
Kirkby Valley Golf Club

Ecological Appraisal Report

Compiled by Ecology Services Ltd.

on behalf of

L32 Trading Ltd.

February 2020 (updated August 2021)



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Executive Summary

Ecology Services Limited was commissioned by L32 Trading Ltd. in May 2019 to carry out a Preliminary Ecological Appraisal (PEA) of land at Kirkby Valley Golf Club, Ingoe Lane, Liverpool, L32 4SS (National Grid Reference (NGR) 339582, 397944). The site was subject to additional walk over surveys in August 2020 and January 2021 by Ecology Services Limited which confirmed that habitats within the site remain largely unchanged.

Four parcels of land within the site are proposed for re-development including extension and reconfiguration of the existing golf course, conversion of the existing clubhouse to a training academy, construction of a new Club House, driving range, adventure golf course, greenkeeper's compound and associated landscaping. There are also proposals for additional sports and leisure facilities outdoor 5-a-side football pitches, tennis courts and bowling green with associated lighting, car parking and formal landscaping.

The development area includes part of the existing golf course including the complex of buildings located in the south-east and an area of land to the south-west of the golf course, bounded by Valley Road to the south and Aintree Lane to the west. The south-western part of the development area comprises three fields of unmanaged rough grassland with scattered trees, tall ruderal vegetation, wet grassland and hedgerows along the field boundaries. The River Alt runs south to north between the two parcels of the development area and through the wider golf course. The northern and eastern areas of the wider golf course are dominated by amenity grassland with stands of scattered trees, plantation woodland and occasional rough grassland, scrub, ponds and ditches. A railway corridor borders the north of the wider golf course.

There are no statutory designated sites within 2km of the proposed development, but 11 Local Wildlife Sites (including the River Alt running between the two development parcels) are present.

The Ecological Appraisal identified the following valuable ecological features within the development area: broadleaved plantation woodland, scattered trees, scrub, species-poor semi-improved grassland (unmanaged) and hedgerows. The majority of the waterbodies within the site were dry at the time of survey with more permanent waterbodies present in the wider golf course. The invasive plant species Japanese knotweed, Himalayan balsam, cotoneaster and Japanese rose are present within the development area. The development area contains habitat suitable to support bats, otter, badger, water vole, breeding birds and amphibians.

Existing habitats are retained and protected where possible and compensation is provided for the loss of poor semi-improved grassland, scattered trees, scrub and hedgerows. Overall, there will be a net gain of 0.63ha new woodland planting, 550 trees and 0.97ha standing water (two lakes). A further 5.86ha out of play areas in the wider golf course will be allowed to grow and be managed as rough grassland and scrub and managed to encourage species diversity.

Implementation of best practice pollution prevention measures is recommended to protect the River Alt from pollution. Appropriate measures will also need to be implemented to ensure that the proposed development does not cause invasive plant species to spread.

Further surveys have been undertaken for bats, otter, water vole, badger, breeding birds and amphibians and the relevant reports should be referred to for the survey results and recommendations regarding these species.

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1.0 Introduction

- 1.1 Ecology Services Limited was commissioned by L32 Trading Ltd. in May 2019 to carry out an Ecological Appraisal (PEA) of land at Kirkby Valley Golf Club, Ingoe Lane, Liverpool, L32 4SS. The survey included both the proposed development area and the wider golf course, hereinafter referred to as the 'site'. The centre of the proposed development area is located by National Grid Reference (NGR) 339582, 397944 and the location of the proposed development area and wider survey area are shown on Figure 1.
- 1.2 The site was subject to additional walk over surveys in August 2020 and January 2021 by Ecology Services Limited which confirmed that habitats within the site remain largely unchanged. It was noted during the survey that some fairways and greens within the course were being modified/re-landscaped comprising at that time of bare earth habitat and there had been some losses of an unknown number of trees. During subsequent species survey visits during 2021, these areas were found to have grassed over and are under the golf course grassland management regime.

Site Description

- 1.3 The development area includes part of the existing golf course including the complex of buildings located in the south-east and an area of land to the south-west of the golf course, bounded by Valley Road to the south and Aintree Lane to the west. The south-western part of the development area comprises three fields of unmanaged rough grassland with scattered trees, tall ruderal vegetation, wet grassland and hedgerows along the field boundaries. The River Alt runs south to north between the two parcels of the development area and through the wider golf course.
- 1.4 The northern and eastern areas of the wider golf course are dominated by amenity grassland with stands of scattered trees, plantation woodland and occasional rough grassland, scrub, ponds and ditches. A railway corridor borders the north of the wider golf course.

Proposals and Site Context

- 1.5 Four parcels of land within the site, collectively referred to as the 'site', are proposed for re-development as shown on Figure 2 including:
- Reconfiguration and other improvement works across the entire golf course including the reshaping of tees / greens / bunkers and erection of a footbridge over the River Alt to provide both an improved 18 hole course and a new 9 hole course.
 - New and improved irrigation / drainage works (including irrigation lake), extensive tree and shrub planting, and ecological mitigation measures across the course.
 - The erection of a new 2 storey Clubhouse;
 - Retention, alteration and extension of the existing clubhouse and its change of use to form a golf-related / grounds maintenance training academy (existing access and car park retained / unchanged).
 - A new greenkeeper's compound with associated building and security fencing.
 - Provision of an adventure golf course and practice putting green; and provision of a golf driving range with an associated 2 storey building and external lighting and safety netting.
 - 6 synthetic outdoor 5-a-side football pitches, 5 synthetic outdoor tennis courts, 1 external bowling green with associated timber players' hut plus associated lighting and means of enclosure.
 - Car and cycle parking spaces to serve all of the above facilities with two new vehicular accesses created onto Valley Road.

- Formation of a new gated access via Aintree Lane for the use of construction traffic and (upon completion of development works) for the sole use of course operatives for the purposes of course management / maintenance.
- 1.6 Two lakes are also proposed to assist with course irrigation and ecological mitigation at the site.
- 1.7 The report has been produced to identify the baseline ecological conditions for the development area and for surrounding habitats.
- 1.8 To conduct an ecological appraisal at the site, the aims of the survey were to:
- Undertake a desktop study up to 2km of the site including a review of existing maps and aerial photographs of the area up to 250m of the development area;
 - Undertake an extended Phase 1 habitat survey of the site and up to 30m from the development area; and
 - Identify any further detailed survey requirements.
- 1.9 The ecological value of the site will be assessed in context with current UK planning and legislative policy, including:
- Statutory protected sites and species
 - Species/Habitats of Principal Importance
 - Local Biodiversity Action Plan (BAP) habitat/species
 - Non-statutory protected sites or species of conservation concern
- 1.10 Following the Preliminary Ecological Appraisal, further species and habitat surveys were recommended and undertaken in 2019, 2020 and 2021. This report pulls together the further surveys results, but this report should be read in conjunction with the following reports: -
- Amphibian Survey Report
 - Badger Survey Report
 - Bat Survey Report (Buildings)
 - Bat Survey Report (Trees)
 - Bat Transect and Automated Survey Report
 - Breeding Birds Survey Report
 - Otter Survey Report
 - Water Vole Survey Report
- 1.11 The purpose of this report is to state the survey methodology, present the results of the survey, evaluate the findings, assess the impacts and make recommendations concerning the protection of existing ecological features within and bordering the development area.

2.0 Planning Policy and Legislation

Planning Policy

- 2.1 The National Planning Policy Framework (NPPF, July 2021) places a clear responsibility on Local Planning Authorities (LPA) to contribute to protecting and enhancing the natural and local environment. LPAs should promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species (e.g. Species of Principal Importance, Local Biodiversity Action Plan species); and identify and pursue opportunities for securing measurable net gains for biodiversity. The Office of the Deputy Prime Minister (ODPM) Circular 06/2005 provides administrative guidance on the application of the law in relation to planning and nature conservation.

- 2.2 A Local Planning Authority (LPA) has a duty to ensure that protected species and habitats within the UK are a 'material consideration' in the determination of a planning application. Therefore, an LPA is unlikely to determine an application until all relevant information relating to protected species or habitats is submitted to fully inform the application. Relevant information includes adequate surveys and, where required, mitigation strategies, which will need to be submitted to inform a planning application.
- 2.3 Most Local Planning Authorities have a system of sites of local importance for nature conservation which complement the series of internationally and nationally designated wildlife and geological site. These sites are usually afforded protection through the Local Plan.
- 2.4 Local Wildlife Sites (LWS) are designated in a Local Authority Unitary Development Plan for their nature conservation value. In 2006 Defra issued guidance on their identification, selection and management. The guidance recommends that County-wide partnerships be established to manage Local Site systems for each county. To designate Local Wildlife Sites all sites for which MEAS hold records are assessed against the North Merseyside Local Sites designation guidelines. Any sites, which meet the designation guidelines, are designated as Local Wildlife Sites. The designation guidelines are based on Ratcliffe (1977) A Nature Conservation Review (i.e. rareness, diversity, naturalness, fragility etc) as well as guidelines, which highlight protected species and Biodiversity Action Plan species and habitats. Merseyside has a total of 342 Local Wildlife Sites to date.
- 2.5 Although the UKBAP has been superseded by the UK Post-2010 Biodiversity Framework and, in England, Biodiversity 2020: A strategy for England's wildlife and ecosystem services (2011), many Local Authorities have prepared and operate Local Biodiversity Action Plans (LBAPs). LBAPs not only highlight habitats and species that are of Principal Importance but also habitats and species that are of local importance. LBAPs will be prepared for these habitats and species. Listing of habitat or species in a LBAP does not confer any new statutory or planning policy protection. However, impacts upon species prioritised in LBAPs may be a material consideration in a planning application.

Legislation

Statutory Designated Sites

- 2.6 Certain sites are afforded statutory protection at the European or National Level. European Designated Sites include Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar Sites. Sites of Special Scientific Interest (SSSIs) are afforded national protection. For further details on these designations refer to Appendix 1.
- 2.7 Impact Risk Zones (IRZs) are a mapping tool developed by Natural England to enable developers and Local Planning Authorities (LPAs) to make an initial assessment of the potential risks to Sites of Special Scientific Interest (SSSIs) posed by development proposals. They define zones around each SSSI according to the particular sensitivities of the features for which it is notified and specify the types of development that have the potential to have adverse impacts, which may require consultation with Natural England.
- 2.8 Habitats Regulation Assessment is one of the most powerful tools currently available to control the environmental impacts of development with input from both Natural England (NE) and the Competent or Planning Authority. The assessment tests whether a plan or a project is likely to have a significant negative impact upon European designated sites.
- 2.9 LNRs are statutorily designated sites at the local level, designated by local authorities. The Local Plan for an area will detail any additional protection given to the LNR such as protection

against damaging operations and/or protection against development within or adjacent to the LNR. For further information on LNRs refer to Appendix 1.

Protected Species

- 2.10 All British bats, great crested newts (*Triturus cristatus*), otter (*Lutra lutra*) and hazel dormouse (*Muscardinus avellanarius*) and the habitat they use for protection and shelter are protected under Conservation of Habitats and Species Regulations 2017 (as amended)¹ and the Wildlife and Countryside Act 1981 (WCA, as amended) (European protected species).
- 2.11 Water vole (*Arvicola amphibious*), crayfish (*Austropotamobius pallipes*), red squirrel (*Sciurus vulgaris*), pine marten (*Martes martes*) and common reptiles receive protection through the Wildlife and Countryside Act 1981 (as amended) (Nationally protected species). Certain plant species are similarly protected at the European or National level.
- 2.12 All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended). Under the WCA, it is an offence to kill, injure or take any wild bird, to take damage or destroy the nest of any wild bird or to take or destroy the egg of any wild bird. Birds listed on Schedule 1 of the WCA are afforded additional protection and it is also an offence to disturb any Schedule 1 listed bird while it is building a nest, is on or near a nest containing young or disturb dependent young of such a bird.
- 2.13 Badgers (*Meles meles*) and their active setts are protected under the Protection of Badgers Act (1992). The Protection of Badgers Act 1992 was designed to protect badgers from baiting and deliberate harm or injury. It also contains restrictions that apply more widely.
- 2.14 Developments with potential to affect protected species will mostly require a licence from Natural England, which permits otherwise illegal actions.
- 2.15 For further information on protected species legislation, refer to Appendix 1.

Invasive Species

- 2.16 Schedule 9 of The Wildlife and Countryside Act 1981 (as amended) lists invasive non-native plant species that are considered to have a detrimental effect upon native flora wherever they occur. It is therefore an offence to “plant or otherwise cause them to grow in the wild”. This includes allowing the species to grow/spread, causing the species to spread or transferring polluted ground material from one area to another. Waste containing these species may be classed as controlled waste under the Environmental Protection Act (Duty of Care) Regulations 1991, which requires all producers, carriers and disposers of waste to follow a code of practice and keep records and must comply with section 34 of the Environmental Protection Act 1990.
- 2.17 Section 23 of the Infrastructure Act 2015 amended the Wildlife and Countryside Act 1981 to introduce a statutory regime of species control agreements and orders. This schedule ensures that, in appropriate circumstances, landowners take action on Schedule 9 invasive species, or permit others to enter the land and carry out those operations, to prevent their establishment and spread.
- 2.18 The EU Invasive Alien Species Regulation (1143/2014) imposes strict restrictions on a list of species known as “species of Union concern” and is implemented by the European Commission Implementing Regulation 2016/1141. Under the EU Regulation, it is a

¹ The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 continue the same provision for European protected species, licensing requirements and protected areas after Brexit.

requirement for management measures to be put in place for widespread invasive species. The Invasive Alien Species (Enforcement and Permitting) Order 2019 which implements the requirements of the EU Regulation in England and Wales came into effect on 1st October 2019. The European Union (Withdrawal) Act 2018 as amended by the European Union (Withdrawal Agreement) Act 2020 (EUWA) provides for the retention of most EU law, including the above Regulations relating to invasive alien species, as it stands on exit day, by “converting” or “transposing” it into a freestanding body of domestic law.

- 2.19 The Regulation ensures that a landowner must act responsibly and not allow an invasive species to grow or spread outside their land, which could be an offence and/or contrary to the Regulation. Where this cannot be guaranteed the landowner is required to consider safely removing and disposing of any listed plant.

Natural Environment and Rural Communities (NERC) Act 2006

- 2.20 Section 41 (S41) of the NERC Act 2006 requires the Secretary of State, as respects England, to publish a list of the living organisms and types of habitat which are of Principal Importance for the purpose of conserving biodiversity. Section 40 of the NERC Act 2006 places a duty to conserve biodiversity on every public body. The Local Planning Authority and Natural England will expect account to be taken of these species in the overall layout and landscape strategy for the development.

3.0 Methodology

Desktop Study

- 3.1 Ecological data and historic records of protected species and sites was collated from the following sources; listed in Table 1.

Table 1: Desktop Study Results and Record Centres Consulted

Source of information	Information supplied
Multi-Agency Geographic Information for the Countryside (https://magic.defra.gov.uk/)	To identify nature reserves, Sites of Special Scientific Interest (SSSI), Habitats of Principal Importance, non-statutory protected sites or features of interest within 2km of the site.
Natural Environment and Rural Communities (NERC) Act 2006	Review of Habitats/Species of Principal Importance known to occur in the region.
North Merseyside Local Biodiversity Action Plan (NMBAP)	Identification of local BAP species and habitats known to occur in the region.
Merseyside Biobank	To identify non-statutory designated sites and species of interest within c.2km of the site.
Liverpool City Region Ecological Network (http://www.lcreconet.uk/)	To identify Core Biodiversity Areas, Priority Habitats and Nature Improvement Areas in the Liverpool City Region.

- 3.2 An ecological data search was undertaken by Merseyside Biobank on 15th January 2021.
- 3.3 One of the aims of the desktop study was to assist the surveyor undertaking the extended Phase 1 habitat survey by providing background information on the likely habitats and species that occur within the local area.
- 3.4 A review was undertaken using existing maps and aerial photographs of the area (up to 250m of the development area) to identify any features of ecological interest; for example, a pond that may support amphibian species such as great crested newts or common toad (*Bufo bufo*).

Extended Phase 1 Habitat Survey

- 3.5 The extended Phase 1 habitat survey was undertaken of the site and within 30m of the development area, where access was permitted. Habitats were assessed by using Phase 1 habitat survey techniques, which is a system for environmental audit widely used within the environmental consultancy field.
- 3.6 The extended Phase 1 habitat survey followed Phase 1 habitat survey methodology (JNCC, 2010). This involved walking over the survey area, mapping and target noting any semi-natural habitats. The survey area includes the proposed development area and up to 30m from the development area boundaries plus the wider golf course.
- 3.7 A habitat map has been prepared to show the locations and extent of habitats and detailed descriptions of the principal and important plant communities have been provided as Target Notes.
- 3.8 Plant species abundances were recorded within the habitat descriptions and target notes, using DAFOR ratings, as Dominant, Abundant, Frequent, Occasional or Rare (Rare in the sense of having a very low abundance). Species recorded as locally abundant are abundant only in certain parts of the target noted habitat, rather than being abundant throughout. The ratings have no precise definition and are affected by plant size and season of survey, however, they have been shown to correlate with more quantitative measures.
- 3.9 The extended Phase 1 habitat survey is a modified approach to the Phase 1 habitat survey, adapted for use in environmental assessment (Institute of Environmental Assessment, 1995). The survey recorded any signs of protected species/Species of Principal Importance or other valuable ecological components of the site. Direct observations of the species were noted. Furthermore, sites/habitats with potential to support the species were also noted, even if direct signs of presence were not apparent. Features of note recorded during the survey are mapped (Figure 1) and marked with target notes; target note descriptions are provided in Appendix 2. Photos of habitats and features of ecological importance are provided in Appendix 3.
- 3.10 The locations of any invasive species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) and others were also recorded.
- 3.11 As part of the extended Phase 1 habitat survey, surveyors also recorded any other notable wildlife observed.
- 3.12 Habitats and species identified as present or potentially present are valued with reference to statutory and non-statutory status and inclusion in Local Biodiversity Action Plans or other conservation listings such as red lists.
- 3.13 The Preliminary Ecological Appraisal was been undertaken in accordance with CIEEM's guidelines (CIEEM, 2017a & b).

Timing

- 3.14 The extended Phase 1 habitat survey was undertaken on the 21st/22nd of May and 3rd July 2019, which is an optimal time of year to undertake such a survey. A walk over of the site was undertaken on 24th August 2020 and again on the 12th January 2021 to check for changes since the original survey had been undertaken, the results of which are incorporated in this report.

Weather Conditions

Weather conditions during the survey and walk over update surveys were reasonable, with no appreciable rain or wind affecting survey.

Personnel

- 3.15 The extended Phase 1 habitat survey works were carried out by Consultant Ecologist Mr. A. Leishman MSc BSc (Hons) GradCIEEM and Mr. B. Meadows BSc (Hons). The walk over update surveys were undertaken by Senior Consultant Ecologist Ms. L. Redgrave MA (Oxon.), MSc, CEcol, CEnv, MCIEEM (August 2020) and Senior Consultant Ecologist Mr S. Booth (January 2021).

Constraints

- 3.16 Surveys only provide a snapshot of habitats and species that are there at that time. Further surveys at other times of the year are likely to find additional species.

4.0 Results and Evaluation

Desktop Study

Statutory Designated Sites

- 4.1 The desktop study identified no European, nationally or locally designated statutory sites within 2km of the proposed development area.

