of records	Recent summer (Apr-Jul)	Records on site?	Nearest location (distance from the centre of the site and bearing)	Confirmed breeding? (Yes, no or possible)	Potential to be breeding on the site?
Swift	<i>Apus apus</i>	Bird Amber, Notable Bird	19	24/05/2015	No	Crawley Gossops Green (894m SW)	Y	Y
Tawny Owl	<i>Strix aluco</i>	Bird Amber, Notable Bird	17	15/07/2016	No	Crawley Gossops Green (894m SW)	Y	Y
Tufted Duck	<i>Aythya fuligula</i>	Notable Bird	1	25/09/2011	No	Ifield Mill Pond (1062m S)	N	N
Wheatear	<i>Oenanthe oenanthe</i>	Notable Bird	1	29/06/2011	No	Gatwick Airport (3696m NE)	N	N
Whitethroat	<i>Sylvia communis</i>	Notable Bird	41	26/06/2011	Yes	Onsite	Y	Y
Willow Warbler	<i>Phylloscopus trochilus</i>	Bird Amber, Notable Bird	20	05/05/2016	No	Ifield Mill Pond (1062m S)	P	Y
Wood Warbler	<i>Phylloscopus sibilatrix</i>	NERC S41, Bird Red, Notable Bird	5	12/05/2013	No	Crawley (2445m SW)	P	Y
Yellowhammer	<i>Emberiza citrinella</i>	NERC S41, Bird Red, Notable Bird	14	31/07/2011	No	Crawley Gossops Green (894m SW)	P	Y

RedList Global post2001 NT – IUCN Red listed species (Near Threatened); WCA Sch1 Pt1 – Wildlife & Countryside Act (1981, as amended) Schedule 1 Part 1; NERC S41 – Natural Environment & Rural Communities Act (2006) Section 41; Bird Red – BoCC Red list; Bird Amber – BoCC Amber list; Notable Bird – Sussex BAP

APPENDIX C: Key habitats for breeding birds

Table 13: Key habitats on site for breeding birds

Habitat	Description	Potential value to breeding birds
Arable	<p>Six arable fields are present within the southern and middle sections of the proposed development. At the time of survey, the fields supported Barley crops (<i>Hordeum vulgare</i>).</p>	<p>Foraging habitat for a range of bird species, especially farmland birds.</p> <p>A limited subset of species will nest in this habitat.</p> <p>The management of this habitat impacts greatly upon its value for birds.</p>
Broadleaved plantation woodland / mixed plantation woodland / broadleaved semi-natural woodland	<p>Two areas of semi-mature broadleaved plantation woodland containing trees of mixed ages were recorded along the north-western boundary of the proposed development. Within Ifield Golf Course were areas of young plantation woodland.</p> <p>Areas of semi-natural broadleaved woodland were recorded throughout the proposed development site as large and small stands and as small strips between field boundaries.</p>	<p>Woodlands are important for a range of bird species, for both nesting and foraging.</p>
Dense / continuous scrub	<p>Dense scrub and scattered scrub vegetation was recorded frequently across the proposed development and typically occurred between grassland margins and woodland edges and along field boundaries.</p>	<p>This habitat can support bird nesting, particularly of 'farmland' and urban birds.</p>
Hedgerows	<p>Thirty-eight hedgerows were recorded across the proposed development site. These were located within Ifield Golf Course, arable fields, and within the fields of semi-improved grassland. Many of the hedgerows also contained mature trees.</p>	<p>Hedgerows can provide foraging and nesting opportunities for birds.</p>
Riparian corridor and running water	<p>The River Mole was recorded through the northern section of the proposed development site flowing west to east through areas of broadleaved woodland, semi-improved grassland.</p> <p>Ifield Brook and Ifield Mill Stream run along the western section of the proposed development flow south to north through broadleaved woodland.</p> <p>Hyde Hill stream runs along the southern boundary of Ifield Golf Course at the time of survey the stream held small pools of water and was mostly dry.</p>	<p>This habitat provides a range of foraging and nesting opportunities. This includes nesting opportunities for kingfisher and foraging habitat.</p>
Semi improved grassland	<p>Significant areas of neutral semi-improved grassland were identified across the proposed development site, to the north, east and north west with a small section recorded in the centre.</p>	<p>This habitat is of some value for bird foraging, and dependent upon management, this habitat may have some suitability for ground nesting birds.</p>

Habitat	Description	Potential value to breeding birds
	Fields throughout the site, including on Ifield Golf Course, supported species-poor grassland including fields within the northern section of the proposed development site.	
Standing water	<p>Seven ponds were recorded across the proposed development site, ranging in size, but all permanent.</p> <p>Numerous ditches and drains were recorded across the proposed development; however, at the time of survey the majority were dry or held very little water.</p>	<p>This habitat is important for a range of species. It can provide feeding resources for wildfowl, areas where birds can aggregate (particularly transitory wildfowl).</p> <p>Species can nest on the periphery of this habitat, including kingfisher.</p>

APPENDIX D: Birds recorded during the 2018 breeding bird surveys

Table 14: Birds recorded during the 2018 breeding bird surveys

Common name	Latin name	Total number of birds recorded
Blackcap	<i>Sylvia atricapilla</i>	75
Blue tit	<i>Parus caeruleus</i>	63
British wren	<i>Troglodytes troglodytes</i>	201
Carriion crow	<i>Corvus corone</i>	21
Chaffinch	<i>Fringilla coelebs</i>	23
Coal tit	<i>Periparus ater</i>	18
Common chiffchaff	<i>Phylloscopus collybita</i>	46
Common kestrel	<i>Falco tinnunculus</i>	2
Common linnet	<i>Linaria cannabina</i>	12
Common magpie	<i>Pica pica</i>	38
Common swift	<i>Apus apus</i>	43
Common whitethroat	<i>Sylvia communis</i>	30
Dunnock	<i>Prunella modularis</i>	70
Eurasian blackbird	<i>Turdus merula</i>	161
Eurasian bullfinch	<i>Pyrrhula pyrrhula</i>	17
Eurasian buzzard	<i>Buteo buteo</i>	3
Eurasian collared dove	<i>Streptopelia decaocto</i>	5
Eurasian common moorhen	<i>Gallinula chloropus</i>	6
Eurasian green woodpecker	<i>Picus viridis</i>	7
Eurasian jackdaw	<i>Corvus monedula</i>	160
Eurasian jay	<i>Garrulus glandarius</i>	16
Eurasian nuthatch	<i>Sitta europaea</i>	26
Eurasian reed warbler	<i>Acrocephalus scirpaceus</i>	1
Eurasian skylark	<i>Alauda arvensis</i>	1
Eurasian swallow	<i>Hirundo rustica</i>	4

