

**Extra MSA Group**

# **Warrington Motorway Service Area, J11 M62**

**Environmental Statement**

**Part 2 –Ecology and Nature Conservation**

**Technical Paper 5**

Revision 004 22<sup>nd</sup> August 2019



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## I. Introduction

I.1. This technical paper has been prepared by Tim Palmer BSc (Hons), (Technical Director – Ecology) of Wardell Armstrong, who has over 15-years’ experience in ecology consultancy and has worked on numerous EIA projects throughout the UK. The paper has been technically reviewed by Richard Laws (Principal Consultant) BSc Hons MSc at Wardell Armstrong. The assessment considers all land within the Application Boundary, with appropriate survey/data radii being applied for relevant species groups/taxa.

I.2. This Technical Paper will assess the likely environmental effects to ecological receptors by the following staged process:

- Summarise the ecological baseline conditions;
- Identify and evaluate the nature conservation and/or biodiversity present;
- Identify any potential impacts (during construction and operational phase of development);
- Establish the magnitude and significance of those identified impacts;
- Identify the mitigation measures to address significant impacts; and
- Assess any residual impacts and the need for any compensation and enhancement.

I.3. The assessment is informed via a combination of field survey work and desk top research, which included the assessment of statutory and non statutory conservation Sites, protected and notable species, habitats and invasive species. Wardell Armstrong LLP have completed a proportionate scope of detailed field survey to support this application, which comprises:

- Preliminary Ecological Appraisal (including data collection from RECORD (November 2018)<sup>1</sup>);
- River Corridor Survey (April 2019);
- Habitat Suitability Index (HSI) assessment for Great Crested Newt (November 2018);
- eDNA sampling for Great Crested Newt (April 2019);
- Breeding Bird Surveys (April, May and June 2019);
- Wintering Bird Surveys (January – March and October – December 2018);
- Water Vole Surveys (April, May and June 2019);
- Badger Surveys (November 2019);
- Climbed inspection of trees for roosting bats (April 2019);
- Bat Activity Survey (October 2018, April and June 2019);
- Aquatic and Terrestrial Invertebrate Surveys (April 2019); and
- Reptile Surveys (May and June 2019).

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<sup>1</sup> <http://www.record-lrc.co.uk/>

- Tree Surveys (BS5837 during April 2019)

1.4. The assessment should be considered in conjunction with the hydrology of the Site (as set out in Paper 3: Water Resources); and, in relation to the potential excavation and reuse of peat resources, Agricultural Land and Soils (Paper 10). In addition to the baseline ecology reports given as ES Part II Appendices 5.1 to 5.14, the following ES Part I Appendices are also of relevance to this assessment:

- Appendix 8 Illustrative Masterplan;
- Appendix 12 Construction Management Plan Framework;
- Appendix 15 Arboriculture Report.; and
- Appendix 16 Lighting Assessment.

1.5. In order to assess the significance of impacts, the following legislation has been considered:

- Conservation of Habitats and Species Regulations 2018 (and as amended), which protects a range of species including bats, otter, and great crested newt.
- Wildlife and Countryside Act (WCA) 1981 (as amended), which protects Sites of Special Scientific Interest, National Nature Reserves, and a range of species including bats, great crested newt, otter, water vole and all wild birds. This includes partial protection for adder, common lizard and grass snake. Additional protection is provided to birds listed on Schedule 1 of WCA against disturbance of any Schedule listed bird or young while nesting. Finally, Section 14 of the WCA prohibits the release of any Schedule 9 (part 2) species.
- The Protection of Badgers Act 1992, which protects badger setts and protects the animals from disturbance.
- Natural Environment and Rural Communities (NERC) Act 2006 which requires the Secretary of State to publish a list of habitats and species of principal importance for the conservation of biodiversity in England.

## 2. Documents Consulted

### National Policy

- 2.1. Section 40 of the Natural Environment and Rural Communities (NERC) Act imposes a legal duty on Planning Authorities to 'have regard' to the conservation of biodiversity when considering planning applications.
- 2.2. Section 41 of the NERC Act requires the Secretary of State to publish a list of species and habitats of principal importance for conserving biodiversity in the UK. Such Biodiversity Action Plan (BAP) Habitats and Species (2007) do not offer the species any specific protection but help to highlight the species importance at a national level. This list is used by Local Planning Authorities to identify the species and habitats that should be afforded priority when applying the requirements of the National Planning Policy Framework (NPPF19).
- 2.3. The NPPF19 underpins the Government's planning policies for England and how these are to be applied. The central theme of the NPPF19 is a presumption in favor of sustainable development.
- 2.4. The NPPF19 states:

When determining planning applications, local planning authorities should apply the following principles:

- if significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
- development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and;
- development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity



improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity;

- The following should be given the same protection as habitats sites:
  - a) potential Special Protection Areas and possible Special Areas of Conservation;
  - b) listed or proposed Ramsar sites; and
  - c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

## Local Policy

- 2.5. Local Policy is set out within the *Local Plan Core Strategy* (Warrington Borough Council, Adopted July 2014). The following policies are appropriate to Ecology:

### Policy QE 3

#### *Green Infrastructure*

The Council will work with partners to develop and adopt an integrated approach to the provision, care and management of the borough's Green Infrastructure. Joint working and the assessment of applications will be focused on:

- protecting existing provision and the functions this performs;
- increasing the functionality of existing and planned provision especially where this helps to
- mitigate the causes of and addresses the impacts of climate change;
- improving the quality of existing provision, including local networks and corridors, specifically
- to increase its attractiveness as a sport, leisure and recreation opportunity and its value as a habitat for biodiversity;
- protecting and improving access to and connectivity between existing and planned provision
- to develop a continuous right of way and greenway network and integrated ecological system;
- securing new provision in order to cater for anticipated increases in demand arising from development particularly in areas where there are existing deficiencies assessed against standards set by the Council.

### *Policy QE 5*

#### *Biodiversity and Geodiversity*

The Council will work with partners to protect and where possible enhance Sites of recognised nature and geological value. These efforts will be guided by the principles set out in National Planning Policy and those which underpin the strategic approach to the care and management of the borough's Green Infrastructure in its widest sense.

Sites and areas recognised for their nature and geological value are shown on the Policies Map and include:

- European Sites of International Importance
- Sites of Special Scientific Interest
- Regionally Important Geological Sites
- Local Nature Reserves
- Local Wildlife Sites
- Wildlife Corridors

Proposals for development which may affect **European Sites of International Importance** will be subject to the most rigorous examination in accordance with the Habitats Directive. Development or land use change not directly connected with or necessary to the management of the Site and which is likely to have significant effects on the Site (either individually or in combination with other plans or projects) and which would affect the integrity of the Site, will not be permitted unless the Council is satisfied that;

- there is no alternative solution; and
- there are imperative reasons of over-riding public interest for the development or land use change.

Proposals for development in or likely to affect **Sites of Special Scientific Interest (SSSI)** will be subject to special scrutiny. Where such development may have an adverse effect, directly or indirectly, on the SSSI it will not be permitted unless the reasons for the development clearly outweigh the nature conservation value of the Site itself and the national policy to safeguard the national network of such Sites.

Proposals for development likely to have an adverse effect on **regionally and locally designated Sites** will not be permitted unless it can be clearly demonstrated that there are reasons for the development which outweigh the need to safeguard the substantive nature conservation value of the Site or feature.

Proposals for development which may adversely affect the integrity or continuity of UK Key habitats or other habitats of local importance, or adversely affect EU Protected Species, UK Priority Species or other species of local importance, or which are the subject of Local Biodiversity Action Plans will only be permitted if it can be shown that the reasons for the development clearly outweigh the need to retain the habitats or species affected and that mitigating measures can be provided which would reinstate the habitats or provide equally viable alternative refuge Sites for the species affected.