Natural England Impact Risk Zones (IRZs)

- 4.2 The ecological desktop study search found the site to be within a Natural England (NE) SSSI Impact Risk Zone (IRZ) associated with the Sefton Coast SSSI and SAC (also designated as part of Ribble & Alt Estuaries SPA and Ramsar site), which is located c.7.1km west of the site.
- 4.3 In order to assess the impacts of the development upon this statutory designated site, Natural England's Impact Risk Zones (IRZs) have been reviewed to assess whether consultation is required. The Site Check Report generated using the Multi-Agency Geographic Information for the Countryside (<https://magic.defra.gov.uk/>), detailed the following consultation requirements for the site location:

SSSI Impact Risk Zones - to assess planning applications for likely impacts on SSSIs/SACs/SPAs & Ramsar sites (England)

1. DOES PLANNING PROPOSAL FALL INTO ONE OR MORE OF THE CATEGORIES BELOW?

2. IF YES, CHECK THE CORRESPONDING DESCRIPTION(S) BELOW. LPA SHOULD CONSULT NATURAL ENGLAND ON LIKELY RISKS FROM THE FOLLOWING:

All Planning Applications

Infrastructure

Airports, helipads and other aviation proposals.

Wind & Solar Energy

Solar schemes with footprint > 0.5ha, all wind turbines.

Minerals, Oil & Gas

Rural Non Residential

Residential

Rural Residential

Air Pollution

Livestock & poultry units with floorspace > 500m², slurry lagoons > 4000m².

Combustion

General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.

Waste

Landfill. Incl: inert landfill, non-hazardous landfill, hazardous landfill.

Composting**Discharges**

Any discharge of water or liquid waste of more than 20m³/day to ground (ie to seep away) or to surface water, such as a beck or stream (NB This does not include discharges to mains sewer which are unlikely to pose a risk at this location).

Water Supply**Notes****GUIDANCE - How to use the Impact Risk Zones**

[/Metadata for magic/SSSI IRZ User Guidance MAGIC.pdf](#)

- 4.4 Taking into consideration the nature of the proposed development works and the above points, no consultation with Natural England regarding likely effects on the SSSI is required.

Non-Statutory Designated Sites

- 4.5 The ecological desktop study identified the following records of non-statutory protected sites within 2km of the proposed development:

- River Alt, Kirkby Local Wildlife Site (LWS), which is located within the site.
- Land east of canal, north of Wango Lane, Waddicar/ Wango Lane Wetland LWS, which is located just to the north of the railway corridor c.30-50m north of the site.
- Fazakerley Sidings, Aintree LWS, which is located within 30m from the north-western corner of the site.
- River Alt & adjacent sites through Gilmooss including Fazakerley WwTW LWS, which is located c.250m south of the site.
- Knowsley Brook LWS, which is located c.250m south of the site.
- Fazakerley Signal Works LWS, which is located c.500m west of the site.
- Kirkby Brook LWS, which is located c.900m east of the site.
- Meadow, Kirkby (Mill) Brook, south of Old Hall Lane LWS, which is located c.975m north-east of the site.
- Croxteth Brook LWS, which is located c.1km south-east of the site.
- Fazakerley Woods and Fields LWS, which is located c.1.1km south-west of the site.
- Croxteth Park, River Alt and adjacent sites through Croxteth LWS, which is located c. 1.4km south of the site at its nearest point.
- Kirkby Brook, including Mill Brook LWS, which is located c.1.5km north-east of the site.
- Simonswood Brook LWS, which is located c. 1.5km north-west of the site at its nearest point.
- Mill Brook, Westvale LWS which is located c. 1.5km north-west of the site at its nearest point.

River Alt, Kirkby (LWS)

- 4.6 River Alt, Kirkby LWS runs through the centre of the site and is bordered each side by the development area. According to the LWS citation, the River Alt is designated for water voles, which have been recorded breeding along this watercourse.

Liverpool City Region (LCR) Ecological Network

- 4.7 The LCR Ecological Network Map shows Kirkby Valley Golf Course as falling within the River Alt and M57 corridor Nature Improvement Area (NIA). The NIA is not an allocation or a designation. It is a multi-use area, developed to support Local Planning and inform land management in the City Region. The NIA Focus Area profiles provide guidance where opportunities for ecological mitigation and compensation, habitat management and enhancement may be directed to help meet development needs of the LCR and provide benefits for biodiversity and resource efficiency.

- 4.8 The LCR Ecological Network Map also identifies areas of woodland and grassland within the golf course as Core Biodiversity Areas including lowland meadow and lowland mixed deciduous woodland Habitats of Principal Importance.

Habitats of Principal Importance (NERC)

- 4.9 The desktop study identified the following Habitats of Principal Importance as potentially occurring within the proposed development:
- Hedgerows (native species)
 - Lowland meadow
 - Lowland mixed deciduous woodland
 - Ponds (subject to fulfilling certain criteria)
 - Rivers

Local Biodiversity Action Plan (LBAP)

- 4.10 Habitats listed within the North Merseyside BAP which the site may be classified under are as follows:
- Field boundaries (hedgerows)
 - Urban grasslands
 - Lowland mixed broad-leaf woodland
 - Ponds
 - Urban trees

- 4.11 The species of local concern which might potentially use the site, based upon information gathered from the sources listed in Table 1 are identified in Table 2 below.

Protected Species/ Species of Principal Importance (NERC)/ North Merseyside BAP Species

- 4.12 The desktop study identified records of the following protected species/ Species of Principal Importance within the 2km of the development area:

Table 2: Desktop Study Species Results

Common name	Scientific name	Legally protected ¹	NERC S41	NMBAP
Terrestrial mammals				
Noctule	<i>Nyctalus noctule</i>	✓	✓	✓
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	✓		✓
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	✓	✓	✓
Nathusius' pipistrelle	<i>Pipistrellus nathusii</i>			✓
Brown long-eared bat	<i>Plecotus auritus</i>	✓	✓	✓
Natterer's	<i>Myotis nattereri</i>	✓		✓
Water vole	<i>Arvicola amphibius</i>	✓	✓	✓
Badger	<i>Meles meles</i>	✓		
Western European hedgehog	<i>Erinaceus europaeus</i>		✓	
Brown hare	<i>Lepus europaeus</i>		✓	✓
Red squirrel	<i>Sciurus vulgaris</i>		✓	✓
Birds				
Barn Owl	<i>Tyto alba</i>	Sch.1		
Common crossbill	<i>Loxia curvirostra</i>	Sch.1		
Kingfisher	<i>Alcedo atthis</i>	Sch.1		
Little ringed plover	<i>Charadrius dubius</i>	Sch.1		
Marsh harrier	<i>Circus aeruginosus</i>	Sch.1		
Peregrine	<i>Falco peregrinus</i>	Sch.1		
Quail	<i>Coturnix coturnix</i>	Sch.1		

Common name	Scientific name	Legally protected ¹	NERC S41	NMBAP
Song thrush	<i>Turdus philomelos</i>		✓	✓
House martin	<i>Delichon urbicum</i>			✓
Swift	<i>Apus apus</i>			✓
Reed bunting	<i>Emberiza schoeniclus</i>		✓	
Bullfinch	<i>Pyrrhula pyrrhula</i>		✓	
Lesser redpoll	<i>Acanthis cabaret</i>		✓	
Tree sparrow	<i>Passer montanus</i>		✓	
House sparrow	<i>Passer domesticus</i>		✓	✓
Grasshopper warbler	<i>Locustella naevia</i>		✓	
Dunnock	<i>Prunella modularis</i>		✓	
Starling	<i>Sturnus vulgaris</i>		✓	✓
Herring gull	<i>Larus argentatus</i>		✓	
Common cuckoo	<i>Culculus canorus</i>		✓	
Skylark	<i>Alauda arvensis</i>		✓	✓
Yellow wagtail	<i>Motacilla flava</i>		✓	
Common linnet	<i>Carduelis cannabina</i>		✓	
Yellowhammer	<i>Emberiza citrinella</i>		✓	
Lapwing	<i>Vanellus vanellus</i>		✓	✓
Corn bunting	<i>Emberiza calandra</i>		✓	✓
Grey partridge	<i>Perdix perdix</i>		✓	✓
Turtle Dove	<i>Streptopelia turtur</i>		✓	
Lesser spotted woodpecker	<i>Dendrocopos minor</i>		✓	
Willow tit	<i>Poecile montanus</i>		✓	
Spotted flycatcher	<i>Muscicapa striata</i>		✓	
Reptiles				
Slow-worm	<i>Anguis fragilis</i>	✓	✓	
Amphibians				
Great crested newt	<i>Triturus cristatus</i>	✓	✓	✓
Common toad	<i>Bufo bufo</i>		✓	
Bony fish				
European eel	<i>Anguilla anguilla</i>		✓	
Brown/sea trout	<i>Salmo trutta</i>		✓	
Terrestrial invertebrates				
Small Heath	<i>Coenonympha pamphilus</i>		✓	
Wall	<i>Lasiommata megera</i>		✓	
Buff Ermine	<i>Spilosoma lutea</i>		✓	
Sallow	<i>Cirrhia icteritia</i>		✓	
Shoulder-striped wainscot	<i>Leucania comma</i>		✓	
Azure Damselfly	<i>Coenagrion puella</i>			✓
Banded Demoiselle	<i>Calopteryx splendens</i>			✓
Blue-tailed Damselfly	<i>Ischnura elegans</i>			✓
Broad-bodied Chaser	<i>Libellula depressa</i>			✓
Brown Hawker	<i>Aeshna grandis</i>			✓
Common Blue Damselfly	<i>Enallagma cyathigerum</i>			✓
Common Darter	<i>Sympetrum striolatum</i>			✓
Common Hawker	<i>Aeshna juncea</i>			✓
Emperor Dragonfly	<i>Anax imperator</i>			✓
Four-spotted Chaser	<i>Libellula quadrimaculata</i>			✓
Migrant Hawker	<i>Aeshna mixta</i>			✓
Red-eyed Damselfly	<i>Erythromma najas</i>			✓
Southern Hawker	<i>Aeshna cyanea</i>			✓
Flowering plants				
Annual Knawel	<i>Scleranthus annuus</i>		✓	

Common name	Scientific name	Legally protected ¹	NERC S41	NMBAP
Coral-necklace	<i>Illecebrum verticillatum</i>		✓	
Cornflower	<i>Centaurea cyanus</i>		✓	
Strawwort	<i>Corrigiola litoralis</i>	✓	✓	
Bluebell	<i>Hyacinthoides non-scripta</i>	✓ (sale only)		✓
Purple ramping fumitory	<i>Fumaria purpurea</i>		✓	✓
True fox-sedge	<i>Carex vulpina</i>		✓	

¹All wild birds and their nests receive a basic level of protection. Sch1 = birds afforded additional protection during the breeding season under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).

Invasive Species

4.13 The ecological desktop study identified records of the following invasive plant species within 2km of the proposed development:

- Japanese knotweed (*Fallopia japonica*)
- Himalayan balsam (*Impatiens glandulifera*)
- Water fern (*Azolla filiculoides*)
- Canadian waterweed (*Elodea canadensis*)
- Wall cotoneaster (*Cotoneaster horizontalis* agg.)
- Floating pennywort (*Hydrocotyle ranunculoides*)
- Japanese rose (*Rosa rugosa*)
- Montbretia (*Crocasmia pottsii* x *aurea* = *C. x crocosmiflora*)
- New Zealand pigmyweed (*Crassula helmsii*)
- Nuttall's waterweed (*Elodea nuttallii*)
- Rhododendron (*Rhododendron ponticum*)
- Curly waterweed (*Lagarosiphon major*)
- Water-hyacinth (*Eichhornia crassipes*)
- Water-lettuce (*Pistia stratiotes*)
- Yellow archangel (*Lamium galeobdolon* ssp. *argenteum*)

4.14 Based on information gathered from the sources listed in Table 1 and the surveyor's knowledge, the following protected species were considered when the site assessment was carried out:

- Bats (all species)
- Otter
- Water vole
- Badger
- Birds (all species)
- Reptiles (all species)
- Amphibians
- Invertebrates

Extended Phase 1 Habitat Survey

4.15 An extended Phase 1 habitat survey of the site was undertaken during May 2019, with an update walkover being undertaken in August 2020. Descriptions of the principal habitats are provided below and are illustrated on Figure 1. In brief the site contained the following habitats.

4.16 The development area, which includes all habitats affected by the development works, consists of:

- Broadleaved woodland (plantation)
- Scattered trees

- Scrub (dense/continuous and scattered)
- Neutral semi-improved (species-poor) grassland
- Tall ruderal
- Swamp
- Standing water (ponds/wet ditches)
- Running water
- Amenity grassland
- Ephemeral/short perennial
- Boundaries (hedgerows/dry ditches/fencing)
- Buildings
- Hardstanding/bare ground/gravel/sand.

- 4.17 The wider survey area, which includes habitats within 30m of the development area and features of ecological interest located up to 250m from the development area, contains the same habitats as the development area with the exception of swamp and the River Alt which runs between the two development parcels.
- 4.18 Descriptions of the principal habitats types that are to be impacted by the development found within the extended Phase 1 habitat survey are reviewed within the following sections. This also covers the potential for protected species and species of conservation concern to be supported by the habitats present. Features of ecological interest located within the wider survey area that may be affected by the development works are also described. Features separated from the site that are unaffected by the development have been omitted.
- 4.19 Target notes have been provided for all semi-natural habitats that are deemed either ecologically important or have the potential to support protected species/Species of Principal Importance; see Appendix 1: Extended Phase 1 Habitat Survey Target Notes.

Broadleaved Plantation Woodland

- 4.20 Broadleaved plantation woodland is present in the south-east of the development area at (TN23) and along the eastern boundary at (TN59). It also occurs in the wider survey area to the west (TN35), north (TN49) and to the west of Ingoe Lane beyond the eastern site boundary.
- 4.21 The area of plantation woodland TN23 occurring within the development area is limited in extent and comprises a mix of early-mature and semi-mature native and introduced tree species. Norway maple (*Acer platanoides*) and silver birch (*Betula pendula*) dominate the canopy with locally frequent introduced pines (*Pinus* sp.), occasional horse chestnut (*Aesculus hippocastanum*), silver maple (*Acer saccharinum*) and rare Swedish whitebeam (*Sorbus intermedia*). The shrub layer is dominated by bramble (*Rubus fruticosus* agg.) with occasional hawthorn (*Crataegus monogyna*), elder (*Sambucus nigra*) and rare holly (*Ilex aquifolium*). The ground flora is dominated by common ivy (*Hedera helix*) with frequent common nettle (*Urtica dioica*) and locally frequent Himalayan balsam (*Impatiens glandulifera*).
- 4.22 The planted woodland at TN59 is located along the eastern boundary. The northern part of the woodland contains locally abundant mature poplar sp. (*Populus* sp.) trees, which appear to have been planted as a shelter belt for the adjacent motorway. The woodland is generally very scrubby with secondary stands of semi-mature and young trees, namely frequent silver birch, occasional oak sp. (*Quercus* sp.) and rare rowan (*Sorbus aucuparia*). A central portion was noted as being previously felled and currently containing only scrub species along with very shallow marshy pools resulting from rutted tracks, where old powerline works had taken

place. Species comprised occasional ash (*Fraxinus excelsior*), alder (*Alnus glutinosa*) and goat willow (*Salix caprea*). Low growing species included locally abundant cock's-foot (*Dactylis glomerata*), frequent common nettle, creeping soft-grass (*Holcus mollis*), cleavers (*Galium aparine*) and rosebay willowherb (*Chamerion angustifolium*) with occasional bramble, scaly male fern (*Dryopteris filix-mas*), hogweed (*Heracleum sphondylium*), bulrush (*Typha latifolia*) and rare pendulous sedge (*Carex pendula*).

- 4.23 Broadleaved plantation woodland bordering the wider survey area (TN35) to the west appears to be less mature, is dominated by semi-mature trees including frequent field maple (*Acer campestre*), Norway maple and apple (*Malus* sp.) and occasional rowan, common alder and ash.
- 4.24 The broadleaved plantation woodland at TN49 includes Norway maple, ash, sycamore, Italian alder and some conifers with bramble and hawthorn scrub.
- 4.25 This woodland is not considered to fall under the Habitat of Principal Importance or the North Merseyside Biodiversity Action Plan habitat (Lowland mixed broad-leaf woodland). These areas of woodland comprise frequent introduced or naturalised species and support a species-poor ground flora. Although it is small in extent and immature, it does contain a number of native broadleaved species that provide habitat for a range of species.
- 4.26 A 'habitat network' is a configuration of habitat that allows species to move and disperse through a landscape. For example, a woodland habitat network focuses on how woodland species utilise woodland habitat and disperse through this and other habitat types in the wider landscape. The woodland therefore is an integral green corridor within the local area and should be retained. Plantation woodland within and bordering the development area should therefore be considered of **local** value.

Scattered Trees

- 4.27 The development area and wider survey area contain a large number of scattered trees throughout. These include trees scattered within areas of grassland (TNs 10, 18, 29), small stands of tree planting within and on the margins of the golf course (TNs 25, 30, 31, 36, 37, 39, 40, 41, 44, 45, 46) and the central area of grassland in the south-west of the development area (TN10), and a mixture of planted and self-set trees along hedgerows and scrubby margins (TNs 6, 9, 16, 17, 19, 24, 28, 34). It is noted that during the subsequent survey visits, an unknown number of trees had been removed during course re-landscaping works.
- 4.28 The majority of trees within the development area and wider survey area are likely to have been planted, being semi- or early-mature, and many comprise introduced or naturalised species. Some unmanaged areas, often dominated by bramble scrub, also support young to early-mature trees which are likely to be self-set but also are dominated by naturalised species.
- 4.29 The most frequently occurring species of tree within the development area and wider site are sycamore (*Acer pseudoplatanus*) and Norway maple. A variety of poplar species are also present within the golf course and the central rough grassland field in the south-west of the development area (TN10), which include a number of mature hybrid trees and white poplar (*Populus alba*). Species such as common alder and wild cherry (*Prunus avium*) are frequent in the less managed areas of the development area and crack willow (*Salix x. fragilis*), white willow (*Salix alba*) and goat willow (*Salix caprea*) are abundant in damper areas including along the northern boundary of the rough grassland area in the south-west of the development area (TN6). Silver birch and sitka spruce (*Picea sitchensis*) were recorded at TN45 and pine trees at TN46.

- 4.30 Although the majority of scattered trees present within the development area are immature and/or are naturalised species and no individual trees are considered of significant value in their own right, in combination, scattered trees provide substantial areas of habitat for a range of species, significantly enhance the overall ecological value of other habitats within the site and contribute to habitat corridors across and around the site. Urban trees are also listed as a priority habitat in the North Merseyside BAP. In combination, scattered trees within the development area are therefore considered of **local** value.