Common name	Latin name	Total number of birds recorded
Eurasian treecreeper	<i>Certhia familiaris</i>	10
European goldfinch	<i>Carduelis carduelis</i>	38
European greenfinch	<i>Chloris chloris</i>	16
European herring gull	<i>Larus argentatus</i>	47
European robin	<i>Erithacus rubecula</i>	183
European starling	<i>Sturnus vulgaris</i>	67
Garden warbler	<i>Sylvia borin</i>	6
Goldcrest	<i>Regulus regulus</i>	22
Great spotted woodpecker	<i>Dendrocopos major</i>	36
Great tit	<i>Parus major</i>	69
Greater Canada goose	<i>Branta canadensis</i>	52
Grey heron	<i>Ardea cinerea</i>	2
Grey wagtail	<i>Motacilla cinerea</i>	3
House sparrow	<i>Passer domesticus</i>	1
Lesser whitethroat	<i>Sylvia curruca</i>	5
Long-tailed tit	<i>Aegithalos caudatus</i>	4
Mallard	<i>Anas platyrhynchos</i>	24
Mandarin duck	<i>Aix galericulata</i>	4
Mistle thrush	<i>Turdus viscivorus</i>	24
Northern house martin	<i>Delichon urbicum</i>	1
Pied wagtail	<i>Motacilla alba</i>	6
Ring-necked pheasant	<i>Phasianus colchicus</i>	33
Song thrush	<i>Turdus philomelos</i>	105
Stock dove	<i>Columba oenas</i>	28
Tawny owl	<i>Strix aluco</i>	1
Western lesser black-backed gull	<i>Larus fuscus</i>	1
Woodpigeon	<i>Columba palumbus</i>	374

Common name	Latin name	Total number of birds recorded
Yellow wagtail	<i>Motacilla flava</i>	1
Yellowhammer	<i>Emberiza citrinella</i>	5
Grand Total		2217

APPENDIX E: Barn owl building inspection survey results

ID	Building description	Potential for barn owl to be present	Further survey undertaken	Number of entry features	Nesting/roosting feature(s) present?	Signs present?	Temporary resting site?	Roost or breeding site?	Photographs
B1	Golf clubhouse	No	No	N/A	N/A	N/A	N/A	N/A	
B2	Golf office/changing rooms/residential flats	No	No	N/A	N/A	N/A	N/A	N/A	

ID	Building description	Potential for barn owl to be present	Further survey undertaken	Number of entry features	Nesting/roosting feature(s) present?	Signs present?	Temporary resting site?	Roost or breeding site?	Photographs
B3	Residential house	No	No	N/A	N/A	N/A	N/A	N/A	

ID	Building description	Potential for barn owl to be present	Further survey undertaken	Number of entry features	Nesting/roosting feature(s) present?	Signs present?	Temporary resting site?	Roost or breeding site?	Photographs
B4	Golf office/changing rooms/residential flats	No	No	N/A	N/A	N/A	N/A	N/A	
B5	STRUCTURE LOCATED OFF-SITE- NO SURVEY	N/A	N/A	N/A	N/A	N/A	N/A	N/A	STRUCTURE LOCATED OFF-SITE- NO SURVEY
B6	Golf course stores	Yes	Yes	1	Roosting only	No	No	Roosting potential.	

ID	Building description	Potential for barn owl to be present	Further survey undertaken	Number of entry features	Nesting/roosting feature(s) present?	Signs present?	Temporary resting site?	Roost or breeding site?	Photographs
B7	Walled barn with open door used for hay bale storage	Yes	Yes	2	Roosting only	No	No	Roosting potential	 

ID	Building description	Potential for barn owl to be present	Further survey undertaken	Number of entry features	Nesting/roosting feature(s) present?	Signs present?	Temporary resting site?	Roost or breeding site?	Photographs
B8	Open sided barn used for hay bale storage	Yes	Yes	Open-sided	Roosting only	Potential – barn owl or kestrel	No	Low potential for roosting.	 

ID	Building description	Potential for barn owl to be present	Further survey undertaken	Number of entry features	Nesting/roosting feature(s) present?	Signs present?	Temporary resting site?	Roost or breeding site?	Photographs
									
B9	Small old workshop or barn	No	No	N/A	N/A	N/A	N/A	N/A	
B10	Recent <2yr old barn. Storage.	No	No	N/A	N/A	N/A	N/A	N/A	

ID	Building description	Potential for barn owl to be present	Further survey undertaken	Number of entry features	Nesting/roosting feature(s) present?	Signs present?	Temporary resting site?	Roost or breeding site?	Photographs
B11	Barn – used as a workshop	Yes	Yes	2	Roosting and Nesting	No	No	Unlikely to be used due to high level of activity on site - active plant nursery and workshops. Anecdotal evidence - Mr Thrift said that a grey owl was found perched on a beam inside the building a few years ago, cannot determine if barn owl or not.	 
B12	Corrugated metal skin storage shed	No	No	N/A	N/A	N/A	N/A	N/A	

ID	Building description	Potential for barn owl to be present	Further survey undertaken	Number of entry features	Nesting/roosting feature(s) present?	Signs present?	Temporary resting site?	Roost or breeding site?	Photographs
B13	Community Theatre	No	No	N/A	N/A	N/A	N/A	N/A	
B14	Small stables	Yes	Yes	1	Roosting only	None certain	No	Low potential to roost.	 

ID	Building description	Potential for barn owl to be present	Further survey undertaken	Number of entry features	Nesting/roosting feature(s) present?	Signs present?	Temporary resting site?	Roost or breeding site?	Photographs
B15	Barn	Yes	Yes	1	Roosting only	None certain	No	Low potential to roost.	
B16	residential house	No	No	N/A	N/A	N/A	N/A	N/A	

ID	Building description	Potential for barn owl to be present	Further survey undertaken	Number of entry features	Nesting/roosting feature(s) present?	Signs present?	Temporary resting site?	Roost or breeding site?	Photographs
B17	residential house	No	No	N/A	N/A	N/A	N/A	N/A	
B17b	Outhouse	No	No	N/A	N/A	N/A	N/A	N/A	
B18	shed	No	No	N/A	N/A	N/A	N/A	N/A	

ID	Building description	Potential for barn owl to be present	Further survey undertaken	Number of entry features	Nesting/roosting feature(s) present?	Signs present?	Temporary resting site?	Roost or breeding site?	Photographs
B19	shed	No	No	N/A	N/A	N/A	N/A	N/A	
B20	Workshop / storage	Yes	Yes	1	Roosting only	No	No	Potential for roosting, but no internal access available.	 