All development proposals affecting protected Sites, wildlife corridors, key habitats or priority species (as identified in Local Biodiversity Action Plans) should be accompanied by information proportionate to their nature conservation value including;

- a Site survey where necessary to identify features of nature and geological conservation importance; an assessment of the likely impacts of the proposed development proposals for the protection and management of features identified for retention;
- an assessment of whether the reasons for the development clearly outweigh the nature conservation value of the Site, area or species; and
- proposals for compensating for features damaged or destroyed during the development process

Where development is permitted, the Council will consider the use of conditions or planning obligations to ensure the protection and enhancement of the Site's nature conservation interest and/or to provide appropriate compensatory measures.

### 3. Consultations

3.1. Table 5.1 (below) summarises the consultation responses received at the time of writing, this includes formal responses to the Scoping Request Report submitted to Warrington Borough Council (WBC) on 20<sup>th</sup> December 2018 (ES Part I, Appendix 17) and WBC scoping opinion dated 13<sup>th</sup> February 2019 (ES Part I, Appendix 18). Discussions with Natural England, Environment Agency and GMEU are ongoing.

Theme / Issue	Date	Consultee	Method	Summary of Discussion	Outcome / Output
Scope of surveys	November 2018	Greater Manchester Ecological Unit (GMEU)	Phone call	Discussed the proposed scope of Phase II surveys following completion of the PEA.	No additional survey requirements were noted.
Scoping response	January 2019	Greater Manchester Ecological Unit (GMEU)	Emailed scoping response dated 14 <sup>th</sup> January 2019	<p>The site is within 1 km of parts of the Manchester Mosses Special Area of Conservation (SAC), in particular Holcroft Moss and Risley Moss. I would recommend that potential impacts on the special nature conservation interests of these sites are properly considered in the Environmental Statement. The potential of the development to cause –</p> <ul style="list-style-type: none"> <li>• Indirect hydrological changes and</li> <li>• Increases in diffuse air pollution arising from increased traffic generation</li> </ul> <p>In terms of how the underlying substrate on the site (peat) is to be treated to facilitate the development an Assessment of potential options should be made.</p> <p>In addition to the above I would agree with the Scope of the Ecological Assessment as proposed by the applicant; that is, the following impacts need to be considered in the ES –</p> <ul style="list-style-type: none"> <li>• Direct Habitat loss and indirect lighting impacts to bats roosting, foraging and</li> </ul>	NE reiterated comments made as part of the pre-application with WBC.

Theme / Issue	Date	Consultee	Method	Summary of Discussion	Outcome / Output
				<p>commuting habitats,</p> <ul style="list-style-type: none"> <li>• Loss of habitats of use to badgers,</li> <li>• Impacts to water vole foraging and burrowing habitat,</li> <li>• Impact on grass snake basking habitat,</li> <li>• Impacts on great crested newt terrestrial habitat,</li> <li>• Impacts on barn owl foraging habitat,</li> <li>• Impacts on wintering bird assemblages and</li> <li>• Impacts on breeding bird assemblages.</li> <li>• Impacts on habitat fragmentation</li> </ul> <p>I would encourage the applicant to consider how this development could contribute to Biodiversity Net Gain (NPPF para. 170).</p>	
Scope and content of HRA	18-03-2019	GMEU	Meeting held at GMEU's Ashton Under Lyne Office	Discussion relating to whether a 'shadow' HRA is considered necessary, given the remote location of the site relative to components of the Manchester Mosses SAC	A brief shadow HRA is required to consider AQ effects in the event that there is any increase in emissions arising from vehicles at the MSA, and any hydrological effects caused by the treatment of sub surface peat deposits.
Presence of peat including peaty topsoil and deeper peat deposits within the Site.	18-03-2019	GMEU	As above	<p>Discussed the agricultural status of the site.</p> <p>Discussed the importance of peat management in line with a peat management hierarchy:</p> <ul style="list-style-type: none"> <li>• Avoidance</li> <li>• Reuse on site</li> <li>• Reuse off site (habitat creation or restoration)</li> <li>• Reuse off site (other applications such as horticulture)</li> </ul>	<p>GMEU are satisfied with the methodology and outcome of the soil survey and resulting ALC grades assigned to the land.</p> <p>Avoid impact on peat where possible, if unavoidable, ensure the beneficially re-use of the peat on -site or off-site at suitable receptor sites.</p>

Theme / Issue	Date	Consultee	Method	Summary of Discussion	Outcome / Output
				<ul style="list-style-type: none"> <li>Disposal</li> </ul> <p>GMEU provided WA with a list of known peatland restoration sites within the locale, in which peat could be beneficially re-used (i.e. potential receptor sites).</p>	
Brook realignment and treatment of sub-surface peat deposits	09-04-2019	Environment Agency	Meeting held at EA Warrington Office	Discussed ecological survey methodology with respect to Development in general terms. Discussed opportunities for biodiversity enhancement via diversion of Silver Lane Brook. Discussed status of sub surface peat deposits.	No issue regarding survey scope or proposed Brook realignment. Confirmation to be provided to EA that the sub surface peat deposits do not meet the criteria for classification as a component of the Manchester Mosses SAC.
Status of Sub surface Peat deposits with regards to possible inclusion within Manchester Mosses SAC.	10-04-2019 and 12-04-2019	GMEU	Telephone call and emails.	Discussion on whether or not the site can be considered to be a component of the Manchester Mosses SAC suite and fits the JNCC criteria for degraded peat bogs still capable of natural regeneration.	GMEU have confirmed that the site <b>does not meet the JNCC criteria</b> as it is not capable of natural regeneration and the current land use is not one of the land cover types falling within the definition.
Scoping Response	10 <sup>th</sup> January 2019	Natural England	Written scoping response	<p>The key issues that we consider to require consideration in the EIA are as follows:</p> <p>Designated sites – as identified in the above paragraph, the Impact Risk Zones for Risley Moss SSSI and Holcroft Moss SSSI are triggered for this development site. These SSSI's form part of the internationally designated site Manchester Mosses SAC so the EIA will need to conduct a full assessment to ensure that development on this site would not lead to hydrological impacts on the designated site. Changes to air quality as a result of changes to traffic volume/flow should also be considered.</p> <p>Peat – Natural England advise that development on peat should be avoided. It is an irreplaceable habitat with a high biodiversity value but also performs an important role in carbon storage and water catchment management.</p> <p>Ecological connectivity – Manchester Mosses SAC comprises of a fragmented cluster of sites therefore, connectivity between the sites</p>	N/a

Theme / Issue	Date	Consultee	Method	Summary of Discussion	Outcome / Output
				<p>is essential for them to function well. Connectivity of the sites should be considered when assessing the impacts of the development and should be strengthened through mitigation design. Ponds are an important habitat in this ecological network and should be retained, enhanced and created. We would like to see this development strive to achieve biodiversity net gain in line with the NPPF.</p> <p>HS2 – HS2 is proposed in this area which will lead to further habitat fragmentation between the sites. We recommend that the in-combination effects are considered in the EIA.</p>	
Discussions with Natural England's Planning team and Peatlands Specialist Dr Paul Thomas	4 <sup>th</sup> June 2019	Paul Thomas and Janet Baguley	Site meeting and follow up email received 10 <sup>th</sup> June 2019.	<p>Status of peat habitats was discussed and whether or no the site can be considered to be EU Annex I habitat, and whether the peat resource can be considered to be 'irreplaceable' as per NPPF19.</p>	<p><b>Natural England confirm that there is no Annex I Habitats on the proposed development site.</b></p> <p><b>Natural England cannot confirm that the habitats on the proposed development site do not meet the criteria to be considered 'irreplaceable' as defined by the NPPF</b> as a good proportion of the site has been confirmed as deep peat. The NPPF does provide examples of habitats that are 'irreplaceable' but the list is not definitive so the definition is open to interpretation.</p> <p><b>Natural England advise that relocating peat is undesirable</b> as it will lose the ability to hold water and will degrade. There are no local nature reserves/sites where it would be feasible or desirable to re-locate peat. The most desirable mitigation (if the development was to go ahead) would be wetland creation on a neighboring parcel of land.</p> <ul style="list-style-type: none"> <li>Consider retaining peat in situ so it does not lose carbon.</li> </ul>