Scrub Dense/Continuous and Scattered

- 4.31 Dense scrub habitats within the development area are generally associated with margins of the rough grassland areas in the south of the site (TNs 1, 6, 15, 16, 17, 19) with occasional dense stands of bramble scrub and scattered woody shrubs occurring within areas of unmanaged grassland (TNs 4, 10). A small area of dense scrub had been cleared at the southern end of TN 1 at the time of the August 2020 update survey and the area re-seeded to grassland. There is a further dense stand of bramble scrub and scattered woody shrubs occurring within an area of unmanaged grassland at TN30 within the wider survey area. Some boundaries and margins of the golf course, particularly to the north-west of the development area, also comprise dense scrub with frequent trees (34, 37, 39, 40, 41)
- 4.32 The vast majority of areas of dense and continuous scrub within the survey area are dominated by bramble, often combined with tall ruderal vegetation and scattered woody shrubs. The most extensive area of continuous scrub within the development area is along the boundary between the golf course and the rough grassland in the western parcel of the development area (TN6). This area is dominated by bramble scrub with frequent elder and occasional hawthorn, goat willow, crack willow, white willow and ash, as well as scattered trees.
- 4.33 Some areas of rough grassland in the west of the development area (TNs 5, 10) support patches of low bramble scrub and scattered woody shrubs including frequent hawthorn and goat willow, and occasional dog rose (*Rosa canina*). The margins and rough areas of the golf course also support scattered shrubs including hawthorn, goat willow, dog rose, elder, elm (*Ulmus* sp.), cotoneaster (*Cotoneaster* sp.) and Japanese rose (*Rosa rugosa*).
- 4.34 Scrub habitats within the site are generally species-poor and dominated by bramble. Notwithstanding this, they do contribute to a mosaic of habitats which provides opportunities for a range of species within the development area and enhances the ecological value of the golf course as a whole in combination with scattered trees, woodland and rough grassland habitats. In addition, they also combine with these habitats to form habitat corridors and stepping stones, facilitating the movement of wildlife around the development area and the wider site. Scrub habitats within the development area are therefore considered, in combination, to be of **local** value.

Neutral (Species-Poor) Semi-improved Grassland

- 4.35 Extensive areas of species-poor semi-improved grassland habitats occur in the west of the development area (TNs 2, 5, 10, 12, 18) and within small isolated patches and the margins of the golf course around the golf course (TN30).
- 4.36 The rough grassland field (TN2) bordering the western side of the River Alt corridor appears unmanaged and has a long sward which is often tussocky and rank. The sward is dominated by red fescue (*Festuca rubra*), false oat-grass (*Arrhenatherum elatius*), creeping bent (*Agrostis stolonifera*), common bent (*A. capillaris*) and rough meadow-grass (*Poa trivialis*) with frequent cock's-foot sweet vernal-grass (*Anthoxanthum odoratum*) and occasional Yorkshire fog (*Holcus lanatus*), meadow foxtail (*Alopecurus pratensis*) and perennial rye-

grass (*Lolium perenne*). There is a low abundance of herbaceous species within the sward, but those most abundant include frequent creeping thistle (*Cirsium arvense*), broad-leaved dock (*Rumex obtusifolius*) and ribwort plantain (*Plantago lanceolata*) which are typical species of improved grasslands. Other species recorded include occasional to frequent cut-leaved crane's-bill (*Geranium dissectum*), dandelion (*Taraxacum officinale* agg.), creeping buttercup (*Ranunculus repens*), common vetch (*Vicia sativa*) and cuckooflower (*Cardamine pratensis*), cow parsley (*Anthriscus sylvestris*), field horsetail (*Equisetum arvense*), common ragwort (*Senecio jacobaea*), yarrow (*Achillea millefolium*) and common sorrel (*Rumex acetosa*). Additional species recorded during the August 2020 update survey included locally abundant great willowherb and creeping thistle, locally frequent to abundant silverweed (*Potentilla anserina*), occasional aster (*Aster* sp.) and rare fleabane (*Pulicaria dysenterica*) and red bartsia (*Odontites vernus*).

- 4.37 Other rough grasslands to the west and north of TN2 (TN5 and TN10) appear even less recently managed or disturbed, being very tussocky and rank and supporting areas of tall ruderal vegetation and scrub. Grassland TN5 has a very similar sward composition to TN2 but is likely to have a higher water table as indicated by the presence of tall ruderal and swamp vegetation typical of marshy conditions. Other species recorded in the sward include frequent common nettle, common hogweed, meadow buttercup (*Ranunculus acris*), great willowherb (*Epilobium hirsutum*), occasional silverweed and rare greater knapweed (*Centaurea scabiosa*). Additional species recorded during the updated survey in August 2020 included locally dominant aster, locally frequent to abundant creeping soft-grass (*Holcus mollis*), locally frequent amphibious bistort (*Persicaria amphibia*) and hairy tare (*Vicia hirsuta*), plus occasional Himalayan balsam and rare red bartsia. Field TN10 supports a similar grassland habitat, but is considered less species-rich than TN5.
- 4.38 The grassland in the south-western corner of the development area (TN12) has a less matted sward than adjacent rough grassland fields. The sward has a similar composition, being dominated by red fescue and sweet vernal-grass with frequent false-oat grass and smooth meadow-grass (*Poa pratensis*). It has a very limited density of forbs with most frequent species including common mouse-ear (*Cerastium fontanum*) and ribwort plantain with occasional common sorrel, meadow buttercup, white clover (*Trifolium repens*), dandelion, broad-leaved dock, cow parsley and cuckooflower. Additional species recorded during the August 2020 update included abundant common bent, frequent Yorkshire fog, locally frequent smooth hawk's-beard (*Crepis capillaris*) and creeping bent, locally occasional to frequent yarrow, locally occasional curled dock (*Rumex crispus*), rare to occasional creeping buttercup and rare common knapweed (*Centaurea nigra*).
- 4.39 Rough areas of the wider golf course comprise unmanaged grassland with frequent shrubs and trees. The grassland has a very similar composition to the areas in the south-west of the site (TNs 2, 10), generally being dominated by red fescue with abundant coarse grass species including rough-meadow grass, smooth meadow-grass and cock's-foot, and a low abundance of herbaceous species typical of poor semi-improved grassland.
- 4.40 Mown grassland adjacent to the car park in the south-east of the development area (TN18) comprises species-poor semi-improved grassland with a short sward which has a similar composition to other semi-improved grassland in the south-west of the site. The grassland is dominated by red fescue with frequent cock's-foot, occasional sweet vernal-grass, Yorkshire fog, smooth meadow-grass and false brome (*Bromus sterilis*). Herbaceous species include frequent daisy (*Bellis perennis*), common ragwort, dandelion, creeping buttercup, locally frequent sheep's sorrel (*Rumex acetosella*), and occasional yarrow, common mouse-ear, common vetch, cow parsley, field woodrush (*Luzula campestris*), ribwort plantain, field horsetail and cuckooflower. Additional species recorded during the August 2020 update

included: occasional smooth hawk's-beard and rare common bird's-foot trefoil (*Lotus corniculatus*), common cat's-ear (*Hypochaeris radicata*) and a species of hawkbit (*Leontodon* sp.). The turf had been stripped in one area.

- 4.41 Areas of semi-improved grassland within the development area are species-poor, supporting a limited diversity of herbaceous species. It is considered likely that the interest of these habitats has been degraded over recent years by lack of management which has led to the dominance of rank grasses, tall ruderal species and herbaceous species more typical of improved grassland such as creeping thistle and broad-leaved dock. In their current condition these areas of grassland are not considered to meet the criteria of Habitat of Principal Importance (Lowland Meadow). The grassland does, however, meet the criteria for the North Merseyside BAP 'Urban Grassland' habitat, which includes all grassland habitats within urban areas and urban fringes. In view of this, and the moderate to large extent of this habitat which is likely to be a relatively scarce habitat in the wider area, species-poor semi-improved habitats within the site are therefore considered of **local** value.

Tall Ruderal

- 4.42 Tall ruderal habitats are frequent within the development area in association with the River Alt corridor (TN1), rough grassland habitats in the south of the site (TNs 5, 10), areas of disturbed ground along the northern boundary of the development area (TNs 4, 7, 13) and unmanaged margins of the golf course (TNs 25, 33). Dense scrub habitats on the margins of the development area also usually support frequent tall ruderal species.
- 4.43 The River Alt corridor (TN1) comprises a mosaic of scrub (dominated by bramble), tall ruderal and rough grassland habitats. More continuous areas of tall ruderal vegetation are often dominated by Himalayan balsam (*Impatiens glandulifera*), great willowherb, common nettle, mugwort (*Artemisia vulgaris*), common hogweed and broad-leaved dock with occasional hemlock (*Conium maculatum*) and stands of Japanese knotweed (*Fallopia japonica*).
- 4.44 Areas of disturbed ground, usually present around recently excavated waterbodies and ditches on the margins of the golf course and northern boundaries of rough grassland in the south of the site (TNs 4, 7, 13) support tall ruderal species including frequent common nettle, great willowherb, rosebay willowherb, broad-leaved dock, common hogweed, burdock (*Arctium* sp.) and cleavers (*Galium aparine*), often intermingled with bramble and grasses.
- 4.45 More extensive areas of habitat dominated by tall ruderal species are present within damp areas of grassland in the west of the development area (TNs 5, 10) which are dominated by naturalised aster species (*Aster* sp.), rosebay willowherb and great willowherb.
- 4.46 Within the wider golf course, there are scattered patches of tall ruderal vegetation (TNs 44 and 45) associated with scattered trees. Species recorded include: creeping thistle, broadleaved dock, Himalayan balsam and common hogweed.
- 4.47 Tall ruderal habitats within the development area are often limited in extent and are dominated by common and widespread species or, in the case of grassland habitats in the south of the site, introduced species and are therefore considered to have limited value in their own right. Tall ruderal habitats of this character are quick to establish on disturbed ground which is frequent around the margins of the golf course and grassland fields in the west of the development area. Tall ruderal habitats within the development area are therefore considered of **negligible** ecological value and are excluded from further appraisal.

Swamp

- 4.48 Areas of swamp habitat within the development area are located within marshy areas of rough grassland in the west of the development area (TNs 7, 8). These areas are dominated by reed canary-grass (*Phalaris arundinacea*) with frequent bulrush, field horsetail, amphibious bistort and soft rush (*Juncus effusus*).
- 4.49 Although these habitats contribute to a mosaic of habitats which are likely to provide opportunities for a range of species within the development area, they are limited in extent and relatively species-poor. Swamp habitats within the development area are therefore not considered of any higher than **site** value.

Standing Water (Ponds and Wet Ditches)

- 4.50 The development area supports a range of waterbodies, many of which have only been recently created and are likely to hold standing water only seasonally.
- 4.51 Recent excavations along the northern margins of the rough grassland habitats (TNs 4, 7) within the development area and on the eastern margin of the development area (TN26) were mostly dry, containing very little standing water. The excavations next to the River Corridor (TN4) were shallow and the bases comprised bare ground with frequent crack willow and white willow saplings and occasional common spike-rush (*Eleocharis palustris*), soft rush and rare bulrush. The excavations at TN7 have since been re-modified and the area contains mostly bare ground. The excavations at TN26 were similar but had a base with a sparse coverage of great willowherb and Yorkshire fog.
- 4.52 Several further waterbodies were located within the wider golf course at TNs 32, 36, 38, 42, 43, 46, 47, 48, 50, 51-58 during the August 2020 and January 2021 update surveys.
- 4.53 There are two recently dug ponds (TNs 32, 38) which held standing water which are located in the western areas of the golf course and a linear waterbody on the western margin of the golf course (TN36) which also held standing water. The two ponds appeared to have been excavated very recently and had no aquatic vegetation and little marginal vegetation. The northern of the two ponds (TN38) had occasional Himalayan balsam along its banks. The pond at TN 32 was still turbid in August 2020 with frequent submerged aquatic vegetation and scattered marginal bulrush. The linear set of pools along the western margin of the golf course (TN36) are linked by wet ditches which run along the boundary of the development area and join to other recently excavated waterbodies located in a triangle of land to the west of the development area (TN42). These waterbodies contained standing water at the time of survey with little vegetation other than locally frequent bulrushes and Himalayan balsam. A further recently excavated, unshaded rectangular water body, approximately 6m x 7m was noted during the August 2020 update. There was very little aquatic/marginal vegetation with some bulrush colonising (TN50).
- 4.54 The pond at TN43 was dominated by bulrush and is located where three ditches (approximately 1m wide) intersect, the southern ditch being dry at the time of survey. There were three recently excavated ponds at TN46 (one of which was dry at the time of survey) with little to no vegetation, just some bulrush. The pond at TN47 was kidney-shaped and supported bulrush. The pond at TN48 supported dense bulrush and was associated with a recently excavated, mostly dry ditch, up to 2m wide with steep banks and with no vegetation.
- 4.55 The pond at TN51 is a very small, shallow pond in late succession on the eastern edge of the golf course. This pond was found to be dry during the course of subsequent surveys in 2021. To the north is TN58 which is a much larger pond and also considered to dry during the summer months. This pond contained no aquatic vegetation.

- 4.56 The ponds at TN52 and 57 are all recently created, shallow ponds. TN 52 is located on the edge of the golf course in an area of rough grassland, whereas TN57 comprises two ponds located more centrally on the golf course next to a group of coniferous trees.
- 4.57 The pond at TN53 is a large ephemeral waterbody located to the very northern part of the golf course. Marginal plants, namely soft rush and spiked rush are present but the pond is considered to fluctuate widely in area and potentially dry. TN54 comprises two established and linked waterbodies along the northern boundary supporting kingfisher. TNs 55 and 56 are both the result of digger excavations with TN55 being very small and covered by floating duckweed with TN56 being linked to a drain with a variable water table which ranges from being full to completely dry in a short period of time. The latter had no aquatic vegetation and both are located on the northern boundary of the golf course.
- 4.58 Ponds generally form ecological hotspots within the countryside. In July 2008, a new UK Pond Habitat Action Plan (HAP) was introduced, which aimed to identify 'Priority Ponds' as part of the Million Ponds Project, led by Pond Conservation (now the Freshwater Habitats Trust). Although Habitat Action Plans are no longer used as part of the Government's biodiversity protection plans, the Freshwater Habitats Trust still considers that the priorities for protecting ponds that were identified at the time are still relevant. Not all ponds will fall under the criteria and it is estimated that around 40% of all UK ponds will meet this.
- 4.59 The ponds located within the development area meet the initial criteria set under the UK BAP and North Merseyside Ponds HAPs of being either permanent or seasonal water bodies up to 2ha in size. To be considered as a Habitat of Principal Importance, further additional criteria must be met, including the presence of key species or exceptional assemblages of plants and/or animals. It is considered unlikely that the ponds would meet this classification due to being very recently created. However, they do provide habitat for range of species and enhance the ecological value of the site. Newly created standing water habitats are often quick to develop biodiversity interest and similar waterbodies are scarce in the wider area. The dry waterbodies identified during the survey of the development area and are considered of negligible value; other waterbodies (TNs 32, 36, 38 within the wider golf course) are considered of **local** value.

Running Water

- 4.60 The River Alt (TN1) runs south to north through the centre of the site and the southern section is bordered either side by the development area. The river is up to 10m wide and has a moderate flow rate. The water level appears fairly shallow; around 50cm deep. The banks comprise a mixture of reinforced concrete and earth which support a mosaic of scrub, tall ruderal vegetation and rough grassland. Maintenance works of sections of the river banks including removal of bank vegetation was noted during the update surveys in August 2020 and January 2021. These areas were found to have largely re-vegetated during the otter and water vole surveys undertaken in June 2021. Along a few sections at the tops of the banks are earth bunds which are now generally vegetated with bramble scrub and tall ruderal vegetation with species characteristic of disturbed ground. Pondweed (*Potamogeton* sp.) dominates the aquatic vegetation within the river. Himalayan balsam was dominant along the banks and Japanese knotweed was locally frequent on the southern section close to the golf club car park, mostly concentrated on the western bank.
- 4.61 Although not particularly botanically diverse, the River Alt corridor provides a valuable mosaic of habitats significantly enhancing the ecological interest of the development area and the wider site. The habitats along the river corridor provide opportunities for a range of wildlife including invertebrates, breeding birds, amphibians and small mammals. It is also of value for its importance as a linear connective habitat. Although the section of the river bordering

the development area is likely to be of no higher than **local** value in its own right, the River Alt provides a corridor of semi-natural habitats which facilitates the movement of wildlife across the North Merseyside area and as a whole should be considered of at least **district** value. The River Alt is designated as a LWS and rivers are also listed as a Habitat of Principal Importance.

Amenity Grassland

- 4.62 Frequently mown amenity grassland dominated the formally managed areas of the golf course within the development area (TN 29). The grassland on the golfing fairways and greens (TN29) is regularly mown and is dominated by fine grasses with a very low diversity of species and no forbs.
- 4.63 The amenity grassland can be classified as species-poor and is considered to have a low ecological value. Amenity grassland within the development area is therefore considered of no higher than **site** value. Amenity grassland habitats do, however, meet the criteria for the North Merseyside BAP 'Urban Grassland' habitat due to their value to urban wildlife.

Ephemeral/Short Perennial

- 4.64 Ephemeral/short perennial vegetation occurs on disturbed ground within the development area, including around recently excavated ponds and ditches (TNs 4, 7, 26) and other areas of bare ground and gravel (TNs 13, 14, 21). Ephemeral/short perennial vegetation also occurs on disturbed ground in the wider golf course (TN36). Species recorded in these areas include aster (*Aster* sp.), hairy bittercress (*Cardamine hirsuta*), black medic (*Medicago lupulina*), cypress spurge (*Euphorbia cyparissias*), sheep's sorrel, hairy sedge (*Carex hirta*), ribwort plantain, common fumitory (*Fumaria officinalis*), garlic mustard, perennial wall rocket (*Diploaxis tenuifolia*), white campion (*Silene latifolia*) and scented mayweed (*Matricaria chamomilla*), amongst others.
- 4.65 During the updated survey in August 2020 the area at TN4 had vegetated over with abundant knotgrass (*Polygonum aviculare*) and field horsetail (*Equisetum arvense*), plus occasional Yorkshire fog, scentless mayweed (*Tripleurospermum inodorum*), common cudweed (*Filago vulgaris*), creeping thistle, colt's-foot (*Tussilago farfara*), Himalayan balsam and aster. Mugwort and common couch (*Elytrigia repens*) were frequent at the northern end. The area at TN 14 was found to be well vegetated with frequent yarrow, occasional cock's-foot, Yorkshire fog and red fescue, locally occasional common bent and rare hairy tare, common bird's-foot trefoil, red clover and red bartsia. Himalayan balsam was noted at TN 26.
- 4.66 Ephemeral/short Perennial vegetation is typical of disturbed ground. Open Mosaic Habitats on Previously Developed Land are a Habitat of Principal Importance, however, the habitats present within the development are very limited in size and are therefore not considered to meet the criteria for this priority habitat type. These habitats do not support an exceptional assemblage of plant species and are likely to be frequent in the wider site and surrounding area. In view of these factors, ephemeral habitats within the area are considered of **negligible** value and excluded from further assessment.

Hedgerows

- 4.67 Rough grassland fields in the south-west of the site are bordered by native hedgerows (TNs 3, 9, 11, 15, 16). These hedgerows are considered species-poor, being heavily dominated by hawthorn with occasional elder and rare *Ribes* sp. and garden privet (*Ligustrum ovalifolium*). Bramble is often an abundant component of the hedgerow and in some areas grows alongside the hedgerows in dense stands. The hedgerow on the south-western boundary (TN15) has abundant trees which grow within the hedgerow and alongside

including frequent elm (*Ulmus* sp.), Norway maple, sycamore, wild cherry, common alder and common lime.

- 4.68 Along the eastern boundary of the development area (TN28) is a continuous line of native shrubs and frequent semi- and early-mature trees including frequent hawthorn, Norway maple, sycamore, goat willow and pear (*Pyrus* sp.). The base comprises a relatively species-rich rough grassland with abundant cleavers and cock's-foot, and occasional common knapweed, greater knapweed and herb-Robert (*Geranium robertianum*), amongst others.
- 4.69 Short sections of species-poor hawthorn dominated hedgerow along occur along the south-eastern boundary of the development area (TNs 17, 19, 20) and north-west (TN40) of the wider survey area. Short sections of ornamental planted hedgerow dominated by garden privet occur along a driveway to the immediate east of the buildings in the south-east of the development area (TNs 22, 24).
- 4.70 Hedgerows over 20m in length and composed of at least 80% of one or more UK native species are considered to be a Habitat of Principal Importance. However, the hedgerows within the development area are fairly immature and are species-poor (fewer than four native woody species per 30m), being heavily dominated by hawthorn, and are therefore unlikely to be considered 'important' under the ecological criteria of the Hedgerow Regulations 1997. Notwithstanding this, native hedgerows within the development area provide habitat for a range of species and contribute to a network of linear habitat, facilitating the movement of wildlife around the development area and wider site. In combination, native hedgerows within the development area are therefore considered of **local** value.
- 4.71 Ornamental hedgerows would not meet the criteria as Habitats of Principal Importance and due to their limited size and dominance of non-native species are considered of **negligible** value.