ID	Building description	Potential for barn owl to be present	Further survey undertaken	Number of entry features	Nesting/roosting feature(s) present?	Signs present?	Temporary resting site?	Roost or breeding site?	Photographs
B21a	Old wooden barn used for hay storage	Yes	Yes	1	Roosting and Nesting	Droppings and pellets	Old signs	Low potential for breeding.	

ID	Building description	Potential for barn owl to be present	Further survey undertaken	Number of entry features	Nesting/roosting feature(s) present?	Signs present?	Temporary resting site?	Roost or breeding site?	Photographs
									 A photograph showing the interior of a barn with a stack of large, round hay bales. The bales are stacked in several rows, filling the frame. The barn has a wooden floor and a visible wooden beam structure on the ceiling. The lighting is natural, coming from an unseen source, creating shadows and highlights on the bales.

ID	Building description	Potential for barn owl to be present	Further survey undertaken	Number of entry features	Nesting/roosting feature(s) present?	Signs present?	Temporary resting site?	Roost or breeding site?	Photographs
B21b	Complex of joined Workshops and barns	No	No	N/A	N/A	N/A	N/A	N/A	 

ID	Building description	Potential for barn owl to be present	Further survey undertaken	Number of entry features	Nesting/roosting feature(s) present?	Signs present?	Temporary resting site?	Roost or breeding site?	Photographs
B21c	Small barn part of complex	Yes	Yes	1	Roosting only	Droppings (not confirmed barn owl)	No	Potential to be used for roosting. Age of use uncertain as droppings only evidence – also cannot confirm barn owl except that connected barn contained 1 barn owl pellet (B21a).	 
B22	Other dilapidated building - Abandoned workshop	Yes	Yes	Many	Unknown – derelict building unsafe to enter.	Unknown	Unknown	Likely to be access for owls to loft space. Breeding possible but unlikely due to heavy use by pigeons.	

ID	Building description	Potential for barn owl to be present	Further survey undertaken	Number of entry features	Nesting/roosting feature(s) present?	Signs present?	Temporary resting site?	Roost or breeding site?	Photographs
B23	Barn - Open structure	Yes	Yes	1	Roosting only	None certain	No	Low potential for roosting.	
B24	Shed	No	No	N/A	N/A	N/A	N/A	N/A	
B25	Residential house	No	No	N/A	N/A	N/A	N/A	N/A	

ID	Building description	Potential for barn owl to be present	Further survey undertaken	Number of entry features	Nesting/roosting feature(s) present?	Signs present?	Temporary resting site?	Roost or breeding site?	Photographs
B26	Modern open structure. Cattle shed.	Yes	Yes	1	Roosting only	No	No	Low potential for roosting.	 

APPENDIX F: Breeding bird survey visit total of all birds recorded per survey 'visit'

Table 15: Details of bird species recorded during each breeding bird survey N.B. Peak counts are highlighted

Species	11/5/18	25/5/18	3/6/18	1/7/18	Total count
Blackcap	16	17	23	19	75
Blue tit	16	16	18	13	63
British wren	37	59	67	38	201
Carriion crow	3	4	10	4	21
Chaffinch	6	8	6	3	23
Coal tit	5	3	3	7	18
Common chiffchaff	2	16	14	14	46
Common kestrel			1	1	2
Common linnet	4	1	6	1	12
Common magpie	9	12	6	11	38
Common swift		40	1	2	43
Common whitethroat	5	7	10	8	30
Dunnock	9	21	16	24	70
Eurasian blackbird	25	53	53	30	161
Eurasian bullfinch	1	5	3	8	17
Eurasian buzzard		1	1	1	3
Eurasian collared dove		2	3		5
Eurasian common moorhen		3	1	2	6
Eurasian green woodpecker	3	1	2	1	7
Eurasian jackdaw	14	10	17	119	160
Eurasian jay	1	3	5	7	16
Eurasian nuthatch	1	3	12	10	26
Eurasian reed warbler		1			1
Eurasian skylark			1		1
Eurasian swallow		1		3	4

Species	11/5/18	25/5/18	3/6/18	1/7/18	Total count
Eurasian treecreeper	2	3	1	4	10
European goldfinch	7	7	14	10	38
European greenfinch	3	4	5	4	16
European herring gull		40		7	47
European robin	37	70	50	26	183
European starling	15	4	46	2	67
Garden warbler	3	2	1		6
Goldcrest	3	8	5	6	22
Great spotted woodpecker	3	11	11	11	36
Great tit	8	23	21	17	69
Greater canada goose	4	15	33		52
Grey heron		1	1		2
Grey wagtail	1		1	1	3
House sparrow		1			1
Lesser whitethroat	1	2	1	1	5
Long-tailed tit	1	3			4
Mallard	13	6	5		24
Mandarin duck	2		2		4
Mistle thrush	2	6	7	9	24
Northern house martin		1			1
Pied wagtail			5	1	6
Ring-necked pheasant	11	11	7	4	33
Song thrush	17	34	22	32	105
Stock dove	3	10	8	7	28
Tawny owl	1				1
Western lesser black-backed gull			1		1
Woodpigeon	20	163	64	127	374

Species	11/5/18	25/5/18	3/6/18	1/7/18	Total count
Yellow wagtail		1			1
Yellowhammer	1	1	3		5
Grand Total	315	714	593	595	2217

APPENDIX G: BTO species codes utilised in the mapping

Table 16. BTO species codes utilised in the mapping

BTO code	Species	BTO code	Species	BTO code	Species
B.	Eurasian Blackbird	J.	Eurasian Jay	TO	Tawny Owl
BC	Blackcap	JD	Eurasian Jackdaw	WH	Common Whitethroat
BF	Eurasian Bullfinch	K.	Common Kestrel	WP	Woodpigeon
BT	Blue Tit	LB	Western Lesser Black-backed Gull	WR	British Wren
BZ	Eurasian Buzzard	LI	Common Linnet	Y.	Yellowhammer
C.	Carrion Crow	LT	Long-tailed Tit	YW	Yellow Wagtail
CC	Common Chiffchaff	LW	Lesser Whitethroat		
CD	Eurasian Collared Dove	M.	Mistle Thrush		
CG	Greater Canada Goose	MA	Mallard		
CH	Chaffinch	MG	Common Magpie		
CT	Coal Tit	MH	Eurasian Common Moorhen		
D.	Dunnock	MN	Mandarin Duck		
G.	Eurasian Green Woodpecker	NH	Eurasian Nuthatch		
GC	Goldcrest	PH	Ring-necked Pheasant		
GL	Grey Wagtail	PW	Pied Wagtail		
GO	European Goldfinch	R.	European Robin		
GR	European Greenfinch	RW	Eurasian Reed Warbler		
GS	Great Spotted Woodpecker	S.	Eurasian Skylark		
GT	Great Tit	SD	Stock Dove		
GW	Garden Warbler	SG	European Starling		
H.	Grey Heron	SI	Common Swift		
HG	European Herring Gull	SL	Eurasian Swallow		
HS	House Sparrow	ST	Song Thrush		
HM	Northern House Martin	TC	Eurasian Treecreeper		