Theme / Issue	Date	Consultee	Method	Summary of Discussion	Outcome / Output
					<ul style="list-style-type: none"> <li>• Wet woodland is a potential consideration for habitat creation on the development site.</li> <li>• Water from the brook and the proposed SUDS scheme are not compatible with peat, only rainfall.</li> <li>• Natural England advise that the proposed development site is fundamental to our Lowland Wetland Nature Recovery Network as it is suitable for restoration that will bolster the lowland wetland ecological network.</li> </ul>

Table 5.1: Summary of Consultations and Discussions



## 4. Methodology and Approach

4.1. The assessment of significance of impacts has been determined by identifying the presence of ecological features; evaluating their importance, or value, and defining magnitude of the effects. In order to objectively assess effects arising from a particular development/activity it is essential to establish the sensitivity of each ecological receptor. The sensitivity has been evaluated within a geographical context, with each receptor falling into one (or more) of the following categories detailed within the table below.

### Receptors

4.2. Ecological receptors are evaluated according to the following definitions.

Designation	Receptors
International	<p>Examples:</p> <ul style="list-style-type: none"> <li>• An internationally designated Site or candidate Site.</li> <li>• A viable area of a habitat type listed in Annex I of the Habitats Directive, or smaller areas of such habitat, which are essential to maintain the viability of a larger whole.</li> <li>• Any regularly occurring population of an internationally important species, which is threatened or rare in the UK.</li> <li>• Any regularly occurring, nationally significant population/number of any internationally important species.</li> </ul>
National	<p>Examples:</p> <ul style="list-style-type: none"> <li>• A nationally designated Site.</li> <li>• A viable area of a priority habitat identified in the UK BAP, or smaller areas of such habitat, which are essential to maintain the viability of a larger whole.</li> <li>• Any regularly occurring population of a nationally important species, which is threatened or rare in the region or county.</li> <li>• A regularly occurring regionally or county significant population/number of any nationally important species.</li> <li>• A feature identified as of critical importance in the UK BAP.</li> </ul>

Regional	<p>Examples:</p> <ul style="list-style-type: none"> <li>• Viable areas of key habitat identified in the Regional BAP or smaller areas of such habitat, which are essential to maintain the viability of a larger whole.</li> <li>• A regularly occurring, locally significant number of a regionally important species.</li> </ul>
County	<p>Examples:</p> <ul style="list-style-type: none"> <li>• County designated Sites.</li> <li>• A viable area of a habitat type identified in the County BAP.</li> <li>• Any regularly occurring, locally significant population of a species which is listed in a County “red data book” or BAP on account of its regional rarity or localisation.</li> <li>• A regularly occurring, locally significant number of a species important in a County context.</li> </ul>
Borough/District	<p>Examples:</p> <ul style="list-style-type: none"> <li>• Area of habitat considered to appreciably enrich the habitat resource within the context of the Parish.</li> <li>• Local Nature Reserves</li> </ul>
Local/Neighbourhood <sup>2</sup>	<p>Examples:</p> <ul style="list-style-type: none"> <li>• Habitats and species that contribute to local/Site biodiversity, could only be replicated in the medium term, but are common in the local area.</li> <li>• Loss of such habitats would ideally be mitigated if local/Site biodiversity is to be conserved and enhanced.</li> </ul>

Table 5.2: Receptors

4.3. A Receptor Plan for Ecology is included at ES Part 1, Appendix 5, Parameter Plans.

## Environmental Impacts

4.4. The magnitude of impacts is defined below in Table 5.3 (below).

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<sup>2</sup> Also including ‘Site/Zone of Influence’ levels.

Magnitude	Environmental Impact
Substantial	Permanent impact(s) resulting in the total loss the integrity of the Site or conservation status of a habitat, species assemblage/community population or group.
	Significant improvements of resource quality, restoration and enhancement on an extensive scale, significant improvement of attribute quality. Significant improvement in Local Green Infrastructure
High	Permanent or long term impact(s) on the integrity of the Site or conservation status of a habitat, species assemblage/community population or group, which is likely to threaten its sustainability.
	Large scale or major improvement of resource quality; extensive restoration or enhancement; major improvement of attribute quality.
Moderate	Permanent or long term impact(s) on the integrity of the Site or conservation status of a habitat, species assemblage/community population or group, which is unlikely to threaten its sustainability.
	Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality.
Minor	Short term and reversible impact(s) on the integrity of the Site or conservation status of a habitat, species assemblage/community population or group that is within the range of variation normally experienced between years.
	Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring.
Negligible	Short term and reversible impact that is within the range of annual variation.
	Very minor benefit to or positive addition of one or more characteristics, features or elements

Table 5.3: Environmental Impacts

## Significance of Effects

- 4.5. The significance of effect is determined using the significance matrix in Section 6 of the Environmental Statement Part I Report. This identifies the receptor level across the top of the matrix and the magnitude of environmental impact down the side and where they meet within the matrix identifies the significance of the effect. Significant effects are those which are assessed as being Moderate Adverse, High Adverse or Substantial Adverse. Not significant effects are those which are assessed as being Minor Adverse, Negligible or Neutral, as well as beneficial effects.

## Impact Prediction Confidence

- 4.6. It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out below:

Confidence Level	Description
High	The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience.
Low	The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels.

Table 5.4: Confidence Levels

## 5. Baseline Information

### Desk Study

- 5.1. Summary methods are provided below with additional detailed contained within the individual technical appendices. The desktop study was informed by review of existing available information provided by RECORD (Local Records Centre) and from available internet-based resources for a 2km search radius, extending to 5Km for Special Protected Area's (SPA's), Special Areas of Conservation (SAC's) and Ramsar Sites.
- 5.2. Specific information was sought for:
- Statutory designated Sites;
  - Locally designated Sites;
  - Ancient woodland;
  - Protected and/or notable species;
  - NERCs.41 Priority Habitats and Species; and
  - Local Biodiversity Action Plan (LBAP) priority habitats and species.
- 5.3. Statutory conservation Sites located within the 2-5 km search radii include Manchester Mosses (SAC) Astley & Bedford Mosses (SAC and SSSI), Risley Moss (SAC and SSSI), LNR, Rixton Clay Pits (SAC and SSSI) and LNR, Holcroft Moss (SAC SSSI), and Woolston Eyes (SSSI).
- 5.4. The closest statutory Site is Holcroft Moss which is c.890m from the Proposed Development to the west and is separated from it by the M62. Astley and Bedford Mosses, and Risley Moss are (together with Holcroft Moss) components of the internationally designated Manchester Mosses SAC suite, which all lie more distant from the Proposed Development. Manchester Mosses SAC is designated for the presence of Annex I Habitats namely *Degraded raised bogs still capable of natural regeneration*.
- 5.5. The development area will be partly located over deposits of sub-surface peat. These deposits do not appear to be hydrologically associated with other areas of continuous degraded peatlands elsewhere and are covered by agricultural soils. Consequently, they do not form a component of the Manchester Mosses SAC, furthermore the site cannot be considered to be analogous with the Annex I Habitat Degraded Bogs still capable of regeneration as it fails to meet the necessary criteria. This assessment is confirmed by GMEU in their emailed consultation response dated 12<sup>th</sup> April 2019. Consequently, peatland habitats are not considered furthermore in this Paper in the context of the sub-surface peat deposits, however re-use of excavated peat is described as part of the ecological enhancement/mitigation proposals. The Manchester Mosses SAC suite is also discussed in Appendix 5.1 Information

to Support a Habitats Regulations Assessment. All assessment provided in this technical paper are provided without prejudice to the Habitats Regulations Assessment (HRA).