Dry Ditches

- 4.72 A small number of dry ditches occur within and on the margins of the development area (TNs 27, 33) and wider golf course. These ditches often support vegetation typical of disturbed ground including ephemeral species, tall ruderal species and coarse grasses. Some have been fairly recently excavated and support little vegetation. During the August 2020 update survey, the southern end of the ditch TN 27 was found to be holding water locally and part of the ditch at TN 33 was being in-filled. Due to being largely dry and having no particular botanical interest, they are considered of **negligible** value and excluded from further assessment.

Buildings and Structures

- 4.73 Buildings within the development area are limited to the Club House buildings in the south-east of the area. These buildings have **negligible** ecological value however may provide nesting and roosting opportunities for fauna as discussed below.

Other Habitats (Bare Ground/ Hardstanding)

- 4.74 Other habitats present within the development area and wider golf course include areas of bare ground, such as sand bunkers, gravel car park and hard standing. These habitats have **negligible** value as an ecological habitat and excluded from further assessment.

Protected and Notable Species

- 4.75 The following section evaluates habitats and their suitability to support species that will potentially be affected by the proposed development works.

Notable Plants

- 4.76 No plant species receiving full protection under Schedule 8 of the Wildlife and Countryside Act 1981 (as amended) were recorded within the development area or wider survey area during the extended Phase 1 habitat survey. No notable species, including Species of Principal Importance or North Merseyside Biodiversity Action Plan species were recorded during the Phase 1 habitat survey.
- 4.77 All wild plant species in Britain are protected from intentional uprooting by unauthorised persons. However, no plant species fully protected under Schedule 8 of the Wildlife and Countryside Act 1981 (as amended) were recorded within the survey area.

Invasive Plants

- 4.78 The following invasive species listed on Schedule 9 of the Wildlife and Countryside Act were recorded during the survey within the development area or wider survey area. Please note that this is unlikely to provide an exhaustive list of locations where invasive plant species occur within the development area and wider survey area.

Japanese Knotweed/ Giant Knotweed

- 4.79 Japanese knotweed (*Fallopia japonica*) was recorded along the River Alt corridor (TN1) and within dense scrub on the northern boundary of the area of rough grassland (TN6). Giant knotweed (*Fallopia sachalinensis*) was recorded within derelict areas supporting dense scrub and trees located to the east of Ingoe Lane to the east of the development area. Both these species are listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

Himalayan Balsam

- 4.80 Himalayan balsam was recorded in abundance along the River Alt corridor (TN1). It is present in areas of disturbed ground, tall ruderal, plantation woodland and rough areas of the golf course within the development area (TNs 4, 21, 23, 25 and 26). In the wider golf course, Himalayan balsam was found at TNs 30, 34, 36, 38 and 45. Himalayan balsam is listed within Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) and as a Species of European Union Concern under the EU Invasive Alien Species Regulation (1143/2014).

Cotoneaster Species

- 4.81 Five species of cotoneaster are included on Schedule 9 of the WCA. A species of cotoneaster was recorded within the hedgerow in the eastern boundary of the development area (TN25) and within areas of shrubs in the rough areas of the golf course (TN30). Cotoneaster is difficult to identify to species level and therefore a precautionary approach has been taken and it is assumed that the species present is listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

Japanese Rose

- 4.82 Japanese rose (*Rosa rugosa*) was recorded within areas of scrub surrounding the golf club storage compound between the River Alt and Club House (TN41). This species is listed on the Wildlife and Countryside Act 1981 (as amended) Schedule 9.

Bats

- 4.83 The data search identified 239 records of bats within approximately 2km of the site including records of common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, noctule, Nyctalus sp., Natterer's bat, brown long-eared and unidentified bat species. The nearest records to the site were common pipistrelle and soprano pipistrelle bats recorded just to the east of the M57/A506 motorway junction approximately 500m east of the surveyed buildings. The majority of other records provided by Merseyside Biobank pertain to a waste water treatment

works located approximately 1.5km south-west of the buildings. One record of a European Protected Species mitigation licence for bats was identified from the MAGIC database within 2km of the site. This relates to a common pipistrelle roost located approximately 1.4km south of the site, dating from 2010.

- 4.84 Buildings and trees within the development area were identified as being potentially suitable for roosting bats.
- 4.85 The results of the Preliminary Roost Assessments (PRAs) undertaken in 2019 and 2020 identified varying levels of suitability for roosting bats throughout the building complex subject to survey. Building 1 was assessed as having **low** suitability, Buildings 2 and 3 were assessed as having **moderate** suitability and Building 4 was assessed as having **negligible** suitability for roosting bats.
- 4.86 Evidence of bat re-entry by a single bat was observed within Building 2 during the second 2020 presence/absence survey. No evidence of roosting bats was found within Buildings 1 or 3 during the presence/absence surveys undertaken in 2019 and 2020.
- 4.87 During the surveys completed, commuting and foraging activity was also recorded, predominantly by common pipistrelle bats, but also by noctule bats, occasional soprano pipistrelle and a single *Myotis* sp. bat. Please refer to Protected Species Report (Bats): Buildings dated February 2020 (updated August 2021) produced by Ecology Services Ltd for further details.
- 4.88 During the 2019 and 2020 PRA and Potential Roost Feature (PRF) surveys of the affected trees, no evidence of past or present use of any of the trees by bats was found. All but one tree and one tree group were considered to have negligible or low bat roost potential and therefore no further bat surveys were required.
- 4.89 One tree and the tree group with moderate potential will be subject to a further PRF inspection immediately prior to felling.
- 4.90 Tree Group 10 contains a high number of dead trees that have delaminating bark which provide negligible - low potential for occasional roosting bats during the active season, although no evidence of past or present use by bats was found during the PRA and PRF surveys. Please refer to Protected Species Report (Bats): Trees dated September 2019 (updated August 2020 and July 2021) produced by Ecology Services Ltd for further details.
- 4.91 Habitats within and adjacent to the development area including the River Alt corridor, semi-improved grassland, swamp, tall ruderal, scrub and plantation woodland habitats provide good opportunities for foraging bats as well as linear features for commuting bats.
- 4.92 The bat habitat activity surveys (transect and automated detector surveys) recorded seven bat species/ genus groups foraging and/ or commuting within the site.
- 4.93 Common pipistrelle made up the majority of activity recorded during the transect surveys with low numbers of individuals recorded on a frequent basis foraging around the site, mostly utilising interfaces between trees, scrub, grassland habitats and the site boundaries. Other areas of the site with higher concentrations of recordings include the northern boundary treeline, the north western boundary near the ditch and along the River Alt.
- 4.94 The transect and automated surveys also recorded relatively large numbers of noctule and soprano pipistrelle foraging above the site on a regular basis. Other species recorded in low

numbers at the site on an occasional basis included *Nathusius pipistrelle*, *serotine*, brown long-eared and *Myotis* spp. bats.

- 4.95 The habitat activity surveys have identified main key habitat areas at the site:
- The River Alt and adjacent riparian habitat;
 - Higher general activity areas such as site boundaries and woodland edges;
 - Higher assemblage of species at LP3.
- 4.96 Other supporting habitats present at the site in the form of:
- The tree lines within the north and along the northern boundary of the site;
 - Hedgerows within the southern area of the site; and
 - The western and south western boundaries of the site.
- 4.97 Please refer to the Bat Transect and Automated Survey Report dated January 2020 (updated August 2021) produced by Ecology Services Ltd for further details. Updated habitat assessments in August 2020 and January 2021 confirmed the habitats within the site to be largely unchanged and therefore the results of the 2019 transect and automated detector surveys are still considered to be valid.
- 4.98 All British bats and their roosts are afforded protection under the 1981 Wildlife and Countryside Act (as amended) and are listed under Annex IV of the Habitats Directive as in need of protection. Certain species of bat are Species of Principal Importance under the NERC Act 2006, including noctule bat (*Nyctalus noctula*), soprano pipistrelle bat (*Pipistrellus pygmaeus*) and brown long-eared bat (*Plecotus auritus*).

Otter

- 4.99 The desktop study found no records of European otter (*Lutra lutra*) within 2km of the development area.
- 4.100 No evidence of otter was recorded incidentally during the extended Phase 1 Habitat Survey. The River Alt, running between the two development areas and through the wider site, provides suitable aquatic foraging habitat for otter. Habitats within the development area, including plantation woodland and dense scrub, provide suitable habitat for holts or lay-up sites within close proximity to the river corridor. It is therefore considered that otter could be present at the development area due to the presence of suitable habitat.
- 4.101 An otter survey of the River Alt, up to 200m up and down stream of the footbridge and path crossing point and within a 50m buffer around the surveyed watercourse was undertaken in 2019 and updated in 2020 and 2021 (The survey area was extended in 2021). No evidence of otter was recorded during the 2019 survey, however, evidence of use of the River Alt and surrounding area by otter (spraints and prints) was identified during the 2020 and 2021 surveys. Please refer to Preliminary Otter Survey Report dated April 2020 (updated September 2020, January 2021 and August 2021) produced by Ecology Services Ltd for further details.
- 4.102 Otters are protected under the Wildlife and Countryside Act 1981 (as amended) and Annex IV of the EC Habitats Directive which has been transposed into national legislation by means of the Conservation of Habitats and Species Regulations 2017 (as amended). Otters are one of the Species of Principal Importance listed under the Natural Environment and Rural Communities (NERC) Act 2006 and a Lancashire BAP species.

Red Squirrel

- 4.103 The desktop study found 87 records of red squirrel (*Sciurus vulgaris*) within c.2km of the development area, dated between 1967 and 2016. The majority of these date from around 1999 to 2002 and pertain to wooded areas around Fazakerley Brook, approximately 1.2km south-west of the site. This area is relatively isolated from the development site by residential development and roads.
- 4.104 The majority of trees within the development area are immature and do not form a significant extent of woodland habitat for red squirrel. The site is linked to wooded habitats to the north that could potentially support suitable habitat for red squirrel, however, no records exist for this area which is designated as a Local Wildlife Site, and the distribution of this species in the area is generally very well known. It is therefore considered unlikely that red squirrel is present within the development area and red squirrels are not considered further within this report.
- 4.105 Red squirrels are protected under Schedules 5 and 6 of the Wildlife and Countryside Act 1981 (as amended). Under this legislation it is illegal to "intentionally kill, injure or take" or "damage, destroy or obstruct" access to any structure or place used for shelter or protection, or to disturb any animal while it is in a drey. The species is also a Species of Principal Importance.
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Water Vole

- 4.111 The desktop study found 104 records of water vole (*Arvicola amphibius*) within 2km of the site, dated between 1980 and 2018. Six of these records (dated between 1999 and 2010) pertain to the site, specifically to areas of the golf course along or close to the River Alt corridor, which is designated as a Local Wildlife Site for its value for water vole.
- 4.112 No evidence of water vole was incidentally recorded during the extended Phase 1 habitat survey. The River Alt, running south to north through the centre of the site and between the two parcels of the development area, provides suitable habitat for water vole. Other waterbodies within the development area, including recently created ponds and ditches which contain water have the potential to be suitable for water vole, but are considered sub-optimal habitat due to them supporting little marginal vegetation for foraging.
- 4.113 Presence / absence surveys of the affected section of the River Alt and within up to 100m up and downstream were undertaken between May and September 2019 with further surveys in September 2020 and June 2021. Watercourse habitats within the survey area were found to vary in their suitability; generally they contained suitable banks for burrows with water present and sufficient herbaceous vegetation with the potential to support water vole.
- 4.114 There were access limitations due to dense vegetation, steep banks and deep water and no evidence of water vole was found. The second survey in 2019 was undertaken using a kayak.
- 4.115 The second survey round in 2019 found evidence of water vole within the ditch approximately 32m from the nearest proposed outfall. The evidence found (small numbers of droppings) is indicative of a transient water vole passing through the watercourse. No other evidence of water vole such as latrines, feeding remains or footprints were identified during the surveys and no evidence of water vole was found during the September 2020 or June 2021 surveys. Small mammal runs and burrows were identified in 2019 but as no other water vole evidence was found, these cannot be positively attributed to water vole. The water level in the river can fluctuate considerably (over 1m) and it is considered unlikely that water vole would establish territories and construct burrows at the water line as they would be subject to frequent flooding. Please refer to Water Vole Survey Report dated April 2020 (updated September 2020, January 2021 and August 2021) produced by Ecology Services Ltd for further details.
- 4.116 Water vole is one of the Species of Principal Importance listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Since 1998 the Water Vole has received legal protection through being added to Schedule 5 of the Wildlife and Countryside

Act 1981 (as amended) in respect of Section 9(4). The water vole gained additional protection through the amendment of Schedule 5 by Statutory Instrument 2008 No. 431. The Water Vole and its habitat now receive full protection.

Hedgehog

- 4.117 The desktop study found 33 records of hedgehog (*Erinaceus europaeus*) within 2km of the development area, dated between 1911 and 2020. There were no records from Kirkby Valley Golf Course.
- 4.118 The mosaic of rough, species-poor semi-improved grassland, amenity grassland, tall ruderal, scrub and plantation woodland habitats within the development area provide suitable terrestrial habitat for foraging and hibernating hedgehogs. It is therefore possible that hedgehog could be present within the development area.
- 4.119 Hedgehog is a Species of Principal Importance for the purpose of conserving biodiversity and covered under section 41 (England) of the Natural Environment and Rural Communities (NERC) Act 2006. They therefore need to be taken into consideration by a public body when performing any of its functions with a view to conserving biodiversity. Hedgehog numbers in the UK suffered a 20% decline over four years (2001-2005). This is equivalent to >50% decline over 25 years.

Birds

- 4.120 The desktop study identified low resolution records for barn owl, common crossbill, kingfisher, little ringed plover, marsh harrier, peregrine falcon and quail within 2km of the site, which are species listed on Schedule 1 of the 1981 Wildlife and Countryside Act (as amended). The site is considered not to provide suitable breeding habitat for these species.
- 4.121 The development area provides habitats suitable for a range of breeding birds typical of farmland, scrub, woodland edge and wetland habitats. Habitats of potential value for breeding include rough grassland, scrub, plantation woodland, swamp and the River Alt corridor. The best habitats for breeding birds are found in the unmanaged part of development area plus the R. Alt corridor.
- 4.122 Further breeding bird surveys of the western, unmanaged part of the development area were undertaken in May and June 2019. Surprisingly low numbers of birds were recorded that would have otherwise been expected for a site of this size.
- 4.123 Of the 32 species recorded, one was confirmed as breeding on the site, 17 are classed as probable breeding species and 7 are possible breeding species. Of the remainder, 6 are categorised as non-breeding species and one species was recorded flying over the site.
- 4.124 Five Species of Principal Importance and three species included in the North Merseyside BAP were recorded. Six species were Red listed and seven Amber listed, of which, five species are assessed as being probable breeding species (Red listed linnet and song thrush plus Amber listed dunnoek, reed bunting and willow warbler).
- 4.125 On the evening of the 24th of June 2019 during a bat transect survey, a barn owl (Sch 1 bird) was observed hunting in the northern portion of the site over an area of rough grassland. However, there are no buildings within the site or tree cavities sufficiently large enough to support breeding or roosting barn owl.
- 4.126 The mown grassland in the west of the largely unmanaged part of the site currently provides good foraging habitat for Red listed starling and mistle thrush. The grassland area to the

north is tussocky and affords the most suitable grassland structure to support small mammals and is suitable for hunting barn owl, which is a Schedule 1 species and the Amber listed kestrel. Wetter parts of this area have areas of tall ruderal intermixing with the grassland favoured by the occasional sedge warbler and one singing male reed bunting, which is a Species of Principal Importance and Red listed. The south western and south eastern blocks of grassland are unremarkable in terms of value to birds other than for foraging value and it was in this habitat that a small group of Red listed linnet was recorded, which may breed in nearby riverside scrub. Boundary features were where the more common bird species were encountered such as wren, robin, goldfinch and the occasional whitethroat. Grey wagtail, which is Red listed was recorded locally along the River Alt corridor outside the development area. Where trees are a dominant feature, the occasional blackcap and Amber listed willow warbler were also present. Dunnock, which is a Species of Principal Importance and Amber listed was occasionally encountered, but not in the numbers that would be expected for a site of this size.

- 4.127 Taller trees, such as Lombardy poplar in the southern central part of the site, contained fairly frequent magpie and crow nests which may account for the lower than expected bird assemblage as a result of disruption to nests and predation of nestlings. The presence of such species is also likely to deter nesting birds. Much of the scrub was found to be tall and leggy and not ideal for nest construction by smaller species, but smaller areas of patchy bramble were still a common feature with whitethroat and chiffchaff commonly noted calling. Please refer to Breeding Birds Survey Report dated October 2019 (updated August 2021) produced by Ecology Services Ltd for further details.
- 4.128 Updated habitat assessments in August 2020 and January 2021 confirmed the habitats within the site to be largely unchanged and therefore the results of the 2019 breeding bird surveys are still considered to be valid.
- 4.129 The Wildlife and Countryside Act (WCA) 1981 (as amended), states that all wild birds are protected at all times against killing or injury. Under the WCA, it is an offence to kill, injure or take any wild bird, to take damage or destroy the nest of any wild bird, or to take or destroy the egg of any wild bird.
- 4.130 Schedule 1 birds are afforded additional protection against disturbance during the breeding bird season at or near the nest. Options to avoid disturbance for Schedule 1 species will need implementing if a Schedule 1 species is found to be present on site during the breeding bird season.

Amphibians

- 4.131 The desktop study found one record of great crested newt (dated 2011) and four records of common toad (dated between 2008 and 2017) within 2km of the development area. The great crested newt record pertains to a park located approximately 1.2km north-east of the site. The closest record of common toad pertains to residential development located approximately 400m south-west of the site on the opposite side of the busy A506 Valley Road.
- 4.132 There are twenty waterbodies located within the site. Many of the waterbodies are relatively recently created and are likely to be only seasonally wet, being dry at the time of the survey. Some of these were re-filled shortly after being discovered as they were part of ongoing reprofiling works at the golf course. A review of the OS map and satellite images of the area suggest that one other waterbody is located within 250m; located within a field c.75m to the west of the site. This has been excluded due to a dispersal barrier, namely Aintree Lane. The

twenty waterbodies were subject to presence / absence eDNA survey over a period of three years from 2019 – 2021.

- 4.133 Habitats within the development area, including rough, species-poor semi-improved grassland, swamp, tall ruderal, scrub and plantation woodland habitats, provide suitable terrestrial habitat for amphibians as well as refuge opportunities. Further refuge and hibernation opportunities for amphibians are provided by banks of earth and rubble created during pond and ditch excavation works. In view of the presence of suitable aquatic and terrestrial habitat within the site it is therefore conceivable that the development area could support great crested newts and other species of common and widespread amphibians.
- 4.134 The twenty waterbodies subject to eDNA sampling were all negative for presence of great crested newts. The HSI scores for the sampled ponds ranged from Poor to Excellent. Please refer to Amphibian Survey Report dated July 2021 produced by Ecology Services Ltd for further details.
- 4.135 Great crested newts and the habitat they use for protection and shelter are protected under Conservation of Habitats and Species Regulations 2017 (as amended) and the Wildlife and Countryside Act 1981 (as amended).
- 4.136 Common toad and great crested newt are Species of Principal Importance listed under the NERC Act 2006.