APPENDIX H: Pen portraits of key surveyors

Table 17: Pen portraits of key surveyors

Surveyor	CV details
David Darrell Lambert	David has over 30 years field experience and has travelled all over Britain as well as overseas surveying a range of birds and wildlife. David has an excellent knowledge of all British breeding birds and migratory species. David is a Schedule 1 licence holder for barn owl for England, this has been extended for other species including black redstart and little ringed plover.
Porscha Thompson ACIEEM (Graduate Ecologist) MSc BSc (Hons)	Porscha has experience in assessing sites for potential ecological impacts and is able to provide appropriate recommendations and mitigation in order to reduce potential impacts. Porscha has experience in undertaking a range of protected species surveys including bats, great crested newts (GCN), dormice, reptiles and badger surveys, phase 1 habitat surveys and ecological clerk of works and has a keen interest in botany. She also has strong report writing, desk study and coordination skills. She currently holds a Class 1 Natural England GCN licence, is an accredited agent of a Natural Resources Wales GCN licence and bat licence.
Siân Carr MCIEEM (Senior Ecologist) PhD BSc (Hons)	Siân has over 10 years' experience as an ecological consultant working on both public and private sector projects of various scales. These roles have provided her with a wide range of technical experience, and a thorough understanding of environmental legislation and excellent organisational skills. She has expertise in a range of species surveys, including badgers and produced numerous technical reports, including habitat assessments, species specific reports including mitigation strategies and method statements
Julie Player ACIEEM (Ecologist) BSc (Hons)	Julie has 6 years' experience as an ecological consultant working on both public and private sector projects. Julie has significant experience of undertaking surveys for protected species. These roles have provided her with a wide range of technical experience, has significant experience in undertaking surveys for protected species, a thorough understanding of environmental legislation, Ecological and Environmental Clerk of Works and excellent organisation skills. Julie is experienced in producing technical reports, including habitat assessments, species specific reports including mitigation strategies, method statements and species licenses.
Ewan Gibson BSc (hons) Grad CIEEM	Ewan Gibson is an ecologist with a broad range of ecological experience. Ewan has been a professional ecologist for 3 years and has conducted surveys for a range of species, including bats, badger, dormouse, amphibians and reptiles, as well as being licensed to survey for barn owl.

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APPENDIX 8.19: LAND WEST OF IFIELD – WINTERING BIRD SURVEY

LAND WEST OF IFIELD

Wintering Bird Survey

NOVEMBER 2019



Land West of Ifield – Wintering Bird Survey

Author Liam Price

Checker Brandon Murray

Approver Samantha Walters

Report Reference WOI-AUK-XX-WS-RP-EC-0012-01-Wintering Bird Survey Report

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Executive Summary

Arcadis Consulting (UK) Limited was commissioned on behalf of Homes England to undertake a survey for wintering birds on the land associated with a proposed housing development west of Ifield, Crawley, West Sussex. This report has been prepared to inform a proposed masterplan.

The proposed development comprises the construction of approximately 3000 residential dwellings, three schools (two primary and one secondary) and associated infrastructure.

The proposed development site is located to the west of Ifield, Crawley (central grid reference – TQ 24133 37360). The site which covers approximately 200ha and supports a range of habitats including semi-improved grassland, arable fields, amenity grassland, woodland, grazing pasture, a network of hedgerows and several ponds. The River Mole flows west to east through the north of the site, and Ifield Brook, flows south to north through the west of the site. Rusper Road passes through the south of the site. The site is situated to the north-west of the A23 (Crawley Avenue) and is bordered by residential properties to the east, farmland to the west and woodland to the north and south.

This report presents the results of the wintering bird surveys undertaken by Arcadis over the winter season of 2018-2019. The surveys found that the site supported a varied assemblage of wintering birds, with a total of 50 species recorded on site. Of these, 18 were considered notable. On average, around 1110 birds were recorded on each of the four surveys. A limited assemblage of wintering farmland birds was recorded.

As would be expected with a heterogeneous site of this nature, activity levels varied across the site, corresponding with the habitats present and the species which utilise these habitats. The highest densities of birds were clustered around the riparian corridors, the areas of grassland (particularly in the east of the site), and the woodland areas on Ifield Golf Course.

1 Introduction

1.1 Overview

Arcadis Consulting (UK) Ltd, working on behalf of Homes England, was instructed to undertake ecological surveys to inform a proposed masterplan for residential use on land to the west of Ifield, West Sussex.

The aim of the survey was to undertake a wintering bird survey within the proposed development site boundary. This report details the results of this survey and where appropriate design considerations to inform the development of the scheme.

1.2 Site Location and Setting

The proposed development site is located to the west of Ifield, Crawley (central grid reference - TQ 24133 37360) (see Image 1 for the site location and survey boundary).

The site which covers approximately 200 ha in total supports a range of habitats including semi-improved grassland, arable fields, amenity grassland, woodland, grazing pasture, a network of hedgerows and several ponds. The River Mole flows west to east through the north of the site, and Ifield Brook, runs flows south to north through the west of the site. Rusper Road passes through the south of the site.

The site is situated to the north-west of the A23 (Crawley Avenue) and is bordered by residential properties to the east, farmland to the west and woodland to the north and south.

An aerial image illustrating the site surveyed is presented in Image 1.



Image 1: Aerial imagery of the site

1.3 Proposed Development

The proposed development comprises the construction of approximately 3000 residential dwellings, three schools (two primary and one secondary) and associated infrastructure.

1.4 Overview of bird biology

Within the UK, it is estimated that 247 bird species are regularly recorded within the UK and are assessed within the Birds of Conservation Concern (BoCC) surveys and assessments, see section 1.6.1. The biology of these species varies greatly, and they can be split into four broad categories:

- Resident birds, which spend the entire year within the UK;
- Summer visitors who usually breed within the UK;
- Winter visitors, who breed elsewhere and migrate to the UK for winter;
- Passage migrants, which visit the UK at certain times of year, particularly, spring and autumn.

It must be noted that the assemblage of birds within areas of the UK varies, dependent upon the habitats present and climate.

In addition, the habitats utilised by different bird species vary greatly, dependent upon the breeding habits, feeding resources utilised and lifecycle of each species. Considering the habitats present within the site, the key bird groups which were considered and surveyed were:

- Breeding farmland birds;
- Breeding woodland birds;
- Breeding birds associated with the riparian and other aquatic areas of the site;
- Wintering birds foraging on the farmland and present within the woodland;
- Wintering birds associated with the aquatic features on the site.