- 5.6. The Manchester Mosses SAC is evaluated at **International value**. Woolston Eyes SSSI and Rixton Clay Pits are scoped out of the assessment, being of c.4.5Km and 3Km respectively, from the Proposed Development with no hydrological connectivity or habitat linkage (due to the presence of the M62).
- 5.7. Non-statutory conservation Sites located within the 2km search radius are Pestfurlong Moss (Local Wildlife Site) Gorse Covert Mounds (LWS), Rixton Moss (LWS) and Silver Lane Risley (LWS).
- 5.8. Pestfurlong Moss LWS supports lowland raised bog habitat with scrub and woodland. It is evaluated at **Borough** level and will be considered through the assessment due to its connectivity with Risley Moss and presence of peatland habitats. Silver Lane Risley LWS is adjacent to Site and ecologically connected by a water course (Silver Lane Brook) and associated vegetation and is therefore carried through the assessment as a **Borough** value receptor.
- 5.9. Gorse Covert Mounds and Rixton Moss LWS are scoped out of further assessment on the basis of limited/absent ecological connectivity and separation distance from the Proposed Development.

#### **Extended Phase I Habitat Survey**

- 5.10. The aim of the Extended Phase I Habitat survey are the recording of broad habitat types present on Site, as well as to identify evidence of protected or notable species or habitats with the potential to support these species. An Extended Phase I Habitat Survey of the Site was undertaken on 31<sup>st</sup> October 2018. The surveys followed the 'Extended Phase I' methodology (Institute of Environmental Assessment (IEA), 1995 and JNCC 2010). The survey area for habitats includes all within the Site. The PEA report is supplied as Appendix 5.4.
- 5.11. The survey recorded no habitats which are considered to be of intrinsic ecological value via their inclusion on NERC s.41 and none are considered to be intrinsically notable at Local scales or higher however all habitat losses are considered through the assessment process in compliance with NPPF 19 which requires the delivery of a net gain in biodiversity from all Proposed Development. A Biodiversity Offsetting Assessment is provided as Appendix 5.11 an extract from which is provided in section 9.5-9.6.

- 5.12. In particular the Paper considers impacts to the Silver Lane Brook as it will be necessary to close and divert a section of the existing Brook totaling 755m in length. This is discussed in detail in Paper 9 Water Resources. The diversion of the Brook presents an opportunity to address water quality issues and enhance the biodiversity value of the current channel. The proposals are also considered in Appendix 5.2 Water Framework Directive Report. The Silver Lane Brook is valued at **Borough** level.
- 5.13. The Preliminary Ecological Appraisal, utilizing data gathered from the Desk Study and habitat information from the Extended Phase I Habitat Survey has evaluated the following species receptors as being potentially subject to adverse effects (in the absence of mitigation):
- Protected species (Great Crested Newt, Bats, Badger, Water Vole, Reptiles);
  - Barn Owl; and
  - Breeding and Wintering birds.
- 5.14. Additionally, stands of Himalayan balsam *Impatiens glandulifera* are located along the eastern boundary of the site. Methods for the control of this species are included to prevent its accidental dispersal during in particular, the construction phase of the Development.
- 5.15. Further to the completion of the original surveys a small stand of japanese rose *Rosa rugosa* was recorded within the application site along the course of the Silver Lane Brook. Methods for preventing accidental dispersal are included.
- Arboricultural Survey**
- 5.16. All trees on or immediately bordering the site were inspected from ground level and classified in line with BS5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations, on April 1<sup>st</sup> 2019. Each tree was identified, and a series of measurements were made, including: Stem diameters; Branch/crown spread estimates (North, East, South and West); and Tree height and canopy height. The Arboricultural Report is provided as ES Part I Appendix 15.
- 5.17. Where the age distribution and species mix was relatively uniform, or where trees formed distinct woodlands, trees were plotted as groups or woodlands. An indication of each tree's life stage, estimated retaining contribution in years and any observations on the form, position, structural and/or physical condition of the tree was also noted. The trees were then classified in accordance with the BS5837:2012 tree quality assessment categories A, B, C and U.

#### **Great Crested Newt (GCN) Survey**

- 5.18. HSI assessment was undertaken of accessible ponds within, and up to ~500m from, the Site boundary. The HSI assessment was conducted in accordance with good practice guidelines (English Nature and Langton et al. 2001). This HSI scoring system assesses a waterbodies' suitability as an aquatic habitat for GCN following ARG UK (2010) methodology which is based on Oldham et al (2000). The HSI is a simple model to provide an informed view of the value of a waterbody to support breeding populations of GCN, which involves assessing waterbodies based on ten habitat parameters that are known to influence breeding populations of GCN.
- 5.19. EDNA sampling of all waterbodies (regardless of HSI status) was undertaken on 15<sup>th</sup> April 2019 and 3<sup>rd</sup> May 2019. The methods for sampling followed methodology according to (Fresh habs trust), undertaken by suitably qualified ecologists with the samples analyzed by an accredited laboratory. The results are provided in full in Appendix 5.3. In summary no GCN eDNA was recorded by the surveys.
- 5.20. During the course of the reptile surveys an adult male GCN was recorded sheltering beneath one of the artificial refuges deployed as a reptile survey aid. This incidental record of a lone individual does not indicate the presence of a breeding population, which if present would have been recorded by the presence of eDNA in the waterbodies. As there are no ponds within the site itself and very limited potential terrestrial habitat for this species, no adverse effects to this species are anticipated and hence GCN are not considered further in this report.
- 5.21. As a precautionary measure, further sampling of the waterbodies will be undertaken prior to the onset of construction and licensing considerations provided in the event that a positive survey result is received. This procedure will be included within the Construction Environmental Management Plan (CEMP).
- #### **Bat Surveys**
- 5.22. Three bat activity surveys have been undertaken using transect and automated detector sampling during October 2018, April 2019 and June 2019. The surveys were led by a Natural England Bat Licensed Surveyor and methods were in accordance with standard practice guidelines (Collins 2015). In terms of foraging and commuting habitats, the habitats within the Site are considered to be of 'Low' habitat quality, given their predominantly arable nature.



The baseline survey report including detailed methods and results are provided as Appendix 5.5.

- 5.23. Two Song Meter SM2BAT+ Ultrasonic Recorder (Wildlife Acoustics, Inc.) automated bat detector units were deployed for five consecutive nights during October 2018, April and June 2019. Transect survey were undertaken in October 2018, April and June 2019. The bat activity surveys conclude that the site is of **Local** value to foraging and commuting bats, given that only 6 species have been recorded infrequently during the surveys, and reflecting the lack of supporting habitats across the majority of the site.
- 5.24. In addition to bat activity surveys a ground based inspection of all trees within and immediately adjacent to the Site has been undertaken to check for the presence of roosts within trees. There are no buildings on site other than a dilapidated pig arc which has no features of potential value to roosting bats.
- 5.25. Climbed inspection of trees is not considered necessary as no potential bat roost features were present 'at height' and only a very limited number of features were noted at lower levels. These were directly inspected by a suitably qualified (and licenced) ecologist using an endoscope, according to standard methodology (Collins 2015). No bat roosts were recorded.
- 5.26. Given the absence of bat roost evidence at the time of survey and the paucity of features, roosting bats are considered to be absent from site and are not considered further in this assessment.

#### **Badgers**

- 5.27. No evidence of badger presence was recorded during the Extended Phase I Habitat Surveys, however suitable sett creation habitat exists on Site in the form of linear woodland/lines of trees and scrub around the southern and eastern margins of the Site. Consequently, a targeted badger survey was undertaken on 15<sup>th</sup> January 2019 according to the methodology proposed by Harris et al (1989). The detailed methodology and results are presented in Appendix 5.6. No badger evidence was recorded by the surveys hence badgers are excluded from further assessment.