Reptiles

- 4.137 The data search from Merseyside Biobank returned one record for slow-worm pertaining to a site close to the railway line approximately 1.9km south west of the site, dated 1993.
- 4.138 Habitats within the development area, including rough, species-poor semi-improved grassland, swamp, tall ruderal, scrub and plantation woodland habitats are considered to provide suitable terrestrial habitat for common and widespread species of reptiles such as slow-worm (*Anguis fragilis*) and common lizard (*Zootoca vivipara*). Refuge and hibernation opportunities for reptiles may be provided by banks of earth and rubble created during pond and ditch excavation works. The wider site is closely linked to other habitats to the north, such as the railway corridor on the northern boundary (approximately 500m north west of the development area), which typically provides good quality habitat for reptiles. The site and development area are, however, fairly isolated from other suitable habitat located to the east, south and west by wide main roads and dense residential development.
- 4.139 In Merseyside, there are no records of adder or grass snake. There are few records for common lizard away from the Sefton Coast, other than sightings in scattered areas of suitable habitat such as scrubland along parts of the steep banks of the River Mersey and relict heathland and raised bog in the St. Helens area. Slow-worms are not generally found in flat, low-lying country in Lancashire, except along a number of stretches of railway line verges and banks, which offer the necessary drainage and vegetation cover (White *et. al.*, 2017). In light of this and given the very limited records of reptiles (none within more than 25 years) within 2km of the development area, it is considered unlikely that significant numbers of reptiles are present at the site.
- 4.140 Common reptiles receive protection against killing and injuring through the Wildlife and Countryside Act 1981 (as amended). The habitats for these widespread species are not protected. Slow-worm, smooth snake, sand lizard, grass snake, adder and common lizard are Species of Principal Importance.

Invertebrates

- 4.141 The desk study returned records of five species of butterflies and moths which are Species of Principal Importance and 13 species of dragonflies and damselflies within 2km of the site. There are records for banded demoiselle and brown hawker associated with the River Alt within Kirkby Valley Golf Course, dated 2017.
- 4.142 The development area includes a number of habitat types that could be of value to invertebrates including woodland, semi-improved grassland, tall ruderal vegetation, scrub, hedgerow, swamp, ponds, ditches and a river corridor. However, in general, the habitats present within the development area and wider survey area are generally recently established and species-poor and therefore are not expected to support an exceptional assemblage of invertebrates or provide opportunities for notable, rare or scarce species. Swamp and standing water habitats within the site could provide suitable breeding habitat for a range of dragonflies and damselflies (although these appear to be regularly being modified) and the unmanaged semi-improved grassland, although not particularly species-rich) could provide suitable habitat for species of butterflies and moths associated with grassland. All dragonflies and damselflies are included under the North Merseyside BAP. Given the above it is considered that the development area is of less than local value for its invertebrate assemblage.

5.0 Impacts and Recommendations

- 5.1 In brief the National Planning Policy Framework (NPPF) (2021) asks the Local Planning Authority to protect and enhance biodiversity and that any new development should minimise impacts on biodiversity and provide net gains.
- 5.2 Habitats within the development area and wider survey area are considered suitable to support European and Statutory Protected Species, Species of Principal Importance and Local BAP species.
- 5.3 Section 40 of the NERC Act 2006 sets out the duty for public authorities to conserve biodiversity in England. Habitats and Species of Principal Importance for the conservation of biodiversity are identified by the Secretary of State in consultation with Natural England, under S.41 of the NERC Act for England. The Local Planning Authority and Government Conservation Organisations (e.g. Natural England and the Environment Agency) will expect account to be taken of these habitats and species in the overall layout and landscape strategy for the development.

Designated Sites Impacts and Recommendations

- 5.4 The development has the potential to affect the River Alt Local Wildlife Site, which is designated for its river habitats and water voles, and runs between the two development parcels. Ways in which development can avoid and mitigate potential impacts on the River Alt and its designated features are described in the habitats and species recommendations sections below.
- 5.5 In view of the distance of the site from other designated nature conservation sites in the wider area and the nature and scale of the development proposals, it is considered highly unlikely that any statutory or other non-statutory designated sites would be significantly affected by the proposals, either directly or indirectly.

Habitats Impacts and Recommendations

- 5.6 The River Alt corridor qualifies as a Habitat of Principal Importance and is designated as an LWS. The survey found the development area and wider site to contain North Merseyside local BAP habitats; 'Urban Grasslands' and 'Urban Trees'.
- 5.7 The following sections briefly evaluate each habitat that is considered to have the potential to be affected by the proposed development at the site and provide recommendations in order to ensure that the ecological value of these habitats and the site as a whole can be maintained.
- 5.8 Development works should also consider the potential presence of protected species and Species of Principal Importance to ensure compliance with wildlife legislation and planning policy and guidance. Recommendations specific to each species/ species group identified as having the potential to be present within the development area are provided in the relevant 'Species Impacts and Recommendations' sections.

Broadleaved Plantation Woodland and Scattered Trees

- 5.9 Broadleaved plantation woodland and scattered trees within and bordering the development area are considered in combination to be of local value and therefore development proposals should seek to retain broadleaved plantation woodland and scattered trees where possible to maintain opportunities for wildlife. Current proposals (see Figure 2) suggest that a large number of scattered trees could be lost from the development area for new development. It is not anticipated that there will be significant loss of trees as a result of the comprehensive engineering / reconfiguration / new and improved irrigation / drainage works and other improvement works across the wider golf course. Many of the trees comprise non-native species and there is expected to be significant opportunity to enhance the tree resource at the site through replanting within the new landscaping scheme.
- 5.10 Retained trees within and adjacent to the site should receive adequate provision for root protection in accordance with BS 5837:2012 'Trees in relation to design, demolition and construction' or the advice of a suitably qualified arboriculturalist.
- 5.11 Loss of native trees, including those lost during recent landscaping works within the golf course should be compensated through tree planting elsewhere within the site with two trees planted for each tree lost. New tree planting within the site should prioritise the use of native species of local provenance to maximise their value to wildlife and provide a net biodiversity gain. A total of 1,049 native trees and shrubs (829 trees and 220 shrubs) including 71 extra heavy standards and 96 heavy standards will be planted including an area of 0.63ha new mixed woodland to the east of the River Alt to compensate the loss of 279 trees from the western side of the River Alt.

Scrub and Hedgerows

- 5.12 Although scrub within the development area is species-poor, dominated by bramble and each parcel of scrub is of limited value in its own right, the scrub resource within the development area in combination is considered of local value. Scrub and hedgerow habitats are also considered of local value for their importance as habitat corridors. Where possible, these habitats should be retained or replaced to maintain opportunities for wildlife, such as habitat linkages around the site and breeding habitat for birds.
- 5.13 Where hedgerow or scrub habitats are lost, it is recommended that replacement habitat is provided through the provision of species-rich native hedgerow and scrub planting elsewhere within the development area or wider site. Planting should be located to maintain linear

habitat corridors around the site and to compliment areas of new and existing woodland, tree planting and hedgerows.

- 5.14 The proposals will result in a net loss of 1.68ha scrub (taking account of 0.17ha gorse scrub to be planted, 220no. (0.02ha assuming 1m² each) native scrub planting) and approximately 860m hedgerow. The proposals include the planting of 0.63ha new native broadleaved woodland, 0.17ha gorse scrub, 0.02ha native scrub planting and planting of approximately 540m of new native species hedgerow (resulting in a net loss of 320m hedgerow). Planting of 0.63ha new native broadleaved woodland and an additional 550 trees will help offset the loss of scrub, the remainder (1ha) will be compensated through mixed native scrub planting to be provided within out of play areas in the wider golf course. This could comprise underplanting of areas of scattered trees, separate blocks of scrub planting or native species-rich hedgerow. Species should include nectar- and pollen-rich and fruit/ nut producing plant species to enhance foraging opportunities for wildlife. Typical species recorded within the site include hawthorn, elder, holly, rowan, goat willow and dog rose.
- 5.15 Retained native hedgerow and woody shrubs within and bordering the site should be protected in accordance with BS 5837:2012.

Grassland (Poor Semi-improved/ Amenity)

- 5.16 The proposals would result in the loss of much of the species-poor semi-improved grassland habitat within the development area. This habitat, which dominates the western part of the development area, is considered of local value due to the large extent of this habitat in the context of the local area and qualification as a local BAP habitat. Much of the semi-improved grassland in the west of the development area is likely to be lost to facilitate proposals. Amenity grassland also qualifies as 'Urban Grassland' local BAP habitat.
- 5.17 Development proposals should seek to maintain opportunities for wildlife currently provided by these grassland habitats by compensating loss through the creation of new species-rich grassland and/or enhancement of retained grassland habitats within the development area and wider site. Existing grassland habitats are species-poor and could be enhanced through the implementation of a new sympathetic management regime for existing grassland including annual mowing with all arisings removed in order to reduce the dominance of grasses and overtime encourage a greater diversity of herbaceous species. A species-rich seed mix appropriate to the local ground conditions should be used in the creation new grassland and could also be used to enhance areas of retained grassland to speed up establishment of a diverse sward.
- 5.18 The development proposals include approximately 10.84ha wildflower grassland, long rough, rough and semi-rough which will help offset the loss of 19.30ha semi-improved grassland, tall ruderal and ephemeral. A minimum of 8.47ha of grassland within the out of play areas in the wider golf course will be to be left to grow and managed to provide rough grassland habitat. Over time and with appropriate management, plant species diversity would increase. Undesirable species could be controlled as necessary. If possible, suitable areas should be re-seeded with an appropriate wildlife seed mix such as the sun/shade mixes proposed within the landscaping plans. Plug planting with appropriate native grassland plants could also be undertaken.
- 5.19 Typical species recorded within the site which would be appropriate for any seeding/plug planting include red fescue, common bent, rough meadow-grass, smooth meadow-grass, cock's-foot, sweet vernal-grass, meadow foxtail, cut-leaved crane's-bill, common vetch, cuckooflower, yarrow, common sorrel, knapweed, hairy tare, common mouse-ear, yarrow, common vetch, common bird's-foot trefoil, common cat's-ear and hawkbit.

Swamp

- 5.20 The proposals would result in the direct loss of swamp habitats within areas of rough grassland in the west of the development area, which are considered of site value. Development proposals should seek to maintain opportunities provided by these swamp habitats through retention or compensation through habitat creation elsewhere within the development area or wider site. It is expected that this can be achieved through creation of wetland habitats proposed in associated with the new landscape scheme.
- 5.21 It is recommended that landscape proposals seek to provide a range of new wetland habitats including ponds, ditches, reedbed, swamp and marshy grassland in order to compensate loss of existing wetland habitats, thereby maintaining and, where possible, enhancing the value of the site for a range of wildlife.
- 5.22 0.12ha of swamp habitat will be lost to the development. The development proposals include 0.12ha aquatic/marginal planting associated with the two new lakes which will help offset the loss of swamp habitat. It is recommended that reed canary-grass and reed sweet-grass (*Glyceria maxima*) are included in the planting to encourage development of swamp habitat. The lakes will be designed with shelving margins to allow swamp habitat to naturally develop. Swamp habitat could also be allowed to establish through natural succession of waterbodies in the wider golf course.

Standing Water (Ponds and Ditches)

- 5.23 Wet ditches and ponds within and adjacent to the development area are, in combination, considered of local value. It is possible that low numbers of ponds and ditches could be lost to facilitate development and reconfiguration of the golf course, however, the proposals provide substantial opportunity to deliver benefits for wildlife through the creation of new high-quality wetland habitats. Development proposals should seek to compensate any loss of ponds and ditches and seek to provide enhanced habitat through the inclusion of a range of wetland habitats including ponds, ditches and swales in the landscape scheme. These could form part of the SuDS strategy for the new development. Two new lakes (0.12ha) will be created which will provide biodiversity gain.
- 5.24 There is potential to enhance waterbodies within the wider golf course through planting and management to create a range of successional stages from newly created/cleared out ponds, through vegetated to swamp. Appropriate species for planting include yellow iris (*Iris pseudacorus*), lesser spearwort (*Ranunculus flammula*), lesser water plantain (*Baldellia ranunculoides*), water plantain (*Alisma plantago-aquatica*), gypsywort (*Lycopus europaeus*), brooklime (*Veronica beccabunga*), water forget-me-not (*Myosotis scorpioides*), branched bur-reed (*Sparganium erectum*), marsh cinquefoil (*Comarum palustris*), reed canary-grass, water mint (*Mentha aquatica*) and reed sweet grass.
- 5.25 When working close to watercourses and retained waterbodies, appropriate pollution prevention measures should be implemented during works to ensure the protection of the habitats they support. Pollution prevention guidance (PPGs) previously maintained by the Environment Agency have been withdrawn from use, however, this guidance still provides useful information on pollution prevention when working within or near the water bodies, dependant on the development proposed.

Running Water (River Alt)

- 5.26 The River Alt, which runs between the two development parcels, has the potential to be affected by development works adjacent to the river corridor and by a new bridge proposed to link the two development area parcels either side of the river.

- 5.27 The client is advised that works in and adjacent to watercourses may need to take account of the Environment Agency North West Region Land Drainage Byelaws (1979) and the Salmon and Freshwater Fisheries Act (1975).
- 5.28 The River Alt and associated riparian habitats are of high ecological value at the district level, providing an extensive wildlife corridor and suitable habitats for breeding birds, foraging bats and invertebrates, and possibly for water vole and otter, which need to be taken into consideration. In addition, the following potential constraints need to be considered when carrying out works along a watercourse:
- Retention or enhancement of naturalness is an important consideration at river crossing points and appropriate Environment Agency consents should be sought.
 - The timing of the works will need to be discussed with the Environment Agency if there is disturbance to the estuary to ensure that there is no detrimental effect upon fisheries.
 - Where alien invasive plants are encountered, appropriate management procedures will need to be implemented (see Invasive Plants).
- 5.29 Under the terms of the Water Resources Act 1991 and the Land Drainage Byelaws 1981, the prior written consent of the Environment Agency is required for any proposed works or structures, in, under, over or within 8 metres of the top of the bank of a main river.
- 5.30 The Local Planning Authority (the Lead Local Flood Authority) has responsibility for granting consent for works to ordinary watercourses, under sections 23 and 24 of the Land Drainage Act 1991, as amended by the Flood and Water Management Act (2010). This covers works (including temporary works) that affect water flow within the channel of an ordinary watercourse.
- 5.31 There is considerable scope to enhance the River Alt within the site through incorporating a sensitively managed buffer along its length. As for grassland recommendations above, the grass should be left to grow/ seeded with an appropriate wildflower mix/ plug planted with appropriate native grassland plants (see species list under grassland above). Areas of scrub should be allowed to develop. Further tree planting along the river banks with native species typical of the area (such as silver birch, oak, alder, crack willow and white willow) would enhance the foraging and commuting potential for bats. Any tree planting should be designed to not cause too much shading of the river.
- 5.32 If feasible and in consultation with the Environment Agency if required, localised reprofiling of the river banks could be undertaken to provide shelved margins to enable marginal vegetation to develop.

Invasive Plant Species

Japanese Knotweed

- 5.33 It is recommended that a Japanese knotweed survey is undertaken by a suitably qualified contractor to advise on appropriate measures to prevent the spread of this invasive weed. A method statement will need to be agreed and implemented to ensure full compliance with all relevant legislation.

Himalayan Balsam

- 5.34 To prevent the spread of this species due to development, it is recommended that a method statement is agreed prior to works being undertaken and implemented throughout the development.

Cotoneaster

- 5.35 Unless an assessment is made to ensure that the cotoneaster species present within the development area is not one of the species listed on Schedule 9 of The Wildlife and Countryside Act 1981 (as amended), it should be assumed that it is.
- 5.36 If a cotoneaster species is to be removed, it should be chipped and composted or used as mulch around vegetated areas on site. This should only be undertaken when the plant is not fruiting, as this can otherwise aid dispersal of its seeds. Where required, regular checks for re-growth and spot treating should be undertaken as required.

Japanese Rose

- 5.37 If Japanese rose is to be removed, it should be chipped on site and composted or used as mulching around vegetated areas. This should only be undertaken when the plant is not fruiting, as this can otherwise aid dispersal of its seeds. Where required, regular checks for re-growth and spot treating should be undertaken as required.

Burying Invasive plants

- 5.38 Before burying non-native invasive plant waste, the Environment Agency should be contacted to see if this is permitted. You may need to inform the Environment Agency a week before the plant waste is buried.

Species Impacts and Recommendations

- 5.39 For protected and notable species identified in the Section 4 as potentially occurring within the development area, this section provides recommendations for any further survey requirements to determine actual presence/ absence of these species and, where appropriate, impact avoidance and mitigation measures to protect individuals during works and maintain suitable opportunities for these species within the proposed development.

Bats

- 5.40 The development proposals involve the alteration and extension of the Club House and adjoining buildings in the east of the development area and will result in the loss of a number of trees with bat roost potential.
- 5.41 Bat roosting activity was confirmed in Building 2 by a single pipistrelle bat on the second presence/ absence survey in 2020.
- 5.42 A European Protected Species (EPS) development licence will be required prior to any works commencing affecting bats or their roosts, which can only be applied for once planning permission has been granted. The Local Planning Authority will need to agree and approve a mitigation strategy for the protection of bat species prior to the granting of planning permission. There are timing implications in relation to implementation of bat mitigation and obtaining an EPS licence. An outline method statement for bats is provided at Section 6.0 of the Protected Species Report (Bats): Buildings dated February 2020 (updated August 2021) produced by Ecology Services Ltd for further details.
- 5.43 No other confirmed bat roosts or roosting bats were identified in any of the remaining buildings or during the PRF inspections of the trees.
- 5.44 Given that Buildings 1 and 3 have been assessed as having low or moderate potential to support roosting bats, it is recommended that a precautionary approach to building demolition is undertaken. In particular, removal of wall and fascia cladding should be carefully removed under the supervision of a licenced bat Ecologist along with the space between the roof and the internal ceilings within Building 3.