For details of the breeding bird surveys conducted on the site, please refer to the associated report (ES Appendix 7.9).

1.5 Applicable bird legislation and policy

The following legislation concerning bird species is relevant to this report:

In the UK, all wild bird species and their eggs are protected when nesting by law under Section 1 of the Wildlife and Countryside Act (WCA) 1981 (as amended) (HMSO, 1981). In addition, there are several pieces of legislation or policy which afford certain species extra legal protection, or emphasise their conservation importance, as outlined below:

- Species that have additional protections when breeding under Schedule 1 Part 1 of the WCA.
- Species of Principal Importance for Nature Conservation listed under Section 41 of the 2006 Natural Environment and Rural Communities (NERC) Act (HMSO, 2006).

Certain species of plants and animals that do not naturally occur in Great Britain have become established in the wild and represent a threat to the natural fauna and flora. Species listed on Schedule 9 of the WCA are especially harmful to native wildlife.

1.6 Conservation status

1.6.1 General bird conservation

It is difficult to place an overall trend on bird conservation status, as the large number of species within the UK each have varying requirements and whilst some are adversely affected by changes in habitat management, urban development and climate change, others benefit. However, reviewing the overall status of the UK's birds can be achieved by reviewing the BoCC list (last updated in 2015) this gives an indication of the status of birds known to be resident in the UK (Eaton et al., 2015).

Species that are of high nature conservation concern, listed as 'Red-List' and 'Amber-list' on the Royal Society for the Protection of Birds (RSPB) list of Birds of Conservation Concern (BoCC). This non-legislative system was derived from the review of the population status of bird species that are regularly found breeding within the United Kingdom, using data from national monitoring schemes. A brief outline of the conservation criteria is given below in Table 1.

Table 1: Outline of BoCC criteria

Criteria	Status
Red	Globally threatened
	Historical population decline in UK during 1800–1995
	Rapid (> or =50%) decline in UK breeding population over last 25 years Rapid (> or =50%) contraction of UK breeding range over last 25 years
Amber	Moderate (25-49%) decline in UK breeding population over last 25 years
	Moderate (25-49%) contraction of UK breeding range over last 25 years
	Moderate (25-49%) decline in UK non-breeding population over last 25 years
	Species with unfavourable conservation status in Europe (SPEC = Species of European Conservation Concern)
	Five-year mean of 1–300 breeding pairs in UK
	> or =50% of UK breeding population in 10 or fewer Sites, but not rare breeders
	> or =50% of UK non-breeding population in 10 or fewer Sites
Green	> or =20% of European breeding population in UK
	> or =20% of NW European (wildfowl), East Atlantic Flyway (waders) or European (others) non-breeding populations in UK
Green	No identified threat to the population's status

In 2015, of the 247 species considered, 67 species were on the red list, 96 were on the amber list and 84 were on the green list (for an explanation of the categories refer to Table 1). Overall, although there was an increase in the number of bird species on the 'green list', there was also an increase in species on the 'red list' (an increase of 15 species since the data was last analysed in 2009). This is indicative of an overall negative trend in the status of bird populations overall in the UK. This trend appears to be a continuous trend since the first data was analysed in 1996. This is presented in Image 2 below, which shows the proportion of the UK bird species list in each of the BoCC categories since 1996.

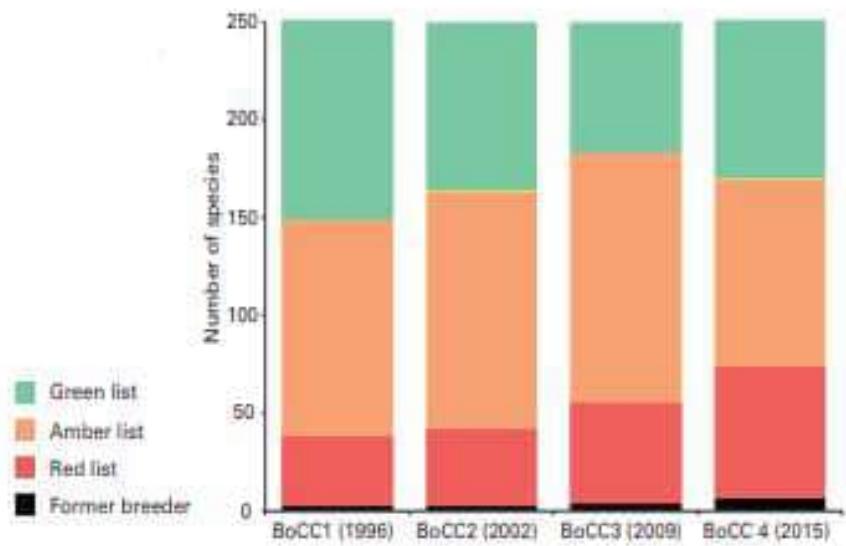


Image 2: The status of British bird species within the BoCC categorisation 1996 – 2015 extracted from Eaton et al. (2015)

The sections below show the status of three broad groupings of bird species with the UK relevant to the site, their current status and identified conservation issues.

1.6.2 Farmland bird conservation

Farmland birds have undergone a significant decline in numbers since the 1950's. The RSPB farmland bird indicator (RSPB, 2018) suggests that farmland bird numbers have declined by 48% between 1970 and 2007, and declined by 9% between 2010 and 2015. The European turtle dove (*Streptopelia turtur*), grey partridge (*Perdix perdix*), corn bunting (*Emberiza calandra*) and Eurasian tree sparrow (*Passer montanus*) populations have declined by more than 80%.

It is considered that this decline is not solely due to loss of farmland, but primarily due to intensification in agriculture, loss of hedgerows and changes in farming practices (such as the loss of field margins and increasing planting of winter sown crops, which reduce the availability of feeding resources over winter).

1.6.3 Woodland bird conservation

Woodland birds are calculated to have declined by up to 23% between 1970 and 2015 (Hayhow et al., 2017). There are more birds of woodland habitats on the BoCC red list than of any other habitat. There are potentially multiple causes for this decline, from a loss of habitat, climate change and changes in management within woodlands have significantly affected birds.

1.6.4 Waterfowl and wetland bird conservation

Wetland bird populations overall are estimated to have declined by 8% between 1975 and 2015 (Hayhow et al., 2017). The causes of this decline are many and varied, largely due to the extremely variable nature of the biology of the individual species in this group. Declines may have been caused by persecution across the species range (particularly for migratory species), changes in habitats (due to different management, climate change or urban development) and changes in availability of feeding resources. Overall, it appears that generalist species (i.e. those which do not have specific habitat or feeding requirements) are not declining or declining less than more specialist species. There is also potential that declines may be accounted for by fewer species migrating to the UK due to climate change.