#### **Water Vole**

- 5.28. The habitats on Site associated with Silver Lane Brook provide sub-optimal habitat for foraging and burrowing, with no evidence seen during the Extended Phase I Habitat Survey. A water vole survey has been undertaken in accordance with standard guidelines (Strachan &

Moorhouse 2006). This comprised a scoping survey during February 2019 followed by presence/absence surveys during April and June 2019. The surveys confirmed the presence of c. 3 potential water vole burrows with characteristic of those typically excavated by water vole, however no evidence of current presence was confirmed by the survey and it is considered likely that this species is absent, and hence is not considered further. Appendix 5.12 provides detailed survey methodology and results.

### **Reptiles**

- 5.29. The survey area includes suitable grass snake habitat in the form of grassland associated with linear waterbodies. In addition, suitable basking habitat is present on the open shorter areas of grassland along the western Site boundary. Given the presence of suitable habitat, further detailed surveys have been undertaken via the deployment and checking of artificial refugia. No reptiles have been recorded, and this group are excluded from further assessment. Survey details are provided in Appendix 5.13.

### **Breeding Birds (including Barn Owl)**

- 5.30. The Site does not support suitable breeding habitat for barn owl, given the lack of mature trees with open/large cavities, or suitable agricultural buildings. However, the scrub habitat on Site, field margins and bordering scrub habitat are viable foraging habitat for hunting barn owl.
- 5.31. A targeted desk study for barn owl has been undertaken to ascertain the importance of the Site for barn owl, via consultation with the Barn Owl Conservation Trust (BOCT). The data trawl includes all records over the previous 5 years within a 5Km radius of the site. Data provided by the BOCT shows a single barn owl sighting recorded 2.5km from the site during 2019. Data provided by Cheshire and Wirral Ornithological Society (CAWOS) shows an average of 8.8 barn owl sightings per year in the last 5 years, the closest being within 100m of the survey site.
- 5.32. The full desk study is provided within the Breeding Birds Survey baseline report as Appendix 5.7. Given the paucity of recent records of this species within the desk study parameters and the lack of any observations through the course of the breeding bird surveys (or anecdotal records from the evening bat activity surveys), this species is considered likely absent from the site and is not considered further in the assessment, however the proposals to enhance the eastern boundary of the site by provision of scrub/trees within an acid grassland mosaic will provide an enhanced foraging resource for this species should it colonise the site in the future.

5.33. In addition, given the availability of nesting habitat within the survey area five breeding season bird surveys have been undertaken during March, April (x2), May and June. The survey methodology is based upon, and adapted from, generic British Trust for Ornithology survey methods including transect/Common Bird Census (CBC) (Gilbert et al 1998 and Bibby, Burgess & Hill 1992). The detailed methods and results are provided in Appendix 5.7.

5.34. To date 42 breeding bird species have been recorded of which 9 are 'Priority' species as defined by the NERC Act (2006) and 7 are red listed species of 'conservation concern' (Eaton et al 2015) of which shall be reported in due course. In accordance with the Fuller (Ref) evaluation system, the site supported assemblage recorded to date is considered to be of **Local** level importance.

#### **Wintering Birds**

5.35. The open arable habitats on Site and within the wider landscape are potentially attractive to waterbirds which aggregate into flocks during winter. Wintering bird surveys (WBS) have therefore been undertaken during the period October 2018 to March 2019. Field survey methods were based upon, and adapted from, transect/Common Bird Census (CBC) (Brown and Shepherd 1993 and Gilbert et al 1998). A suitably qualified ecologist conducted the surveys. The WBS methods and results are presented in full within Appendix 5.8.

5.36. The WBS recorded a total of 35 species, of which 10 are 'Priority' species as defined by the NERC Act (2006) and 8 are red listed species of 'conservation concern'. In accordance with the Fuller (Ref) evaluation system, the site supported assemblage recorded to date is considered to be of **Local** level importance.

5.37. The most notable species recorded to date is Willow tit *Poecile montanus* which was recorded on a single occasion along the western boundary of the site feeding in willow scrub in the vicinity of the Silver Lane Brook. There is no breeding habitat for this species on site although the wet woodland associated with Silver Lane LWS to the north west of the Site may support low numbers. The development is not considered to present any disturbance or loss of habitat to this species and consequently it is not considered necessary to undertake a detailed individual assessment. It should be noted however that the woodland planting enhancement in the vicinity of the realigned Silver Lane Brook will present an increase in habitat availability for this species, the retention of a line of over mature birch trees along the eastern site boundary may result in the availability of deadwood breeding habitat for this species.

### Entomological Assessment

- 5.38. Surveys sampling terrestrial and aquatic invertebrates have been undertaken across the site and including Silver Lane Brook. The full methodology and results are presented in Appendix 5.9.
- 5.39. A walkover habitat assessment of the whole site was undertaken on 9<sup>th</sup> April 2019, to assess the value of the site for aquatic and terrestrial invertebrates. The main habitat types present were identified and assessed for their potential to support species of importance. Following the habitat assessment terrestrial invertebrate sampling and aquatic invertebrate sampling was undertaken, within those areas of the site which had the greatest potential to support species of conservation importance. The following sample methods were employed:
- Hand searching – involved searching in suitable areas of habitat for ground dwelling species;
  - Sweep netting – using a robust framed sweep net through vegetation herbaceous and tall herb vegetation;
  - Spot sweeping – a net with a lighter frame to collect more active species of target taxa flying over vegetation, or at rest in prominent locations;
  - Beating – scrub and tree branches were agitated briskly, invertebrates dislodged from the vegetation fall onto a white sheet held beneath the branches; and
  - Aquatic Sampling - using a standard FBA pond net to sample accessible open water, a three minute timed sample was employed (Drake et al 2007), together with additional sampling when the habitat variation present indicated this may result in collection of significant additional data.
- 5.40. Specimens collected were identified to species level using standard keys and through comparison with a reference collection.
- 5.41. The majority of the site comprises arable fields, which are of negligible value for invertebrates of conservation importance. Small areas of other terrestrial habitats have little potential to support populations of significant species due to the small areas present, poor floristic diversity, lack of structural variation and absence of features of importance for species with specialist requirements (such as dead wood, loose soil, habitat mosaics).
- 5.42. The aquatic habitats support common species typical of the slow-moving, heavily vegetated open water habitats present in the survey area. Overall the site is considered to be of **Local** value for invertebrates.

### Likely Evolution of the Baseline

- 5.43. It is anticipated that without the Proposed Development the identified baseline scenario for ecology will not change significantly as a result of natural processes, as the majority of the site

is given over to intensively farmed arable land. Hence the habitats are potentially influenced by changes in agricultural practices. These changes may include, a shift from arable to pastoral agriculture, or a change in the agricultural drainage regime. It can be assumed that the Site soils would continue to get progressively wetter unless drainage is restored and maintained. A shift towards livestock farming may result in a minor increase in site diversity associated with the creation of a grassy sward although this is somewhat unlikely and ultimately dependent on economic factors.

5.44. In summary, as there is little potential for the baseline presented in this technical paper to change significantly, it is reasonable to adopt the current baseline for use in the assessment.