- 5.45 If at any time a bat/s or evidence of bat/s is/are suspected or found, all works must cease immediately and advice should be sought from either Natural England or the acting consultant.
- 5.46 With regards trees, precautionary measures should be adopted during felling or pruning works for trees with low bat roost potential. One tree and the tree group with moderate potential will be subject to a further PRF inspection immediately prior to felling. If no evidence of roosting bats is found, felling of potential roosting features using soft-felling section techniques under the supervision of a suitably qualified ecologist is recommended. Where possible, sections of the limb(s) with PRFs should be strapped to an adjacent tree.
- 5.47 Tree Group 10 contains a high number of dead trees that have delaminating bark which provide negligible - low potential for occasional roosting bats during the active season, although no evidence of past or present use by bats was found during the PRA and PRF surveys. Supervisory works are required during felling of these trees. Please refer to Protected Species Report (Bats): Trees dated September 2019 (updated August 2020 and July 2021) produced by Ecology Services Ltd for further details.
- 5.48 If at any time a bat or evidence of bats is found or suspected, all works must cease immediately and advice should be sought from either Natural England or the acting Consultant. If a bat roost is found then the works would be delayed until such a time adequate survey data is obtained that is sufficient to support a Natural England licence that will derogate from legal protection afforded to roosting bats.
- 5.49 It is not anticipated that there will be significant loss of trees as a result of the comprehensive engineering / reconfiguration / new and improved irrigation / drainage works and other improvement works across the wider golf course. Works in the wider golf course should seek to retain as much of the existing tree and scrub cover as possible. Where tree loss is unavoidable, compensatory tree planting must be provided on a two for one basis with two trees planted for any mature tree lost. Compensatory tree planting should include large standards to reduce the time required for the trees to reach maturity. Any trees to be affected in the wider golf course must first be subject to a Preliminary Roost Assessment for bats and any necessary further surveys undertaken to determine the presence or absence of bats. If a bat roost/s is/are located during the survey work, work at the site could be delayed until such time that a Natural England Licence is applied for and granted to legally permit work to commence which would affect bats or their roost.
- 5.50 As best practice, opportunities for bat species by way of bat boxes should be incorporated within the proposed development, within the new buildings and on retained trees, to ensure that the long-term status of bat species in the local area is maintained. It is recommended that a bat box scheme is designed and implemented, which will increase the availability of roosting habitat within the site. Provision of a range of bat boxes in excess of those required to compensate loss of potential roosting features in trees would provide ecological enhancement.
- 5.51 The development would result in the loss of species-poor grassland with a number of scattered trees, scrub, hedgerow and wetland habitats, which are considered to provide good quality habitat for foraging and commuting bats. Direct loss of vegetation along habitat corridors and indirect effects of artificial lighting associated with the proposals also have the potential to disrupt commuting routes and reduce the viability of nearby foraging areas, particularly for more light sensitive species.

- 5.52 The habitat activity surveys have identified main key habitat areas at the site:
- The River Alt and adjacent riparian habitat;
 - Higher general activity areas such as site boundaries and woodland edges;
 - Higher assemblage of species in the north western corner of the site.
- 5.53 Other supporting habitats present at the site in the form of:
- The tree lines within the north and along the northern boundary of the site;
 - Hedgerows within the southern area of the site; and
 - The western and south western boundaries of the site.
- 5.54 Some of these areas have the potential to be directly affected by the proposals for the site, Other areas have the potential to be affected by indirect impacts such as artificial lighting.
- 5.55 Proposed loss of grassland and hedgerow habitats from within the site is considered unlikely to have a significant effect on the use of the site by foraging common pipistrelle, soprano pipistrelle and noctule bats, which have a wide range of habitat preferences.
- 5.56 A number of trees will be lost to facilitate the development. However, the landscape plan indicates that there will be planting of trees to replace those lost which, over the golf course area as a whole, will result in an increase of interface habitats. The River Alt is not to be directly affected by the proposals at the site and foraging at this key habitat should be retained. The landscape plan for the development area includes areas of semi-rough, rough and long rough, areas of wildflower seeding, woodland planting, infilling gaps in existing hedgerows and the creation of two lakes with marginal planting which will provide suitable foraging habitat for bats within the developed site.
- 5.57 Overall, the development proposals should seek to maintain opportunities for bat species favouring wooded and scrub interface habitats such as pipistrelles, brown long-eared and some *Myotis* species.
- 5.58 It is likely that bats use the site for commuting on an infrequent to frequent basis, in particular at tree lines and scrub along the site boundaries and the River Alt and adjacent ditch area. Although tree and scrub loss are proposed at the site, in particular along the margins and up to the boundaries, development should seek to maximise retention of boundary trees and scrub in order to maintain linear vegetated corridors for commuting bats.
- 5.59 The loss of scrub and trees along the boundaries are expected to be partially compensated by proposed tree planting within development, close to the site boundaries. Provision of native species-rich hedgerow, scrub and/ or further treeline planting along the boundaries of the site is recommended to further enhance these linear habitats. The proposals indicate that there will be no direct impact on the River Alt and this important key commuting habitat will be retained.
- 5.60 Comprehensive engineering / reconfiguration / new and improved irrigation / drainage works and other improvement works in the wider golf course will result in temporary habitat losses being reinstated to golf course following completion. It is envisaged that in the long term, the golf course will provide a similar range of habitats as currently present. Works in the wider golf course should seek to retain as much of the existing tree and scrub cover as possible. Where tree loss is unavoidable, compensatory tree planting must be provided on two for one basis with two trees planted for any tree lost.

- 5.61 The lighting proposals should seek to minimise indirect effects of artificial light spill on key and supporting habitat areas and newly created habitat corridors and waterbodies. In order to minimise potential effects of artificial lighting, both during construction and the operational phase upon completion of the proposed development, a sensitive lighting scheme should be designed and implemented in accordance with ILP (2018) to maintain the site as suitable for foraging and commuting bat species which are sensitive to light such as brown long-eared and *Myotis* spp. bats. Lighting levels should be at the minimum required for health and safety, and avoided wherever possible. The lighting scheme should be reviewed at an appropriate stage of design in relation to bat species and their requirements by a suitably experienced ecologist. For further detail, please refer to Ecology Services Ltd. Bat Transect and Automated Survey report dated January 2020 (updated January 2021 and August 2021).
- 5.62 The proposed netting in relation to the driving range will not conflict with the retained key foraging/ commuting habitat areas or other retained supporting habitats. It is recommended that netting with a heavy gauge twine is used to ensure that the netting does not cause a collision/ entanglement hazard to bats and other species.
- 5.63 Through the implementation of the above measures to maintain areas of good quality foraging and commuting habitat within the site for bats and minimising potential effects of artificial light spill associated with the proposals, it is considered that opportunities for foraging and commuting bat species recorded at the site can be maintained in the long-term.
- 5.64 Subject to the recommended measures being implemented and no further impacts arising, it is concluded unlikely that the proposed development of the site would result in a significant reduction in the interest of the site for foraging and commuting bats.

Otter

- 5.65 The River Alt corridor and adjacent areas of scrub, plantation woodland and scattered trees provide suitable aquatic and terrestrial habitats for otter. In view of the proposals, it is likely that suitable habitat for otter will be affected during works.
- 5.66 Evidence of use of the River Alt by otter in the form of spraints and footprints was identified during the 2020 and 2021 surveys.
- 5.67 Although the proposed works are fairly extensive, only a relatively small element of the works are likely to affect a small area of riparian habitat, this area does not contain any suitable underground resting places for otter. Underground resting sites would provide protection for natal or a rearing den, but these are usually located some distance from a main watercourse. As underground resting sites are absent and the River Alt is a main river, it is not considered that the works will directly affect either a natal or rearing den nor will the works cause disturbance or impair otters' ability to survive, breed or reproduce, rear or nurture young or significantly affect the local distribution or abundance of the species.
- 5.68 There are suitable above ground resting places, namely scrub and trees, in relatively close proximity to the works that may provide temporary shelter otters; neither of the three surveys identified use of this habitat for such purposes. As habitats are suitable in close proximity to the works and otters have been found present on this section of the River Alt, should an otter be utilising an above ground resting place at that time, disturbance is possible, should an otter be present.
- 5.69 Otters are generally active over at night and the works are also unlikely to injure or kill an otter.

- 5.70 It is considered unlikely that the proposed works will result in the permanent loss of a significant area of suitable above ground resting habitat and the impact of habitat loss is therefore considered negligible.
- 5.71 Regarding the works along the banks of the River Alt, it is considered that the vegetation including bankside grassland, scrub and tall ruderal will re-establish naturally over time and that the loss of these habitats will be enhanced through the landscape scheme proposed for the site which includes the planting of trees, areas of scrub and two lakes with associated riparian habitat, that may be suitable for use by otter.
- 5.72 Therefore, there are potential implications in relation to otter and the proposed development including the new footbridge and outfall in relation to potential above ground resting sites and potential disturbance should an otter be present. As otters are a highly transient species, riparian habitats can be dynamic and as suitable above ground resting places have been identified in close proximity to the works, it is recommended that a pre-development otter survey is undertaken to check for signs of otter use to ensure that there is no disturbance to otter should an animal be occupying the above ground resting opportunities. The pre-development otter survey would advise if any further works were required.
- 5.73 Based on the results of the current surveys, it is considered that a European Protected Species Mitigation Licence application is not required and that no further monitoring surveys (required to inform such a licence) are necessary.
- 5.74 However, it is recommended that all works on site are informed by precautionary working methods designed to reduce any potential impact on otter populations. These methods should include the following measures:
- Any works within 8m of a Main River will require consent from the Environment Agency.
 - All proposed works should be limited to daylight hours; otters are primarily a nocturnal species and therefore disturbance is more likely during the night time.
 - All works close to the River Alt should adopt standard pollution prevention guidance, also ensuring no silt pollution gets into the River Alt or land drains, in order to prevent environmental damage caused by the siltation of otter habitat and the potential direct impact of siltation on otter prey species.
 - During groundwater discharge operations, the banks of the River Alt should not be damaged or impacted.
 - All works (except for the groundwater discharge operations) should remain within the proposed site boundaries; if further works are required off site, the advice of an ecologist should be sought.
 - All excavations on site should be covered overnight to prevent otters from falling in and being injured or trapped. Excavations should then be checked prior to works commencing each morning by an assigned member of staff on site.
 - If any excavations must remain open overnight, it is recommended that access ramps are installed each night to allow any animals that accidentally fall in to the excavation a means of climbing out. These can be roughened planks of wood or even a ramp of earth.
 - Daily checks of any excavation should be made by construction staff prior to commencing work to ensure that no otters or other animals have become trapped in the excavations. Should a trapped otter be found within the works, all works in that area must cease immediately, the area vacated and Ecology Services Ltd should be immediately contacted for advice.

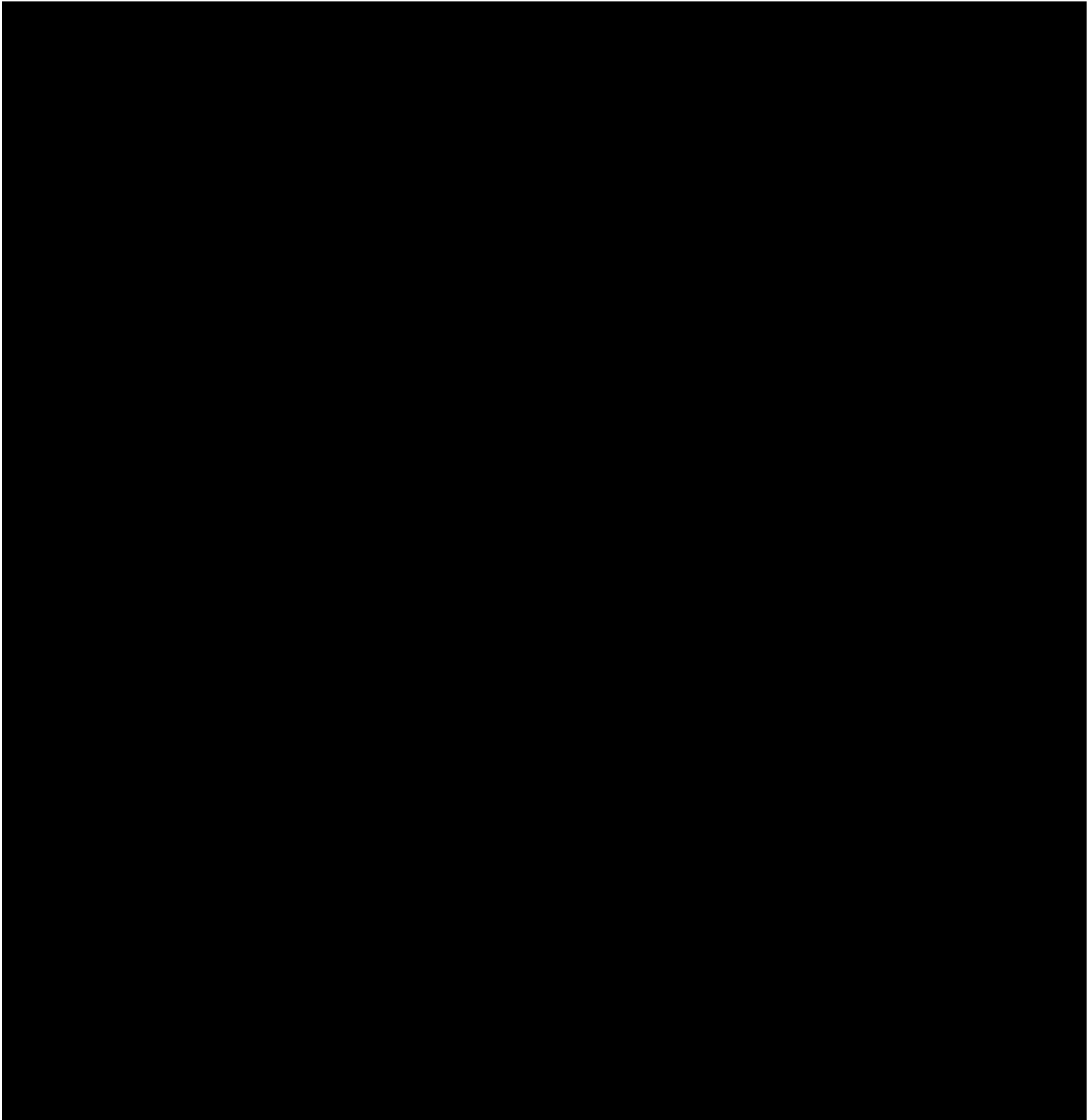
- Consideration should be given to the placement of any topsoil storage or piles of materials that may create mounds suitable for temporary holt creation. Any such piles should be checked on a daily basis by construction staff to ensure that no evidence of an animal's presence is present, especially evidence of burrowing. If activity is suspected, works in that area should cease and the advice of an ecologist sought.

- 5.75 In order to minimise potential effects of artificial lighting on otters using the River Alt, both during construction and the operational phase upon completion of the proposed development, a sensitive lighting scheme should be designed and implemented. Lighting levels should be at the minimum required for health and safety, and avoided wherever possible. The lighting strategy should be reviewed at an appropriate stage of design by a suitably experienced ecologist.
- 5.76 There may also be opportunity to incorporate an artificial otter holt in a quiet, secluded part of the site as an ecological enhancement.

Water Vole

- 5.77 The River Alt and its banks, and ponds and wet ditches within and adjacent to the development area, provide suitable aquatic and terrestrial habitats for water vole.
- 5.78 The water vole surveys undertaken (Ecology Services Ltd., May & September 2019, and updated in September 2020 and June 2021) identified habitats that are considered suitable to support water vole and presence was confirmed in the form of a small number of droppings on the second survey round in 2019.
- 5.79 The development proposals indicate disturbance to water vole habitat on the banks of the watercourse resulting from the construction of three outfalls. The proposed outfalls will be 0.3m wide, therefore, in total there will be a permanent loss of 0.9m of water vole habitat on the banks of the river. There will be temporary loss of habitat for working areas to construct the outfalls.
- 5.80 The proposed footbridge abutments will be located 8m from the toe of the river bank and therefore it is considered unlikely that construction will impact any burrows suitable for water vole.
- 5.81 The 2020/21 update survey, did not find any signs of water vole. Therefore, at the time of the survey, it can be predicted with confidence, that there are no direct or indirect impacts to water vole from the proposed development.
- 5.82 Water voles can be a transient and can travel up to 1km to form new colonies if the habitat is found to be suitable. Habitats are present within the wider survey area that are connected to the site and are considered suitable to support water vole. Habitats within the site are suitable they are subject to varying water levels, however there have been historic records of water vole on the River Alt, therefore, it is recommended that a pre-development water vole survey is recommended, prior to development works.
- 5.83 As there are records of water vole in the wider survey area and the watercourse contains suitable habitat to support water vole, it is recommended in line with the NPPF that impacts on suitable water vole habitat are avoided and minimised wherever possible and net gains for biodiversity are provided. The landscape plan indicates that there will be a native species-rich grassland and trees planted between the development and the river. The development includes the creation of two lakes as part of the new development, which will include planting

of aquatic and marginal plant species which, once established, these lakes will provide additional suitable habitat for water vole. The River Alt is designated as a Local Wildlife Site (LWS) and as such the impacted banks shall be allowed to naturally regenerate rather than introducing seeds that may not be of local provenance. Implementation of these measures will provide both compensation for the small loss of habitat and result in a net gain in potential water vole habitat.



Hedgehog

- 5.91 Although no evidence of hedgehog was recorded during the extended Phase 1 habitat survey, the development area provides an extensive mosaic of habitats suitable for this

species which is listed as a Species of Principal Importance. The following measures are therefore recommended to safeguard any hedgehogs present:

- Removal of suitable hibernation habitat (e.g. dense scrub) should be avoided during their hibernation season. The hedgehog hibernation season is weather dependant and can commence from November to January and finish around mid-March to early April. To avoid conflicts with the nesting bird season, all affected habitat should be cleared at the end of breeding bird season (September/October).
- During development works open pits and trenches shall either be covered overnight or have means of escape i.e. ramp.
- Boundary fences shall have a gap (at least 130mm) at the base to allow hedgehog to access all residential areas.
- Creation of log piles and brash piles suitable for hibernation on the margins of rough grassland, scrub and woodland edges, using arisings from on site vegetation management.
- Creation/ enhancement of boundary features (i.e. hedgerows, scrub and treelines, and woodland belts) to maintain habitat linkages around the site and wider area.

Birds

- 5.92 The unmanaged land west of the R. Alt offers a broad range of habitats that are suitable for breeding and foraging birds and is of ample size to support birds that require large territories. However, during the breeding bird surveys, surprisingly low numbers of birds were recorded that would have otherwise be expected for a site of this size.
- 5.93 It is considered likely that only one species, the linnet will be lost from the western development parcel post development, which is on the Red list of Birds of Conservation Concern. A small number of birds were seen feeding on tall grasses and it is considered probable that it breeds on site. The site post development does not provide sufficient open habitat where this species would likely thrive. However, the site is not a typical habitat for this species, as it's widely recognised as a bird that favours farmland sites for breeding and as such, it's presence on site is potentially attributed to areas of arable land located to the north of the site at 700m. The potential loss of this species on site would not be considered significant above site level given the more suitable habitats to the north of the site. Compensation is however offered for Red listed starling and house sparrow as an alternative provision.
- 5.94 The impacts on site are all temporary with a view to creating new habitats that offer a greater diversity of smaller habitat areas aimed at supporting almost all of the displaced species as discussed below. Where habitat provision within the south western part of the application site does not meet the needs of birds on site, off site habitat enhancement is provided on the wider golf course. One of the major reasons for the lower than expected bird assemblage on site is likely attributed to the presence of corvid species. The newly developed south western part of the application site, post development is likely to be less suited to this group of birds, which generally avoid human activity; corvids are less prevalent on the wider golf course. The impacts arising from the loss of habitats on site for the duration of the works are considered to be significant at a local level and not significant post development.
- 5.95 Both during site clearance and mid-development there may be some disturbance and subsequent temporary displacement of birds using the adjacent habitats, particularly along the northern boundary of the south western development parcel and potentially in the retained areas of scrub along the River Alt. However, this temporary impact is considered to be significant at the site level only and temporary. Temporary disturbance and displacement of birds using adjacent habitats during the reconfiguration and other improvement works

including irrigation / drainage works across the wider golf course are also considered to be significant at the site level only.