2 Approach and Methodology

2.1 Desk Study

A desk study was undertaken to review existing information. Information was provided by the Sussex Biological Records Centre (SBRC) for birds recorded over winter within a 2km radius of the site as recommended in the Institute of Environmental Assessment's 'Guidelines for Baseline Ecological Assessment' (1997) and CIEEM's (Chartered Institute of Ecology and Environmental Management) Guidelines for Preliminary Ecological Appraisal (2013 revision). Further, only records from within the last 10 years were obtained.

In addition, the Multi-Agency Geographic Information for the Countryside database (MAGIC, 2019) was searched for statutory designated sites which are present within 10km of the site and designated for their bird value. The results of this desk study are presented in Section 3.

2.2 Habitat assessment

An initial habitat assessment was carried out to identify key habitat areas, including likely foraging areas during a series of visits to the site in May, June and July 2018 by Porscha Thompson ACIEEM, Siân Carr MCIEEM and Julie Player ACIEEM. This was done in conjunction with extended Phase 1 Habitat Surveys. Pen portraits of key surveyors are presented in Appendix E.

2.3 Field Survey

2.3.1 Wintering bird field survey

The survey work consisted of walked transect surveys, following methods adapted from Gilbert et al. (1998). Surveys were carried out by a suitably experienced bird surveyor; David Darrell-Lambert (with over 30 years of bird survey experience). A pen portrait for David is presented in Appendix E.

Surveys were undertaken between November 2018 and February 2019 (inclusive). Surveys were undertaken once a month, with at least a two week gap between surveys. The surveys were timed to take place across a variety of weather conditions to obtain a representative picture of bird numbers and activity.

Transects were walked at a constant pace and birds seen or heard were identified and counted. All bird species were mapped and recorded using standard British Trust for Ornithology (BTO) species and behaviour codes (BTO species codes are presented in Appendix D). The data was recorded digitally on hand-held computers with mobile GIS and GPS capability. The starting point remained the same for each of the surveys, but the direction the transects were walked was varied to ensure that all parts of the site were surveyed (transect passed within 100m) at varying times of day across the surveys.

2.4 Survey Limitations

2.4.1 Desk study

Desk study records do not constitute a full list of the species which are present within an area. The absence of a record does not necessarily demonstrate the absence of a species.

2.4.2 Field survey

During the breeding bird surveys, it was not possible to access all the site. Small portions were inaccessible in the north east of the site. Mist was present initially during the survey on 14 February 2019; however, birdsong could still be heard, and the mist quickly lifted. It is considered that this did not impact upon the validity of the results of the survey.

3 Results

3.1 Desk Study

3.1.1 Designated sites with relevance to birds

3.1.1.1 International statutory designated sites within 10km

No internationally designated sites were present within 10km of the site. The nearest is Mole Gap to Reigate Escarpment SAC, approximately 13km to the north.

3.1.1.2 National statutory designated sites within 2km

There are three statutory designated sites within 2km of the proposed development site:

- House Copse SSSI (0.67km S);
- Buchan Hill Ponds SSSI (1.6km S); and
- Target Hill Park Local Nature Reserve (LNR) (1.9km SE).

Notable bird species, such as common linnet (*Linaria cannabina*) and yellowhammer (*Emberiza citrinella*), are known to be present within Target Hill Park LNR. However, this area is separated from the site by 1.9km of urban land, while abundant woodland and grassland lie to the south. As such it is considered unlikely that the site is significantly utilised by birds from the LNR.

3.1.1.3 Non-statutory designated sites within 1km

A total of seven non-statutory designated sites of nature conservation importance are present within 1km of the site, details of which are presented in Table 2 below. Given the habitats present in these areas, their distance from the site and the potential bird populations to have linkages with the habitats on the site, all seven of these sites have the potential to support bird populations linked to the wintering bird assemblage using the site.

Table 2: Non-statutory designated sites with the potential to be linked / be impacted by works on the Land West of Ifield site within 1km.

Site Name	Designation	Distance (m)	Direction	Notes
Ifield Brook Wood and Meadows LWS	LWS	0m – within the proposed development boundary	-	<p>The site incorporates relatively herb-rich meadows enclosed by thick hedges, Ifield Brook itself and some woodland. The value of the site lies in its combination of different habitats, the relatively unimproved nature of many of the fields and its proximity to a large town.</p> <p>The mosaic of different habitats are likely to be of use to wintering birds.</p>
Hyde Hill LWS	LWS	0m – partially within the proposed development boundary	-	<p>The site which lies just west of Crawley is of considerable local importance to nature conservation and has been selected as an urban SNCI. The combination of habitats, with semi-natural woodland, thick hedgerows, streams and rough grassland, is an important feature. The site supports uncommon plants and butterflies, plus a diversity of breeding birds.</p>

Site Name	Designation	Distance (m)	Direction	Notes
Ifield Pond and surroundings LWS	LWS	120m	South	<p>This large pond, situated on the edge of Crawley, is of considerable local importance notably on account of its birdlife, dragonflies and amphibians. The pond is bisected by a railway line. The main pond is south of the railway, though the area to the north is also of great wildlife value.</p> <p>The riparian habitats are likely to be of use to foraging birds.</p>
Willoughby Fields LWS	LWS	332m	North east	<p>Willoughby Fields is a large site containing several unimproved grassland fields with a network of hedgerows, areas of scrub and small copses that lies between the River Mole and an unnamed stream on the outskirts of Langley Green in Crawley. A considerable amount of tree and hedge planting has been carried out on the site.</p> <p>The mosaic of different habitats are likely to be of use to foraging birds.</p>
Wood near Lower Prestwood Farm LWS	LWS	463m	North west	<p>This woodland is dominated by Hornbeam (<i>Carpinus betulus</i>) and Ash (<i>Fraxinus excelsior</i>), mainly as trees grown from coppice. There are very few mature standards remaining as most have been felled. Birch (<i>Betula sp.</i>) and particularly Sycamore (<i>Acer pseudoplatanus</i>) are also frequent in some areas. The shrub layer, consisting of several species, forms variable cover and there is a dense species-rich ground flora.</p> <p>This woodland habitat is likely to be utilised by foraging birds.</p>
Orltons Copse LWS	LWS	897m	North west	<p>The site consists of two large areas of oak (<i>Quercus sp.</i>)/Hornbeam woodland separated by smaller areas of oak/Hazel (<i>Corylus avellana</i>) and oak/Hazel/Ash woodland. There are several small streams throughout and a hay meadow. This mixture of habitats provides for a rich bird community.</p> <p>The mosaic of different habitats are likely to be of use to foraging birds.</p>
Woldhurstlea Wood LWS	LWS	940m	South east	<p>Woldhurstlea Wood is of considerable local importance to nature conservation. Much of this small wood is semi-natural and it has many characteristics of an ancient semi-natural woodland, including a rich ground flora. The birdlife is fairly diverse.</p>