## 6. Alternatives Considered

- 6.1. The final layout of the Proposed Development has been heavily influenced by the location of several areas of sub-surface peat deposits this is due to engineering considerations, as well as to minimize the extent of required peat movements to ensure that the capacity of the sub-surface deposits to store sequestered carbon is not compromised by exposure to the air.
- 6.2. The location and characteristics of the peat deposits are discussed in Paper 10 Agricultural Land and Soils. The final design sought to avoid much of the sub surface areas of deep peat deposits to the east and southeast of the Site and in total an estimated 22,700m<sup>3</sup> will be retained, undisturbed. Despite this it is estimated that approximately 22,600m<sup>3</sup> of peat will require excavation to allow the creation of a stable development platform.
- 6.3. Several options have been considered during scheme evolution to maximise the beneficial use of the excavated peat These have included:
- Relocating the majority of disturbed peat into the base of SuDS ponds and at selected locations along the re-aligned Brook corridor.
  - donation of peat to a range of nearby degraded peatland sites within the Manchester Mosses Special Area of Conservation (SAC) or other sites requiring reinstatement / restoration
  - export of surplus peat for reuse (recycling) elsewhere through an appropriate soil recycling contractor; and
  - identifying a Peatland Habitat Zone (PHZ) on site to relocate excavated peat into, to be managed as a peatland type habitat.
- 6.4. Given the apparent lack of availability of conservation sites involved in peatland restoration projects, the option of retaining the majority of the peat into a PHZ has been selected. This is considered preferable to export of peat for recycling given that a use is available on site, where a conservation benefit can be derived. The retention of peat in situ and development of a biodiverse peatland type habitat accords with the recommendations provided by Natural England in the preliminary DAS discussions.
- 6.5. The proposals for developing the PHZ are fully described within the Agricultural land and Soils (Paper 10), however, in summary the peat will be excavated and retained within a bunded area to the south and east of the main development platform. The horizons of peaty agricultural soil will be removed so that the relocated peat will form a continuous layer with retained deep peat deposits beneath the PHZ. At all times during relocation, the peat will be

maintained in a wetted state, and water levels maintained at or close to peat surface, which will both prevent drying and oxidation leading to carbon release.

- 6.6. The construction of the bunds retaining the PHZ is further discussed in Technical Paper 1 Geology and Ground Conditions, however the exact design will be finalized following further consultation with Natural England and other relevant consultees during detailed design stages. Rather than creating a single bunded PHZ, it may be preferable to create a number of smaller bunded areas, each with slightly differing hydrological regimes and peat depths relative to sub-surface water accessibility; however all will be rainwater fed and will have varied surface topography. The raised sections will be drier in general terms and are expected to support a heath/acid grassland community with boggy hollows perhaps supporting sphagnum mosses around open pools. A full description of the objectives for the establishment of vegetation in the PHZ areas is provided as Appendix 5.10 Framework Habitat Management Plan.
- 6.7. The Development will necessitate the diversion of the Silver Lane Brook, which currently follows a fairly straight path along the western boundary of the Site, various options regarding the design and location of the realigned Brook have been considered, and these are outlined in detail in the Water Resources Technical Paper (3). The following objectives and final design has been selected in order to maximise the ecological benefits and hence contributing towards net biodiversity gain as required by NPPFI 9:
- Design the channel profile with varied bank treatments and angles to provide a greater diversity of aquatic habitats, to include shallow berms, areas of dense marginal planting, alder and willow tree plantings.
  - Design the realigned section with range of features of conservation benefit including in channel features and diverse marginal habitats. These will include riffles, areas of slow/static flow, deep peaty sediment;
  - Design the route the realigned section of Brook to follow a more natural 'sinuous' form (where possible);
  - Include specific mitigation features for aquatic and terrestrial invertebrates (including dragonflies and damselflies), as well as enhancements for fish, kingfisher and other 'Priority' species such as water vole;
  - Create a wildlife corridor - linking habitats within the biodiverse landscaped areas on Site and Silver Lane Local Wildlife Site to the north and west;
  - Marshy (acid) grassland: habitats will be established especially in the margins of the brook and within the easement of the HPGM.
- 6.8. The realigned corridor of the Brook will lie immediately adjacent to the PHZ and will therefore in time develop a complimentary habitat system along the entire length of the eastern side of the Development. This will contribute significantly towards Natural England's

Wetland Network Model which is a developing project seeking to map potential wetland linkages and 'stepping stones' across the Cheshire and Greater Manchester region.



## 7. Potential Environmental Effects

7.1. From data gathered during the baseline survey work, and via consultation with local data sources, the following (detailed below) sites and habitats are considered further in the report as 'valued ecological receptors', with their assigned value in parenthesis. The location of which are detailed within the receptor plan (ES Part I Report, Appendix 6). This section includes an assessment of the significance of impacts on sensitive ecology in the absence of mitigation, the following receptors are considered:

- Manchester Mosses SAC/SSSI suite (International);
- Pestfurlong Moss LWS (Borough);
- Silver Lane LWS (Borough);
- Silver Lane Brook (Local);
- Scattered Trees and woodland (plantation) (Local);
- Foraging and commuting bats (Local)
- Breeding Birds (Local);
- Wintering Birds (Local);
- Bats (Local)
- Terrestrial and aquatic Invertebrates (Local)

7.2. From data gathered during field work, the consultation with local data sources and the habitats present on Site, impacts on Woolston Eyes (SSSI) Gorse Covert Mounds (LWS) and Silver Lane (LWS) can be scoped out due to lack of ecological connectivity and/or separation distance from the Proposed Development.

7.3. In terms of species receptors, brown hare, *Lepus europaeus*, hedgehog *Erinaceus europaeus*, dormouse *Muscardinus avellanarius*, water vole, great crested newt, all reptile species, eurasian otter *Lutra lutra*, protected/notable plants, and white-clawed crayfish *Austropotamobius pallipes* are considered highly unlikely to be present on Site, given the lack of supporting habitats, or perceived marginal adverse effects for species such as brown hare, great crested newt, common toad and hedgehog. Such receptors will therefore not be considered in detail within the ES assessments. These receptors are therefore scoped out. Assessment of impacts to aquatic invertebrates is scoped in given the proposed diversion of Silver Lane Brook.

### Construction Phase

7.4. The following potential impacts are considered, which may arise from the construction phase of the development.

- Hydrological impacts to Manchester Mosses SAC and Pestfurlong Moss LWS.
- Loss of vegetated habitats features and trees (including impacts to root protection areas) arising from the clearance of the development platform and related construction operations.
- Disturbance, displacement and incidental mortality (loss of breeding habitat) on breeding bird assemblages, and loss of active nests present on or adjacent to Site during the breeding season (including barn owl).
- Disturbance/displacement of significant aggregations of wintering birds.
- Disturbance/displacement of foraging and commuting bats.
- Loss of habitats supporting terrestrial and aquatic invertebrates.
- Accidental dispersal of invasive weeds (WCA schedule 9 listed plants including Himalayan Balsam).

7.5. The construction phase will result in increased vehicle and pedestrian movements over the short term, approximately 15 to 18 months. This phase of works will involve site clearance, installation of a temporary site compound, ground works and installation of permanent features including the new access to the site from the junction with the M62 Motorway Junction 11 roundabout, car parks, SUDs scheme, and buildings and landscaping.

**Hydrological modifications to Manchester Mosses (Astley and Bedford Mosses, Risley Moss and Holcroft Moss) SAC and Silver Lane LWS.**

7.6. This impact is discussed in detail within the Appendix 5.1 Report to Inform a Habitats Regulations Assessment. In summary, borehole evidence suggests that the subsurface peat located on site and to be excavated, lies above a ‘perched water table’. As such there is no hydrological connectivity between the site and the peatland habitats which form the SAC. A detailed hydrological assessment is provided in Paper 3: Water Resources. The HRA concludes that there will be no likely adverse effect and hence the impact in EIA terms is **negligible**. This assessment also applies to hydrological impacts to Silver Lane LWS which will also be **negligible**.

**Habitat Loss**

7.7. The development will require the removal of semi-natural habitats in order to accommodate the planned infrastructure (buildings, roads, car parking etc). The vast majority of this will be agricultural land (totaling 11.56 hectares) of limited ecological value. A summary of habitat removal is provided in Table 5.5 below.