- 5.96 Ideally any site clearance works throughout the entire planning application site (including all habitats throughout the application site) should be undertaken outside the breeding bird season (March through to August inclusive). However, it should be noted that if weather conditions are favourable i.e. after a particularly mild winter, this period can be extended. If habitat clearance works are expected during or near to the breeding season, then the impacted zone should be checked by a suitably qualified ecologist immediately prior to any works taking place. Should a nest be identified and depending on the species and / or location, a suitable buffer zone would be required to ensure the birds are allowed to continue their breeding cycle. It must be noted however, that a site of this size would be extremely difficult to search and so this approach is not recommended. Ideally, all affected breeding bird habitat should be cleared at the end of the breeding bird season (September/October) to avoid any adverse effects upon hibernating hedgehog. Options to avoid disturbance for Schedule 1 species will need implementing if a Schedule 1 species is found to be present on site.
- 5.97 The contractors should avoid allowing areas to become pooled with water unless they are constructing a new permanent water feature as this could encourage inland waders such as oystercatcher to breed, especially if the habitat is left undisturbed. The contractor should also avoid bunding earth or sand with vertical faces, which could encourage kingfisher and/or sand martin (*Riparia riparia*) to breed. A species commonly attracted to brownfield/construction sites is the little ringed plover (*Charadrius dubius*) which favours areas of open stony ground and is often a habitat feature that becomes available as a consequence of large construction sites with stoned areas. Keeping open areas of freshly stoned ground to a minimum size should limit attracting this species.
- 5.98 In terms of mitigation and compensation measures for habitat losses and temporary displacement of birds within the site and wider golf course, the proposals include habitat creation and enhancements throughout the entire planning application site. All of the habitats within the south western part of the site will be removed to allow construction of the nine-hole golf course and leisure facilities. Newly created habitats are proposed as part of the landscaping, but these will take time to establish. With that in mind, it is crucial that the site post development seeks to create new habitats that are suitable to support those species that were recorded and enhance the wider application site for birds overall. To assist the interim period and for the long-term, the out of play areas on the adjacent existing golf course to the east of the River Alt will be fenced off from golfers and managed for wildlife. It is the intent that these will become semi-improved tussocky grassland with a good litter layer and will compensate for grassland losses to the west of the River Alt. Scrub may also become established here in places. It is considered that these new areas of rough grassland will provide new habitat for hunting barn owl and kestrel.
- 5.99 A total of 1,049 native trees and shrubs (829 trees and 220 shrubs) including 71 extra heavy standards and 96 heavy standards will be planted including an area of 0.63ha new mixed woodland to the east of the River Alt to compensate the loss of trees from the western side of the River Alt. The woodland will be linked to the adjacent established plantation woodland to the east and will aim to provide a new Habitat of Principal Importance at the site. This in the long-term will provide habitat for Red listed mistle thrush among other species. It is acknowledged that new woodlands do take many years to establish and although cavities on the trees lost to development were not numerous, a bird box scheme will be adopted on the existing golf course to compensate for the small loss of trees with holes.

- 5.100 Extensive tree and shrub planting, plus other ecological mitigation measures including a bird box scheme across the wider golf course will be implemented to mitigate loss of nesting bird habitat during the comprehensive engineering / reconfiguration / and other improvement works including irrigation / drainage works across the wider golf course. Two trees will be planted for every tree lost and at least 1ha mixed native scrub planting will be provided (in addition to the proposed woodland, hedgerow and tree planting on the landscape plans). This could comprise underplanting of areas of scattered trees, separate blocks of scrub planting or further native species-rich hedgerow.

Artificial Nesting Boxes (existing golf course)

- 5.101 To be distributed throughout the site:
- 4 x Tawny owl
 - 2 x Kestrel
 - 40 x Small boxes with small circular holes for cavity nesters such as tits and nuthatches
 - 20 x Large boxes with large holes for cavity nesters such as jackdaw, starling, green woodpecker and great spotted woodpecker
 - 40 x Generalist boxes with open fronts for species such as robins and blackbirds.

Suggested Artificial Nesting Boxes on Buildings

- 5.102 To be distributed on buildings at appropriate locations
- 4 x House sparrow terraces
 - 8 x Starling boxes
 - 5 x Swift boxes
 - 8 x House martin cups
- 5.103 It is considered that the careful inclusion of sparrow terraces and starling boxes on buildings across the golf course to encourage these red listed species could be considered as adequate compensation for the potential loss of linnet at the site.
- 5.104 To enhance the site for birds generally, new habitats will be created on the new nine-hole golf course and also on the existing golf course. The proposals include two new large lakes and associated wetland habitats to include tall marginal grasses and aquatic planting.
- 5.105 Throughout the entire golf course, in order to delineate the fairways, rough out of play areas will also be created to provide additional tussocky grassland with the inclusion of new areas of gorse scrub, which provides good habitat for small birds that frequently suffer from predation by crows and magpies. In total, 152,400m² within the wider golf course will be enhanced to provide compensation for loss of habitat within the south western part and general ecological enhancement of the wider site.
- 5.106 The application site as a whole will have large numbers of scattered trees planted to help delineate fairways with each tree being a native species of local provenance. This includes 71 extra heavy standards and 96 heavy standards.

Amphibians

- 5.107 The results of the 2019, 2020 and 2021 eDNA surveys have shown great crested newts to be likely absent at the site. Additionally, there are no records of great crested newts, which are fundamentally linked to the site. It is considered that all works can proceed with the below precautionary recommendations for common amphibians.
- 5.108 As a precautionary measure all construction contractors should be made aware of the potential presence of common amphibians on site and the potential risks to them. Should any

common amphibians be encountered, they should be moved to suitable cover away from development works.

- 5.109 In the unlikely event that a great crested newt is discovered on site, at any time during the development works, all works must cease immediately and either Natural England or the acting ecologist should be contacted for advice.
- 5.110 No waterbodies will be lost to the part of the site to be developed, however, comprehensive engineering, reconfiguration, new and improved irrigation / drainage works and other improvement works across the wider golf course) is likely to result in impacts to waterbodies.
- 5.111 To provide continued aquatic habitat for amphibians and other species, it is recommended that the same number of waterbodies is maintained across the golf in the long term. Ideally these should be designed and managed to encourage wildlife to provide an overall biodiversity enhancement.
- 5.112 There will be loss of rough, species-poor semi-improved grassland, swamp, tall ruderal, scrub and plantation woodland habitats to the development and temporary loss of habitats during comprehensive engineering, reconfiguration, new and improved irrigation / drainage works and other improvement works across the wider golf course. The developed part of the site will include approximately 10.8ha semi-rough, rough and long rough grassland with areas seeded with wildflower seed mix plus 0.63ha new woodland planting which will provide continued terrestrial habitat for amphibians. A further 15.24ha within the wider golf course will be enhanced to provide compensation for loss of habitat within the south western part of the site providing rough grassland and scrub/understorey habitats.
- 5.113 To provide further enhancement for amphibians and other fauna, a number of artificial hibernacula and log/brush piles should be created in suitable areas throughout the golf course. The existing waterbodies could also be enhanced by planting with suitable native marginal plants.

Reptiles

- 5.114 Only one record of reptiles (slow-worm) c. 1.9km from the site was identified during the desktop study and is dated over 25 years ago. Therefore, it is considered unlikely that reptiles are present within the development area and no recommendations with regard to this group are proposed at this time.
- 5.115 However, it is recommended that works be mindful of the potential presence of reptiles at the site and, if reptiles are found or suspected to be present during works, the acting ecological consultant should be contacted for advice.

Invertebrates

- 5.116 It is considered unlikely that the site provides important habitat for invertebrates however the site could provide suitable habitat for dragonflies and damselflies and the unmanaged semi-improved grassland, habitat for grassland butterflies and moths. The proposed development with retain areas of standing water habitat along with creation of two new lakes and compensation will be provided for the loss of the unmanaged semi-improved grassland. This will provide continued habitat for dragonflies, damselflies and grassland butterfly and moth species within the site.

Other Recommendations

Habitat Management Plan

- 5.117 It is recommended that all areas where habitat enhancement works are proposed should be managed for wildlife and placed under a 5-year Habitat Management Plan, to ensure that there is no net loss of biodiversity to development in the long-term.

Additional Habitat Compensation and Biodiversity Enhancement Measures

- 5.118 In line with current planning policy, new development should ensure that there is a minimum of no net loss of biodiversity at a site and result in an overall biodiversity gain.
- 5.119 The habitats proposed to be lost to facilitate development, which is dominated by species-poor semi-improved grassland and scrub, are considered of relatively limited ecological value but as a whole provide substantial areas of habitat for a range of wildlife. There is, however, considerable scope to enhance retained habitats and provide new habitats of high ecological value within the development area and wider site to compensate habitat loss. Loss of any ecologically valuable habitat or features should be replaced on a minimum like-for-like basis, and reduction in habitat size should be compensated through provision of higher quality habitat in retained areas. Table 3 below summarises the ecological mitigation for the proposed development area and enhancement measures throughout the entire golf course as discussed in paragraphs 5.6-5.106. Overall, there will be a net gain of 0.63ha new woodland planting, 550 trees and 0.97ha standing water (lake). The small loss of scrub and hedgerow would be offset by the additional tree and scrub planting. In addition to aquatic/marginal planting, the lakes will be designed with shelving margins to allow swamp habitat to naturally develop and swamp habitat could also be allowed to establish through natural succession of waterbodies in the wider golf course. A further 5.86ha out of play areas in the wider golf course will be allowed to grow and be managed as rough grassland and scrub and managed to encourage species diversity, potentially including seeding into the areas and/or plug planting with appropriate native species to benefit a range of wildlife.

Table 3: Ecological mitigation and enhancement summary

Prior to development	Ha/km	After development	Ha/km	Loss/Gain
Woodland – broadleaved plantation	0.19ha	Woodland – broadleaved plantation*	0.82ha	+0.63ha
Scrub	1.87ha	Scrub - gorse	0.17ha	-0.77ha
		Scrub planting (220 no.)**	0.02ha	
		Scrub planting (wider golf course)	1.00ha	
Scattered trees	279 no.	Scattered trees (including new woodland planting)	829 no.	+550 no.
Poor semi-improved grassland, tall ruderal and ephemeral	19.31ha	Semi-improved grassland***	10.84ha	0
		Semi-improved grassland (wider golf course)	8.47ha	
Swamp	0.12ha	Standing water aquatics/marginal	0.12ha	0
Hedgerow intact – native, species-poor	1.62km	Hedgerow intact – native (retained and 0.54km new native species hedgerow)	1.65km	-0.32km
Hedgerow defunct – native, species-poor	0.35km			
Dry ditch (assumes 1m wide)	0.12ha	Ephemeral water body incl. marginal planting	0.06ha	-0.06ha
		Golf Ornamental planting (native - heathers / grasses / fern / foxgloves)	0.44ha	+0.44ha

Prior to development	Ha/km	After development	Ha/km	Loss/Gain
		Standing water (2 lakes)	0.97ha	+0.97ha
		Semi-improved grassland and scrub (wider golf course)	5.86ha	+5.86ha

* In order to form a more natural woodland, trees will be planted randomly, not uniform and also in groups of a given species and size. Only species matched in growth rate will be mixed. Where possible, open areas of 25m should be left within the woodland to provide glades.

** Assumes each plant creates 1m² scrub.

*** Incl. wildflower - shade, wildflower - sun, long rough, rough - native, semi-rough, grass and perennials.

5.120 Further recommended measures to ensure that an overall biodiversity gain is achieved at the site could include a selection of the following:

- Installation of additional nesting bird boxes at suitable locations on buildings and/ or trees (beyond those required for mitigation).
- Installation of additional features for roosting bats at suitable locations on buildings and/ or trees (beyond those required for mitigation). Bat boxes should be placed on suitable mature trees or buildings, positioned away from well-lit areas and close to areas of good quality bat foraging habitat.
- Enhancement of the River Alt corridor through incorporating a sensitively managed buffer along its length with grass left to grow/ and species diversity enhanced, areas of scrub and further tree planting along the river banks with native species typical of the area (any tree planting should be designed to not cause too much shading of the river).
- Potential localised reprofiling of the river banks to provide shelved margins to enable marginal vegetation to develop.
- Control of non-native invasive species and phasing out of non-native and naturalised species of trees and shrubs from areas of plantation woodland and scattered tree planting. These should be replaced with native species of local provenance.
- Use of nectar- and pollen-rich and fruit/ nut producing plant species in formal planting areas of the development to enhance foraging opportunities for wildlife.
- Creation of a number of artificial hibernacula and log/brush piles in suitable areas throughout the golf course.
- Enhancement of the existing waterbodies by planting with suitable native marginal plants.
- There may also be opportunity to incorporate an artificial otter holt in a quiet, secluded part of the site.

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Appendix 1: **Legislation**

Statutory Designated Sites

Special Area of Conservation (SAC)

Special Areas of Conservation are designated under the EC Habitats Directive. Article 3 of the Habitats Directive requires the establishment of a European network of important high-quality conservation sites that will make a significant contribution to conserving the 189 habitat types and 788 species identified in Annexes I and II of the Directive (as amended). The listed habitat types and species are those considered to be most in need of conservation at a European level (excluding birds). The Conservation of Habitats and Species Regulations 2017 (as amended) transpose the EC Habitats Directive into national law. The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 continue the same provision for European protected species, licensing requirements and protected areas after Brexit.

Special Protection Areas (SPA)

Special Protection Areas are designated under the EC Birds Directive. The EC Birds Directive came into action in April 1979. SPAs are sites of European Importance that support both rare and vulnerable birds, that are listed under Annex 1 of the EC Birds Directive, and for regularly occurring migratory species. The Conservation of Habitats and Species Regulations 2017 (as amended) transpose elements of the EU Wild Birds Directive into law in England and Wales. The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 continue the same provision for European protected species, licensing requirements and protected areas after Brexit.

Ramsar Sites

The Convention on Wetlands was formed in Ramsar, Iran in 1971 and is now termed the Ramsar Convention. The Ramsar Convention came into action in 1975. It is an international government treaty whereby all countries, that are members, have a commitment to maintain the ecological value of their designated Wetlands of International Importance. It is the only global treaty that deals with a specific ecosystem (wetlands).

The Ramsar Convention provides a framework for the international cooperation and national action for the use of and conservation of wetland habitats and their associated resources.

Site of Special Scientific Interest (SSSI)

Sites of Special Scientific Interest are designated under The Wildlife and Countryside Act (WCA) 1981 (as amended). The WCA 1981 (as amended) is the domestic implementation of the Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention).

Local Nature Reserves (LNR)

Local Nature Reserve (LNR) is a statutory designation under Section 21 of the National Parks and Access to the Countryside Act 1949 and amended by Schedule 11 of the Natural Environment and Rural Communities Act 2006 (NERC). LNRs are local sites that have been designated by the local authorities. To qualify for LNR status the site must be of importance for any of the following reasons; wildlife, geology, education or public enjoyment. The Local Plan for an area will detail any additional protection given to the LNR such as protection against damaging operations and/or protection against development within or adjacent to the LNR. LNRs are statutorily designated sites at the local level. There is no national legal protection specifically for LNRs.

European Protected Species

European protected species (EPS) and their habitat are afforded strict protection under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended).

Taken together, this legislation makes it an offence to:

- Deliberately (intentionally) kill, injure or take an EPS;
- Possess or control any live or dead specimen or anything derived from an EPS;
- Deliberately (intentionally) or recklessly damage, destroy or obstruct access to a breeding site or any structure or place used for shelter or protection by an EPS; or
- Deliberately (intentionally) or recklessly disturb an EPS while it is occupying a structure or place which it uses for that purpose.
- Sell, offer for sale, possess or transport for the purpose of sale (live or dead animal, part or derivative).

The above legislation applies to all life stages, including eggs, juveniles and adults.

The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 continue the same provision for European protected species, licensing requirements and protected areas after Brexit.

Nationally Protected Species

In England and Wales nationally protected species are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). The Wildlife and Countryside Act 1981, together with amending legislation, lists the following as offences:

- intentionally capture, kill a listed species;
- damage, destroy or block access to their places of shelter or protection (on purpose or by not taking enough care);
- disturb them in a place of shelter or protection (on purpose or by not taking enough care); and
- possess, sell, control or transport live or dead listed species or parts of them.

The Office of the Deputy Prime Minister (ODPM) Circular 06/2005, states that the presence of a protected species (European or National) is a material consideration when a planning authority is considering a development proposal that, if carried out, would be likely to result in harm to the species or its habitat.

Badgers and their active setts are protected under the Protection of Badgers Act (1992). The Protection of Badgers Act 1992 was designed to protect badgers from baiting and deliberate harm or injury. It also contains restrictions that apply more widely.

Under this legislation it is an offence to:

- Wilfully kill, injure or take, or attempt to kill, injure or take a badger.
- Cruelly ill-treat a badger, dig for badgers, use badger tongs, use a firearm other than the type specified under the exceptions within the Act.
- Intentionally or recklessly damage, destroy or obstruct access to any part of a sett.
- Disturb a badger whilst it is occupying a sett.
- causing a dog to enter a sett,
- Sell or offer for sale or possess a live badger,
- Have possession or control of a live badger.
- Mark a badger or attach any ring, tag, or other marking device to a badger.

Developments with potential to disturb, destroy or obstruct an active badger sett will require a badger development licence from Natural England, which permits otherwise illegal actions.

All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended). Under the WCA, it is an offence to kill, injure or take any wild bird, to take damage or destroy the nest of any wild bird or to take or destroy the egg of any wild bird. A special penalty is levied to any of the above offences being committed in conjunction with a bird listed on Schedule 1 of the WCA. It is also an offence if a person disturbs any bird listed on Schedule 1 while it is building a nest, is on or near a nest containing young or disturbs dependent young of such a bird.

The Countryside and Rights of Way Act 2000 has made it an offence to intentionally or recklessly disturb Schedule 1 species as above and also an offence to intentionally or recklessly take, damage or destroy the nest of any wild bird or its eggs or dependent young.

Invasive species

Schedule 9 of The Wildlife and Countryside Act 1981 (as amended) lists invasive non-native plant species that are considered to have a detrimental effect upon native flora wherever they occur. It is therefore an offence to “plant or otherwise cause them to grow in the wild”. This includes allowing the species to grow/spread, causing the species to spread or transferring polluted ground material from one area to another. Waste containing these species may be classed as controlled waste under the Environmental Protection Act (Duty of Care) Regulations 1991, which requires all producers, carriers and disposers of waste to follow a code of practice and keep records and must comply with section 34 of the Environmental Protection Act 1990.

Section 23 of the Infrastructure Act 2015 amended the Wildlife and Countryside Act 1981 by inserting a new Schedule 9A to introduce a statutory regime of species control agreements and orders. This schedule ensures that, in appropriate circumstances, landowners take action on Schedule 9 invasive species, or permit others to enter the land and carry out those operations, to prevent their establishment and spread.

Under Section 23 of the Infrastructure Act 2015, the environmental authority has powers to make a species control order to require an owner to take action against an invasive non-native species. The environmental authorities with the powers to make species control agreements or orders in England are the Secretary of State, Natural England, the Environment Agency and the Forestry Commission.

The EU Invasive Alien Species Regulation (1143/2014) imposes strict restrictions on a list of species known as “species of Union concern” and is implemented by the European Commission Implementing Regulation 2016/1141, which came into force on 3 August 2016. A further 12 species were added to the list on the 13th July 2017 and came into force on 2nd August 2017. This list is drawn up by the European Commission and managed with Member States using risk assessments and scientific evidence.

Under the EU Regulation, it is a requirement for management measures to be put in place for widespread invasive species. The Invasive Alien Species (Enforcement and Permitting) Order 2019 came into effect on 1st October 2019.

The Regulation ensures that a landowner must act responsibly and not allow an invasive species to grow or spread outside their land, which could be an offence and/or contrary to the Regulation. Where this cannot be guaranteed the landowner is required to consider safely removing and disposing of any listed plant.