3.1.2 Species records

Records of 33**Error! Reference source not found.** notable species overwintering within 2km of the site were returned in the desk study. Only species which are listed on the BoCC red or amber list, on Schedule 1 of the WCA (HMSO, 1981) or on section 41 of the NERC Act (HMSO, 2006) have been included. All the

records returned were species on the Sussex BAP. Where birds were only identified as breeding, these are not included within this wintering bird table, presented in Table 6 in Appendix A. Birds present listed on Schedule 1 include barn owl (*Tyto alba*), common crossbill (*Loxia curvirostra*), Dartford warbler (*Sylvia undata*), firecrest (*Regulus ignicapilla*), kingfisher (*Alcedo atthis*) and red kite (*Milvus milvus*).

3.2 Habitat assessment

This section of the report briefly outlines the habitats present on the site from the habitat assessment, and their potential value to wintering birds. A map showing the habitats present on the site is also presented in Figure 1. Table 3, below, outlines the key habitats on site for wintering birds.

Table 3: Key habitats on site for wintering birds

Habitat	Description	Value to wintering birds
Arable	Six arable fields are present within the southern and middle sections of the proposed development.	Foraging habitat for a range of bird species, especially farmland birds, and overwintering wetland birds and gulls.
Broadleaved plantation woodland / mixed plantation woodland / broadleaved semi-natural woodland	Two areas of semi-mature broadleaved plantation woodland containing trees of mixed ages were recorded along the north-western boundary of the proposed development. Within Ifield Golf Course were areas of young plantation woodland. Areas of semi-natural broadleaved woodland were recorded throughout the proposed development site as large and small stands and as small strips between field boundaries.	Woodlands are important for a range of bird species; due to the cover and foraging opportunities they provide.
Dense / continuous scrub	Dense scrub and scattered scrub vegetation were recorded frequently across the proposed development and typically occurred between grassland margins and woodland edges and along field boundaries.	Scrub can provide wintering birds with cover and aid in dispersal and commuting opportunities.
Hedgerows	Thirty-eight hedgerows were recorded across the proposed development site. These were located within Ifield Golf Course, arable fields, and within the fields of semi-improved grassland. Many of the hedgerows also contained mature trees.	Hedgerows can provide foraging opportunities and cover for wintering for birds.
Riparian corridor and running water	The River Mole was recorded through the northern section of the proposed development flowing west to east through areas of broadleaved woodland, semi-improved grassland. Ifield Brook and Ifield Mill Stream run along the western section of the proposed development flowing south to north through broadleaved woodland. Hyde Hill stream runs along the southern boundary of Ifield Golf Course at the time of survey the stream held only small pools of water and was mostly dry.	Important foraging habitat for a range of bird species, especially farmland birds, and overwintering wetland birds.
Semi improved grassland	Significant areas of neutral semi-improved grassland were identified across the proposed	Important foraging habitat for a range of bird species, especially farmland

Habitat	Description	Value to wintering birds
	<p>development site, to the north, east and north west with a small section recorded in the centre.</p> <p>Several fields, including on Ifield Golf Course, supported species-poor grassland including fields within the northern section of the proposed development.</p>	birds, and overwintering wetland birds.
Standing water	<p>Seven ponds were recorded across the proposed development, ranging in size, but all permanent.</p> <p>Numerous ditches and drains were recorded across the proposed development site.</p>	This habitat is important for a range of species. It can provide feeding resources for wildfowl, areas where birds can aggregate (particularly transitory wildfowl, and gulls).

3.3 Wintering Bird Field Survey

3.3.1 Introduction

This section of the report outlines the results of the wintering bird surveys. The reporting comprises the following sections:

- Overview and assemblage;
- Notable species of conservation concern; and
- Wintering farmland bird assemblage.

In some instances, some species may appear on more than one list. For example, Eurasian skylark may be considered important as a component of the farmland bird assemblage and a notable species. Where this is the case, each species is only discussed in the section to which it is deemed most appropriate.

3.3.2 Overview and assemblage

A total of 50 bird species were recorded during the wintering bird surveys. Table 8 in Appendix C outlines the full records of the wintering bird surveys conducted in 2018 and 2019.

Across the site, wintering bird activity levels varied, with the highest activity being recorded within the wooded / treelined riparian areas of the site and the heterogenous habitats of Ifield Golf Course and nearby smallholdings in the south of the site. A heatmap of the birds recorded with the site is presented in Figure 4.

3.3.3 Notable species of conservation concern

Of the species recorded within the surveys, 18 of these were identified as being 'notable'. Common and widespread species with a favourable conservation status will not be discussed further. Birds were considered to be 'notable' if one or more of the following criteria applied:

- Listed on Schedule 1 of the WCA;
- Listed on Section 41 of the NERC Act;
- Listed on the BoCC (Birds of conservation concern as being either Red or Amber listed);
- Listed on the Sussex BAP.

For these species, the distribution, species biology, peak count and conservation status of these species within the site and wider area were considered. The locations of the observations of these species is presented on Figure 2. Utilising this information, it was determined to group these species for discussion, based upon these factors. The following groups for the notable birds were identified:

- Wintering ducks & rails;
- Gulls;

- Wintering thrushes;
- Farmland birds; and
- Other species (that are present in the UK year-round).

The initial list of 'notable' bird species and the subsequent species categorisations are presented in Table 4.

Table 4: Summary of bird species recorded during the wintering bird surveys that are afforded extra legal protection or are considered to be of conservation importance i.e. "notable".

Species	Schedule 1	NERC	BOCC List	Sussex BAP	Peak count	Notes / Group
Common black-headed gull			Amber		152	Gulls
Common kestrel			Amber		2	Farmland birds
Common linnet	Y	Red	Y		1	Linnet were only recorded on one occasion on the site. This year round farmland resident is not considered to be maintained or supported by the farmland on the site.
Dunnock	Y	Amber	Y		8	Resident species is common and widespread and is not considered to be maintained or supported by the farmland on the site.
Eurasian bullfinch	Y	Amber	Y		6	Farmland birds
Eurasian skylark	Y	Red	Y		4	Resident farmland species present on the site in very low numbers. Not considered to be maintained or supported by the farmland on the site.
European herring gull	Y	Red	Y		12	Gulls
European starling	Y	Red	Y		40	Farmland birds
Fieldfare	Y	Red			1	Wintering thrush
Grey wagtail			Red		2	Resident species present on the site in very low numbers. Not considered to be maintained or supported by the farmland on the site.