Habitat	Extent of loss (ha)	Evaluation
Arable	11.56	Negligible
Marshy Grassland	0.69	Minor Adverse
Semi-improved neutral grassland	1.86	Minor Adverse

Broad-leaved semi-natural woodland	0.57	Minor Adverse
Wetland: Running water	0.10	Minor Adverse

Table 5.5: Habitat Losses summary

7.8. Approximately 755 m of the Silver Lane Brook will also be removed to accommodate the Development and diverted along the eastern boundary of the Site. The removal will include scattered trees, and tall neutral grassland/tall ruderal habitats along the corridor of the Brook. This will result in an impact of Moderate Magnitude, which is permanent, and a **Minor Adverse** effect at a Borough scale, in absence of mitigation.

7.9. In total, 0.57 hectares of plantation woodland will be removed to enable the formation of the main vehicular access into the site. This will impact a shelter belt of semi-mature and mature poplar trees located on the motorway embankment in the south west corner of the site. In the absence of mitigation, there would also potentially be root damage to the trees surrounding the access road. This will result in a minor magnitude and **Minor adverse** effect at Local scale. Woodland/tree losses and impacts are further considered in the Arboricultural Report (ES Part I Appendix I5).

#### Impacts to Breeding Birds

7.10. Direct loss of woodland, scrub, grassland and arable farmland habitats will result in a reduction of the carrying capacity of the site to support breeding birds in general terms. Foraging, perching and shelter / cover habitats would be permanently reduced in extent. The following species will be exposed to a reduction in the availability of breeding<sup>3</sup> habitat<sup>4</sup>, in the absence of mitigation:

- Dunnock - temporary loss of 3 territories;
- Lapwing – loss of one territory;
- Reed bunting - temporary loss of a single territory;
- Song thrush- loss of 3 territories;
- Skylark – Loss of 7 territories;
- Willow warbler – Loss of 3 territories.

<sup>3</sup> A breeding bird is defined as displaying breeding behaviour including singing, pairs, carrying nesting material, presence at nest, with young, courtship displays and mating

<sup>4</sup> For those species which were confirmed as breeding within the survey area, the minimum number of breeding territories has been calculated based on likely territory clusters. A loss is considered when one of those territories falls within the application site

- 7.11. During the construction phase, the surrounding habitats will be subject to disturbance effects from increased human activity, noise and lighting, which would result in the displacement of breeding/foraging birds from the retained habitats surrounding site. Dunnock, lapwing, reed bunting, song thrush, and willow warbler would be exposed to a temporary reduction in availability of breeding habitat, however their supporting habitats will be replaced and enhanced by the proposals to re-route the Silver Lane Brook, with riparian habitats, grassland and trees all anticipated to support such species once established. Lapwing, would be exposed to a permanent reduction in availability of breeding habitat onsite.
- 7.12. The recorded assemblage is considered to be of Local value, and impacts are not anticipated to result in any reduction in the sustainability of populations beyond the vicinity of the site itself.
- 7.13. Given the anticipated loss of habitat, the legal status of active bird nests and the potential for their loss in the absence of mitigation, the overall significance of impact on site breeding birds is of Moderate Magnitude and a **Minor Adverse** effect at Local scale, in the absence of mitigation. The effect is described as being of minor adverse magnitude because the site supported bird assemblage has almost certainly developed with (and possibly habituated to) a degree of anthropogenic disturbance from the adjacent M62.
- Wintering Birds**
- 7.14. Direct loss of arable fields, hedgerows, woodland blocks and grassland habitats will result in a reduction of the carrying capacity of the site to support overwintering birds in general terms. Foraging, perching and shelter / cover habitats would be permanently reduced.
- 7.15. A number of species will be subject to temporary loss of overwintering habitat including Bullfinch (single individuals recorded regularly), dunnock (maximum of five individuals onsite), fieldfare and redwing (small flocks recorded regularly), linnet (maximum of 20 individuals, recorded on the arable land), reed bunting (maximum of two recorded within marshy grassland), song thrush (recorded regularly along western site boundary – Silver Lane Brook corridor), willow tit (single calling individual recorded along the Silver Lane Brook during October) and yellowhammer (single individual recorded during March along Silver Lane Brook). Certain species, which are strongly associated with arable land would undergo permanent losses of overwintering resource including lapwing (maximum of 6 recorded), skylark (peak count of 20 recorded over arable land) and starling (maximum of 50 individuals recorded foraging on arable land).

7.16. During the construction phase, the surrounding habitats may be subject to disturbance impacts from increased human activity, noise and lighting, and dust, which may result in the displacement of foraging birds from the retained habitats surrounding site. The above species may have a temporary reduction in the availability of overwintering habitat. The overall significance of impact on wintering birds is of minor Magnitude and a **Minor Adverse** effect at Local scale, in the absence of mitigation.

#### **Bats**

7.17. Given that the Development is to be located primarily within arable land, there will be negligible removal of habitats which are typically utilized by foraging and commuting bats. Such habitat is restricted to a triangle of tall ruderal/marshy grassland along the western boundary of the site (measuring 0.69 Ha) impacts via habitat loss are therefore considered to be **negligible**. No roosts have been identified and as such there will be no loss of roosting habitat.

7.18. Impacts during construction will be restricted to activities which may cause disturbance to foraging bats utilizing the boundary habitats to the east of the Site where a line of mature birch trees are located. The survey evidence gathered at the time of writing suggests that this habitat is utilized by a low number of common species only (common pipistrelle), nevertheless construction lighting could result in the displacement of bats which would be a minor Magnitude and a **Minor Adverse** effect at Local scale. Notwithstanding the assessment of limited adverse effect, habitat enhancement measures to the corridor of the realigned Silver Lane Brook will deliver a benefit to foraging bats overall as more favorable habitats such as tree plantings and a grassland/scrub habitat mosaic will be included.

#### **Invertebrates**

7.19. The invertebrate survey report confirms that there are no likely populations of note within the site and hence although there will be a reduction in habitat extent until the habitats proposed by the landscape design are sufficiently matured.

7.20. The scale of most invertebrate populations is such that the greatest threats are more likely to arise from loss and fragmentation of habitat rather than the death of relatively small numbers of individuals. Habitats to be lost within the site area are dominated by open arable land and as such are unlikely to result in adverse effects although such impacts would be permanent and of minor magnitude (**Minor Adverse**) at Local scale overall.

### Himalayan Balsam and Japanese Rose

7.21. It will be necessary to implement control measures, to be included in the CEMP document, to prevent accidental dispersal of these invasive non native plant species. In the absence of such measures, the spread of the existing stands could have a deleterious effect on native vegetation which is of minor Magnitude and **Minor Adverse** at Local scale.

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level
Indirect localised hydrological modifications to Manchester Mosses (Astley and Bedford Mosses, Risley Moss and Holcroft Moss) SAC	International	Negligible	Negligible	High
Indirect localised hydrological modifications to Silver Lane LWS	Borough	Negligible	Negligible	High
Loss of vegetated Habitat (including section of Silver Lane Brook)	Up to Borough	Minor Negative	Minor Adverse	High
Loss of trees and impacts to adjacent RPA's	Local	Minor Negative	Minor Adverse	High
Loss and disturbance of bird breeding habitat	Local	Minor Negative	Minor Adverse	High
Loss and disturbance of wintering bird habitat	Local	Minor Negative	Minor Adverse	High
Loss and disturbance of Bat foraging habitat	Local	Minor Negative	Minor Adverse	High
Terrestrial and aquatic invertebrates	Local	Minor Negative	Minor Adverse	High

Incidental spread of Himalayan balsam and Japanese rose	Local <sup>5</sup>	Minor Negative	Minor Adverse	High
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Table 5.6: Significance of Effect - Construction Phase

7.22. It is concluded that there are no significant effects arising from the construction of the development.

## Operational Phase

7.23. The following potential impacts are considered, which may arise from the operational phase of the development.

- Air quality impacts leading to increased Nitrogen deposition to Manchester Mosses SAC.
- Accidental pollution and /or sediment transfer to Silver Lane LWS.
- Inundation and exceedance of surface water drainage network during extreme rainfall event, leading to damage of local sites.
- Disturbance to habitats including Silver Lane LWS by recreational users of the Development.
- Accidental pollution and sediment transfer to Silver Lane Brook
- Disturbance, of breeding and wintering bird assemblages on habitats adjacent to site by vehicle movements and increased lighting.
- Disturbance/displacement of foraging and commuting bats via vehicle movements and site lighting.
- Loss of invertebrate populations through accidental pollution and / or sediment transfer,

### **Air quality impacts leading to increased Nitrogen deposition to Manchester Mosses SAC.**

7.24. The Air Quality Paper (Paper 8 Air Quality, Odour and Dust) provides a detailed assessment on the impacts of air quality emissions to the statutory conservation sites, which is also considered in Appendix 5.1 (Report to inform a Habitats Regulations Assessment). In summary, as the operation of the site is for the existing users of the motorway network, and given the separation distance between the source and the SAC (c1.4Km) impacts are considered not to result in a likely significant effect, and hence in EIA terms are **Negligible**.