Appendix 2: Extended Phase 1 Habitat Survey Target Notes

1. **River Alt** – River corridor running between the two development parcels, flowing northwards. The river is up to 10m wide with a water depth of around 50cm and a slow to moderate flow rate. The banks are a mixture of reinforced and earth vegetated with scrub, tall ruderal vegetation and rough grassland. Along a few sections at the tops of the banks are earth bunds which are now generally vegetated with bramble scrub and tall ruderal species with species characteristic of disturbed ground. During the updated survey in August 2020, recent earthworks had been undertaken at the southern end on the eastern side which had been reseeded. Pondweed dominates the aquatic vegetation. Himalayan balsam and Japanese knotweed are present on the banks.
2. **Grassland** – Field of species-poor semi-improved grassland bordering the western side of the River Alt corridor. The grassland appears unmanaged and has a long sward which is often tussocky and rank. Perennial grasses dominate, in particular red fescue, false oat-grass, creeping bent and common bent, with a low abundance of forb species. Forb species included locally abundant great willowherb and creeping thistle, locally frequent to abundant silverweed, occasional aster and rare fleabane and red bartsia. The high frequency of species such as creeping thistle and broadleaved dock are a result of lack of management and could indicate agricultural enrichment.
3. **Native hedgerow** – An isolated section of native, outgrown hedgerow around 4m tall and 3m wide, dominated by hawthorn with elder and bramble. The base comprises rough grassland.
4. **Disturbed ground and dry ponds** – A small area of fairly recently disturbed ground adjacent to the River Alt, created through the excavation of shallow pools and associated creation of an earth bank along the river bank. The ponds were dry at the time of the survey but had bare bases, suggesting recent inundation with water, which had frequent young crack willow scrub. The banks have been colonised by bramble scrub and tall ruderal vegetation with locally dominant Himalayan balsam. During the updated survey in August 2020 the area had vegetated over with abundant knotgrass and field horsetail, plus occasional Yorkshire fog, scentless mayweed, common cudweed, creeping thistle, colt's-foot, Himalayan balsam and aster. Mugwort and common couch were frequent at the northern end. There was no standing water.
5. **Grassland** – Rank and tussocky, unmanaged, grassland dominated by perennial grasses and tall ruderal vegetation. Similar species composition to TN2 but is likely to have been subject to less recent management and is damp in places where the dominant vegetation is great willowherb and rosebay willowherb. Other frequent ruderal species widespread in the sward include common nettle, common hogweed and creeping thistle. Additional species recorded during the updated survey in August 2020 included locally dominant aster, locally frequent to abundant creeping soft-grass, locally frequent amphibious bistort and hairy tare, plus occasional Himalayan balsam and rare red bartsia.
6. **Treeline/ scrub** – Boundary dominated by dense bramble scrub and tall ruderal vegetation with frequent trees. Trees are generally semi- or early mature, being dominated by sycamore and Norway maple with a variety of non-native poplar species.
7. **Ditches and ponds** – Fairly recently excavated, artificial pools surrounded by areas of tall ruderal vegetation, bramble scrub and scattered trees. The pools and ditches had shallow, patchy areas of standing water within them at the time of survey and vegetation within them was dominated by bulrushes with some reed sweet-grass. Filamentous algae was also abundant.

Excavated spoil and rubble has been made into raised banks alongside the pools which have been colonised by ruderal and ephemeral plants.

8. **Swamp** – Particularly damp areas within grassland dominated by reed canary-grass, bulrushes, soft rush, amphibious bistort and field horsetail.
9. **Native hedgerow** – A defunct, species-poor native hedgerow along a field boundary. The hedgerow is unmanaged and dominated by hawthorn. Some Italian poplars are present towards the northern end.
10. **Central field** – The central field in the south-western area of the site, comprising a mosaic of species-poor semi-improved grassland, tall ruderal vegetation, trees and scrub. The grassland is similar to TN2 and TN5 but generally appears less species-rich. Species recorded included: frequent common bent, Yorkshire fog and false oat-grass, locally dominant aster, locally abundant creeping thistle, locally frequent amphibious bistort, occasional Timothy and rare red fescue. Areas of tall ruderal vegetation comprised rosebay willowherb and great willowherb. Many of the trees are non-native planted specimens including poplar species, with smaller self-seeded trees and native woody shrubs.
11. **Native hedgerow** – An intact, species-poor native hedgerow along a field boundary. The hedgerow is unmanaged and dominated by hawthorn. It measures around 4m tall and 3m wide and comprises early-mature shrubs.
12. **Grassland** – Species-poor semi-improved grassland similar to other rough grassland within the site but is less tussocky and rank. It is dominated by perennial grasses, in particular red fescue and sweet vernal-grass with very occasional forbs typical of semi-improved grassland. Additional species recorded during the August 2020 update included abundant common bent, frequent Yorkshire fog, locally frequent smooth hawk's-beard and creeping bent, locally occasional to frequent yarrow, occasional ribwort plantain, locally occasional curled dock, rare to occasional white clover common sorrel and creeping buttercup and rare knapweed.
13. **Disturbed ground** – An area of ground stripped of its top layer, comprising a sandy soil with a sparse grassland flora beginning to recolonise including a species of fleabane. Around the edge are earth banks colonised by tall ruderal vegetation, locally dominated by bramble with frequent to abundant creeping thistle and grasses including false oat-grass, Yorkshire fog and common bent.
14. **Gravel and ephemerals** – An area of levelled gravel and rubble beginning to be colonised by short perennial plants, dominated by ribwort plantain. During the August 2020 update survey, the area was found to be well vegetated frequent ribwort plantain and yarrow, occasional cock's-foot, Yorkshire fog and red fescue, locally occasional common bent and rare black medic, hairy tare, common bird's-foot trefoil, red clover and red bartsia.
15. **Hedgerow and trees** – Outgrown, native hedgerow with abundant trees along the south-western boundary of the site. The hedgerow is mostly intact and is pruned from the road side. On the site side of the hedgerow there is abundant bramble scrub and other small trees and shrubs. The hedgerow is dominated by hawthorn but there are frequent non-native early-mature trees including Norway maple as well as a number of dead elm trees.
16. **Hedgerow** – An intact, species-poor native hedgerow along the southern boundary of the site. The hedgerow is managed, dominated by hawthorn and has frequent semi-mature trees including sycamore, Norway maple and common alder. It measures around 3m tall and 1.5m

wide. A small ground of planted cherry trees (some semi-mature and seeding into the adjacent grassland) is present adjacent to the hedgerow.

- 17. Hedgerow, scrub and ruderals** – Small, triangular shaped area of land dominated by bramble scrub with tall ruderal vegetation and scattered woody shrubs and young trees. Hawthorn dominated hedgerows (as TN16) occur along the edges of the bordering road and path. Tall ruderal vegetation is dominated by great willowherb, common hogweed and cow parsley.
- 18. Semi-improved grassland (mown)** – Frequently mown, species-poor semi-improved grassland dominated by red fescue with frequent forbs including daisy and dandelion. Additional species recorded during the August 2020 update included: locally frequent sheep's sorrel, occasional ribwort plantain and smooth hawk's-beard and rare common bird's-foot trefoil, common cat's-ear and a species of hawkbit. The turf had been stripped in one area. Scattered planted early-mature trees in the area include Norway maple, wild cherry and common lime.
- 19. Scrub and trees** – Small area of derelict land in the south-east of the site, dominated by bramble scrub with a semi-mature hawthorn hedgerow to the east with mature poplar and sycamore trees.
- 20. Defunct hedgerow** – A gappy hedgerow following the fence along the boundary of the golf course car park, dominated by hawthorn with locally frequent cherry laurel plus some garden privet. The hedgerow is shaded by adjacent trees.
- 21. Gravel store** – A small area used as a store for gravel. Around the edge of this area is disturbed soil supporting ephemeral and ruderal species including Himalayan balsam, common fumitory and garlic mustard.
- 22. Non-native hedgerow** – A planted species-poor hedgerow dominated by garden privet with occasional self-seeded native species.
- 23. Plantation woodland** – Planted mixed woodland with semi- and early-mature trees. Norway maple and silver birch dominate with locally frequent introduced pines. The shrub and ground layer are dominated by bramble, common nettle and common ivy.
- 24. Non-native hedgerow** – A frequently trimmed formal hedgerow dominated by garden privet.
- 25. Trees and ruderals** – Small area of trees, dominated by Norway maple, with scattered native shrubs and tall ruderal vegetation beneath. Dominant shrub and ground species include elder, bramble and common nettle. Himalayan balsam is also present.
- 26. Pond and ephemerals** – A recently dug pond on the eastern margin of the site surrounded by disturbed ground colonised by ephemeral vegetation. Typical ephemerals recorded include common ragwort, white campion, common fumitory, creeping thistle, hare's-foot clover and scented mayweed, amongst others. Himalayan balsam is also present. The pond had around 2m² of shallow water with much of the remaining base supporting grasses in addition to frequent great willowherb, broadleaved dock, Yorkshire fog and field horsetail. During the August 2020 update survey, the southern end of the ditch was found to be holding water locally.
- 27. Ditch** – Recently excavated ditch, around 1m wide and up to 1m deep. The base supports abundant Yorkshire fog and occasional great willowherb.

- 28. Hedgerow with trees** – Vegetation on the eastern boundary of the golf course comprising a line of trees and scrub. Trees are generally semi- and early-mature including Norway maple, sycamore, goat willow and pear species, with frequent hawthorn. The base comprises a relatively species-rich rough grassland with abundant cleavers and cock's-foot, and occasional common knapweed, greater knapweed and herb-Robert amongst others.
- 29. Amenity grassland and scattered trees** – The main areas of the golf course comprise frequently mown amenity grassland with scattered trees, generally early-mature with some more mature groups (poplar species). The grassland is species-poor and dominated by fine grasses suited to its use as golfing fairways and greens. Scattered trees are dominated by introduced species including poplar species, common lime, Norway maple, Italian alder and horse chestnut.
- 30. Rough grass, scrub, trees and standing water** – Rough areas of the golf course comprising unmanaged, species-poor semi-improved grassland similar to those in the south-west of the site (TN2 & 10) with frequent stands of scrub and trees. Scrub is dominated by bramble with occasional elm (including dead trees), elder and hawthorn, and dominant trees are introduced species including Norway maple, sycamore, poplars, beech and white willow. Himalayan balsam is present in this area. There was a recently excavated, unshaded rectangular water body, approximately 6m x 7m present during the August 2020 update. There was very little aquatic/marginal vegetation with some bulrush colonising.
- 31. Mature trees** – A margin of the golf course with mature white poplar trees surrounded by translocated soil.
- 32. Pond** – Recently excavated waterbody with no aquatic or marginal vegetation and turbid water. The pond was still turbid in August 2020 with frequent submerged aquatic vegetation and scattered marginal bulrush. There is a dry ditch running to the pond from the west (TN33).
- 33. Dry ditch and bank** – A relatively recently excavated dry ditch and bank to the south, with bramble dominated scrub and tall ruderal vegetation dominated by great willowherb. Scattered woody shrub species include goat willow, elder and Italian alder. Part of the ditch was being in-filled at the time of the August 2020 update survey.
- 34. Dense scrub** – A strip of dense scrub and adjacent treeline on part of the western boundary of the golf course. The boundary is dominated by blackthorn with occasional ash and apple species. There is a narrow line/ strip of fir trees along part of this boundary.
- 35. Woodland strip** – Strip of semi-mature broadleaved plantation woodland along the western margin of the site including field maple, Norway maple and common alder, amongst others.
- 36. Waterbodies** – A line of recently created linear connected waterbodies and wide ditches along the western boundary of the golf course. These comprises mostly open water with excavated sandy soil along the banks. There is locally abundant bulrush and Himalayan balsam.
- 37. Trees, scrub and brash** – Corner area within the site supporting a dense stand of semi-mature hornbeam and elm trees with piles of brash underneath the canopy.
- 38. Pond** – Recently excavated waterbody with no aquatic or marginal vegetation and turbid water. A small amount of Himalayan balsam is present around the earth banks.
- 39. Railway embankment** – The northern boundary of the site bordered by a railway embankment dominated by dense bramble scrub with scattered semi- and early-mature sycamore trees and

scattered woody shrubs including crack willow, elder and hawthorn. Cleavers and common nettle are also abundant in the ground layer.

40. **Hedgerow and scrub** – North-western corner of the site dominated by rough grassland and bramble scrub with scattered goat willow and immature common alder. Adjacent to this, there is a defunct species-poor hawthorn dominated hedgerow along the road.
41. **Storage area** – A fenced storage area in the south-eastern area of the site, next to the River Alt, comprising bare ground with shipping containers. It is bounded by dense scrub and small trees including crack willow and pine. Japanese rose is present in the mix of scrub bordering this area.
42. **Pond and ditch system** – A network of fairly recently excavated ponds and interlinking wet ditches in the west of the site. The land surrounding the waterbodies comprises bare sandy ground with a sparse cover of ephemerals, tall ruderals and scrub.
43. **Ponds and ditches** – A pond dominated by bulrush where three ditches (approx. 1m wide) intersect, the southernmost of which is dry. It is surrounded by amenity grassland, tall ruderal and scrub.
44. **Rough grassland, tall ruderal, scrub and trees** – poor semi-improved rough grassland as described for TN30 with stands of tall ruderal dominated by creeping thistle and broadleaved dock with common bent, Yorkshire fog and perennial rye-grass.
45. **Ponds, tall ruderal and trees** – tall ruderal dominated by Himalayan balsam and common hogweed with abundant creeping thistle and sporadic bramble scrub. There are two, recently excavated ponds on the southern side (likely used for drainage), which were mostly dry. Tree species included: locally frequent Sitka spruce, Norway maple, alder, sycamore and silver birch.
46. **Ponds, trees and rough grassland** – Two recently excavated ponds, one of which was dry with little to no vegetation, except some bulrush. The ponds are surrounded by rough grassland with scattered trees comprising locally frequent pine, alder and willow spp.
47. **Pond, trees and tall ruderal** – a kidney shaped pond with some bulrush.
48. **Ditch and pond** – a recently excavated, steep-sided ditch, approximately 2m wide with no vegetation leading to a pond with dense bulrush vegetation.
49. **Broadleaved plantation woodland** – broadleaved woodland with some coniferous trees including Norway maple, ash, sycamore and Italian alder with bramble and hawthorn scrub.
50. **Pond** – A recently excavated, unshaded, rectangular water body, approximately 6m x 7m noted during the August 2020 update. There was very little aquatic/marginal vegetation with some bulrush colonising.
51. **Pond** – A very small, shallow pond in late succession on the edge of the golf course. It was approximately 8 square metres and triangular in shape with a central mat of bullrush on which terrestrial plants including creeping buttercup were growing.
52. **Pond** - A fairly recently created, shallow pond approximately 12 square metres located on the edge of the golf course in an area of rough grassland. The pond was very shallow but contained bullrush and small areas of establishing floating sweet-grass.

- 53. Pond** – A large ephemeral waterbody located on the golf course edge that is thought to frequently fluctuate in area. The pond is considered to be dry for most months of the year with associated plants being soft rush and spiked rush.
- 54. Pond** – An established pond located on the northern boundary of the golf course. It comprises two oval waterbodies that are linked via a narrow flooded central section. The pond margins and central section are dominated by bullrush. A kingfisher was noted feeding from this pond on numerous occasions.
- 55. Pond** – A very small pond resulting from a digger excavation located within bramble scrub on the northern boundary of the golf course. The pond is approximately 3m by 1m and is 100% covered by floating lemna sp.
- 56. Pond** – This waterbody was holding deep water during an initial site visit and was considered to be a pond. However, it was found to be linked to a drain and was subsequently empty of standing water during a later visit. There were no associated aquatic plant species.
- 57. Pond** – Two fairly recently excavated shallow ponds located on the edge of cleared vegetation and coniferous trees within the golf course. The ponds are both oval shaped with no associated aquatic plant species. The western most pond has fallen trees within it, which have been moved from elsewhere on the site.
- 58. Pond** – A 40m long by 6m wide undulating pond located within the woodland on the eastern side of the golf course. It is likely to be dry during the summer months but was fully wet during the survey. There were no associated aquatic plant species.
- 59. Broadleaved plantation woodland** – Planted mature trees comprising poplar sp. with secondary stands of semi-mature and young trees, namely frequent silver birch, occasional oak sp and rare rowan. A central belt of scrub with very shallow marshy pools comprised of occasional common ash, common alder, goat willow. Other species in this area included locally abundant cock's-foot, frequent common nettle, creeping soft-grass, cleavers, and rosebay willowherb with occasional bramble, male fern, hogweed, bullrush and rare pendulous sedge.

Appendix 3: Site Photographs

	
Photo 1: View southwards along River Alt corridor (TN1)	Photo 2: Rough semi-improved grassland (TN5)
	
Photo 3: Recently created, shallow, seasonal waterbodies (TN4)	Photo 4: Swamp habitats (TN8)
	
Photo 5: Scattered trees and shrubs in central grassland field (TN10)	Photo 6: View northwards of south-western field (TN12) and bordering hedgerows and scrub.
	
Photo 7: View westwards along hedgerow along southern boundary (TN16).	Photo 8: Amenity grassland and scattered trees to the south of the Club House and car park (TN18)

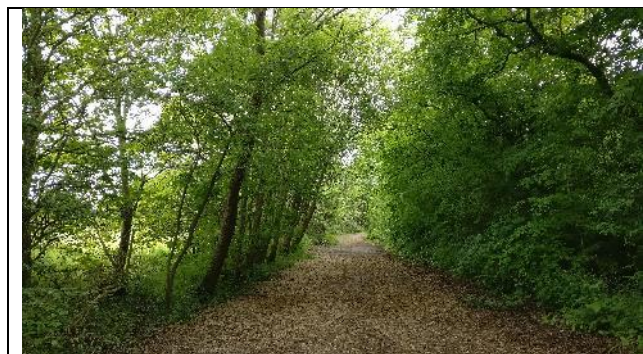


Photo 9: View northwards along Ingoe Lane on the eastern site boundary, bordered by treeline/hedgerow (TN28) and off-site woodland.



Photo 10: Rough grassland, scattered trees, scrub and dry ditch in the east of the development area (TN30).



Photo 11: Recently created pond (TN32).



Photo 12: View southwards along western boundary scrub and plantation woodland (TNs 35,34).



Photo 13: Recently created waterbodies on the western boundary of the development area (TN36).



Photo 14: Fairways and scattered trees (TN29).



Photo 15: View westwards along fairway in the north of the development area showing northern boundary trees (TN39).



Photo 16: Railway embankment on the northern site boundary (TN39).



Photo 17: Newly created pond (TN50)



Broadleaved plantation with secondary woodland (TN59)

Figure 1:
Extended Phase 1 Habitat Survey Map

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Extended Phase 1
Habitat Survey Map.

Map Ref: (NGR) 339540, 397985
Map Scale: 1:5000 @ A3

KEY

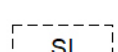
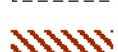
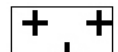
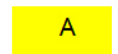
-  Site boundary
-  30m buffer
-  Target note
-  Broadleaved plantation woodland
-  Dense / continuous scrub
-  Scattered scrub
-  Scattered trees
-  Semi-improved species-poor grassland
-  Tall ruderal
-  Swamp
-  Pond / waterbody
-  Running water
-  Dry ditch
-  Wet ditch
-  Ephemeral / short perennial
-  Amenity grassland
-  Intact hedgerow
-  Defunct hedgerow
-  Hedgerow with trees
-  Buildings
-  Hard standing
-  Restricted access



Figure 2:
Proposed Estate Plan (9627-L22_C)