Species	Schedule 1	NERC	BOCC List	Sussex BAP	Peak count	Notes / Group
House sparrow		Y	Red	Y	1	House sparrow were only recorded on one occasion on the site. This year round resident is not considered to be maintained or supported by the farmland on the site.
Lesser redpoll		Y	Red	Y	2	Resident species present on the site in very low numbers. Not considered to be maintained or supported by the farmland on the site.
Mallard			Amber		10	Wintering ducks and rails
Meadow pipit			Amber		3	Resident farmland species present on the site in very low numbers. Not considered to be maintained or supported by the farmland on the site.
Mistle thrush			Red		9	Farmland birds
Redwing	Y		Red		180	Wintering thrush
Song thrush		Y	Red	Y	21	Farmland birds
Stock dove			Amber		6	Farmland birds

3.3.4 Wintering farmland bird assemblage

In addition to individual notable species, the farmland bird assemblage was also considered. Much of the site is farmland, including arable fields, pasture and grassland. The largest change in land type resulting from a development will be the loss of farmland. As a result, the assemblage of 'farmland birds' was described separately from the data set, which includes some notable species and some more common species. Those birds recorded as being within the 'farmland bird assemblage' were extracted from the dataset. The species selected were based upon:

- The 19 species listed on the UK Farmland Bird Indicator List 1970 – 2007 (RSPB, 2018);
- More generalist species which were observed to be reliant on the farmland within the site.

Of the 19 UK farmland bird species on the indicator list, nine were present on the site within the wintering bird surveys. Four additional species (bullfinch, meadow pipit, mistle thrush and song thrush) were also considered to be part of the farmland bird assemblage as they were observed to be maintained or supported by the farmland on the site. The birds which were identified as being in the 'wintering farmland bird assemblage' and were recorded during the surveys are shown in Table 5, below, and the locations of these observations is presented on Figure 3.

Table 5: Wintering farmland bird assemblage subset and survey results

Species	28/11/2018	19/12/2018	16/01/2019	14/02/2019	Peak count
Common kestrel	2	1		1	2
Common linnet				1	1
Eurasian bullfinch		6		4	6
Eurasian jackdaw	27	20	10	5	27
Eurasian skylark				4	4
European goldfinch	11	13	20	13	20
European greenfinch	2	2	4	4	4
European starling	40	2	13		40
Meadow pipit	3				3
Mistle thrush	8	9	6	4	9
Song thrush	10	21	18	23	23
Stock dove	1	6		2	6
Woodpigeon	288	385	805	1041	1041

Peak counts are highlighted in orange

4 Discussion

4.1 Introduction

This section discusses the important bird species and assemblages on the site, along with their numbers and distribution. For clarity, the birds recorded during the wintering bird surveys are divided into groups to aid the discussion of the survey results. Only those species considered to be notable (qualifying features of designated sites, Schedule 1, amber or red list) are reported in this section. The groups are:

- The overall bird assemblage;
- Schedule 1 Birds;
- Wintering ducks;
- Wintering thrushes;
- Gulls; and
- Other species that are present in the UK year-round.
- Barn owls (this species was not recorded during the wintering bird surveys its presence was confirmed during building inspections see section 4.5).

4.2 Wintering bird summary

The site supported a varied assemblage of wintering birds, with a total of 50 species recorded on the site during the wintering bird surveys. Of these, 18 were considered notable. On average, around 1,110 birds were recorded on each of the four surveys. The assemblage of birds was largely what would be expected on a an intensively managed lowland farmland site such as this. Due to the recent decline in farmland birds, farmland birds are also considered as a notable assemblage discussed in section 4.5.

4.3 Schedule 1 Birds

Two species of schedule 1 birds, redwing and fieldfare were recorded within the site, see section 4.4.2.

4.4 Sub-categories of notable wintering birds

4.4.1 Wintering ducks and rails

One species was recorded, this was mallard (full records are presented in Appendix C). This species was present in relatively low numbers, with a peak count of 10.

4.4.2 Wintering thrushes

The species which are present within this category are redwing and fieldfare (song thrush and mistle thrush are not included within this category as these species are resident in the UK, and included within farmland birds assemblage). Redwing and fieldfare, which winter in the UK, were observed calling and foraging within hedgerows and woodland edge habitats across the site. Peak counts for redwing were relatively high at 180, but only one fieldfare was recorded.

4.4.3 Notable farmland birds

Notable farmland birds recorded on the site included Eurasian bullfinch, common kestrel, meadow pipit, mistle thrush, common linnet, Eurasian skylark, song thrush, stock dove and European starling. Other farmland bird species included: European goldfinch; Eurasian jackdaw; long-tailed tit and woodpigeon. The habitats which are important for these species are largely the arable land and the associated hedgerows. The farmland bird assemblage is discussed further in section 4.5.

4.4.4 Gulls

The two notable species of gull recorded were common black-headed gull and European herring gull. Common black-headed gull were recorded in large numbers on the grassland on the site, with a peak count of 152 (full records are presented in Appendix C). The numbers of this species were relatively consistent across the surveys. European herring gull were found in much lower numbers, with a peak count of 12.

4.4.5 Barn owl

Barn owl were not recorded within the wintering bird surveys (this species is difficult to detect using standard wintering bird survey techniques). This species was recorded within the desk study (6 records). Evidence of this species roosting on the site was recorded during building inspections for barn owls, reported within the breeding bird survey report (Arcadis 2019).

4.5 Farmland bird assemblage

The farmland birds were found in relatively low numbers on the site; starling was the species in this group with the highest peak count of 40 individuals. Peak counts for the other notable species were as follows: common kestrel (2), Eurasian bullfinch (6), meadow pipit (3), mistle thrush (9), common linnet (1), Eurasian skylark (4), song thrush (21) and stock dove (6).

5 Further survey

No further surveys are required at this time; however, the requirement for further survey at later stages of the planning process will be determined by the details of the phasing of the development, and the mitigation approach determined for each phase.

6 Conclusions

This report presents the results of the wintering bird surveys undertaken by Arcadis over the winter season of 2018-2019. These surveys found that the site supported a varied assemblage of wintering birds, with a total of 50 species being recorded on the site. Of these, 18 were considered notable. On average, around 1,110 birds were recorded on each of the three surveys.

As would be expected with a heterogeneous site of this nature, activity levels varied across the site, depending upon the habitats present and the species which utilise these habitats. The highest densities of individuals were clustered around the riparian corridors, the areas of grassland (particularly in the east of the site) and the woodland areas on Ifield Golf Course.

7 References

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Figure 1: All wintering bird survey results

N.B. All BTO codes used in this map are presented in Appendix D.