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<sup>5</sup> Value of habitats to be impacted.

**Accidental pollution and /or sediment transfer to Silver Lane LWS.**  
7.25. During the operational phase, the re-aligned Brook and further downstream, the ponds associated with Silver Lane LWS may be subject to indirect impacts such as accidental pollution and / or sediment transfer, resulting in the permanent damage of the aquatic habitats. Such deterioration to offsite habitats is of High Magnitude and **Minor Adverse** effect at a Local scale, in the absence of mitigation

**Inundation and exceedance of surface water drainage network during extreme rainfall event, leading to erosion damage to habitats**  
7.26. The drainage scheme for the Development will include a SuDS mechanism for ameliorating potential damaging effects from flooding of localized habitats during/following extreme rainfall events. This is considered in detail in Paper 3 Water Resources. In the absence of such control measures a High Magnitude and **Minor Adverse** effect at a Local scale, is predicted in the absence of mitigation.

**Disturbance to habitats including Silver Lane LWS by recreational users.**  
7.27. The increased number of the public utilising the area could result in the permanent damage of habitats through erosion and damage of the floral assemblage. However the site lies adjacent to a network of already established footpaths which are well signed and hence any additional users of the network are not anticipated to result in the creation of additional 'desire lines' or significant trampling of otherwise intact vegetation. Furthermore, as the habitats at Silver Lane LWS are relatively recent in origin, they are anticipated to be fairly resilient to such effects. Any deterioration of habitats is Such deterioration to offsite habitats is likely to be of minor Magnitude and **Minor Adverse** effect at a Local scale, in the absence of mitigation.

**Disturbance, of breeding and wintering bird assemblages on habitats adjacent to site.**  
7.28. Impacts associated with anthropogenic disturbance via vehicle movements, increased lighting / lightspill into adjacent habitats and noise would be apparent in a zone surrounding the operational MSA. Canadian research reported a reduction in bird pairing success at noisy industrial sites compared with other quieter locations (Habib et al 2007). It is likely that anthropogenic noise interferes with male bird song. Such impacts are considered to be permanent (i.e. for the lifetime of the MSA), albeit reversible.

7.29. The extent/severity of this effect is dependent upon the sensitivity of the species present and in general terms the species assemblage recorded is not sensitive, i.e. most species are widespread and commonly recorded in association with higher levels of human disturbance (for example arable farmland, suburban parks and gardens). There are no large areas of



woodland habitats on/adjacent to the site and hence significant numbers of nocturnal or crepuscular species which may otherwise be impacted by the lighting scheme are not anticipated.

- 7.30. The location of the Site, being adjacent to the M62 is also factored into the assessment as birds are likely to be habituated to a certain extent to such adverse effects. The disturbance of onsite breeding and wintering bird habitat would result in an impact of Moderate Magnitude, and a **Minor Adverse** effect at Local scale, in absence of mitigation.

**Disturbance/displacement of foraging and commuting bats via vehicle movements and site lighting.**

- 7.31. No bat roosts have been identified on/adjacent to Site and hence there will be no adverse effects to roosting bats from lighting and disturbance associated with vehicular movements.
- 7.32. Studies (Berthinussen, 2012) on the impacts of major roads on foraging bats have indicated that the abundance of bats increases with increased distance from roads as would be expected, indicating that disturbance from associated noise/lighting effects can have a measurable impact on bat populations. Therefore, major roads and it is postulated, similar schemes, including new MSA developments; can increase the 'baseline' disturbance level. It should also be noted however that the Site may already have a reduced carrying capacity for bats due to the presence of disturbance associated with the M62. Furthermore, the paucity of suitable foraging habitat for bats on site will influence baseline activity levels and hence site sensitivity.
- 7.33. An assessment of predicted lightspill, comparing pre (baseline) and post construction lighting conditions is described in ES Part I Appendix I6 Lighting Assessment. Fifteen locations sampled for potential adverse effects on bat foraging activity were included within the Illumination Impacts Profile, to aid lighting assessments on the extant bat population. These included locations around the perimeter of the site only. Central locations were not selected due to the absence of sensitivity of such (arable farmland) habitats.
- 7.34. The site is currently subject to existing lighting associated with the M62 corridor, which affects the baseline illuminance levels.
- 7.35. Figure 5 I, below is extracted from the Lighting Assessment report. This shows the predicted illuminance levels (Lux) at all of the ecological receptor locations – all of these relate to the perimeter of the site as the central habitats are not considered to be of value to foraging/commuting bats. The rows highlighted in yellow denotes a notable increase in

obtrusive light which is likely to result in an adverse impact to foraging and commuting bats in the absence of mitigation. It should be noted however that bats flying at tree canopy level would be exposed to only very minor increases in lighting levels (at 5m) with such increases dissipating completely at 10m above ground level, as a result of the highly directional characteristics of the luminaires.

Ecology	1) Vertical Illuminance (Lux) at time of Baseline Survey						Calculated Max. Vertical Illuminance (Lux), the sum of:			Resultant Vertical Illuminance (Lux)		
	2) Amended Baseline -Simulated vertical illuminance EXCLUDING lighting scheduled as being subject to replacement (Lux)						1 – Proposed lighting within the MSA Site 2 – Proposed replacement lighting to the roundabout 3 – Existing and retained lighting to the motorway and slip roads					
	2m high		5m high		10m high		2m high	5m high	10 m high	2m high	5m high	10m high
	1	2	1	2	1	2						
E01 – Bat Foraging & Commuting - North West Site Area	0.06	0.06	0.06	0.06	0.06	0.06	0.31	0.01	0	0.37	0.07	0.06
E02 – Bat Foraging & Commuting - North West Site Area	0.06	0.06	0.06	0.06	0.06	0.06	0.01	0	0	0.07	0.06	0.06
E03 – Bat Foraging & Commuting – West Site Area	0.06	0.06	0.06	0.06	0.06	0.06	0.07	0.01	0	0.13	0.07	0.06
E04 – Bat Foraging & Commuting – South West Site Area	0.09	0.09	0.06	0.06	0.06	0.06	2.35	0.12	0	2.44	0.18	0.06
E05 – Bat Foraging & Commuting - South West Site Area	0.22	0.22	0.13	0.13	0.06	0.06	0.07	0	0	0.29	0.13	0.06
E06 – Bat Foraging & Commuting - South Site Area	3.13	3.13	1.89	1.89	0.06	0.06	6.29	7.04	1.6	9.42	8.93	2.2
E07 – Bat Foraging & Commuting - South Site Area	3.13	3.11	1.89	1.87	0.06	0.06	0.17	0.09	0.02	3.28	1.96	0.08
E08 – Bat Foraging & Commuting - South Site Area	3.1	3.1	1.86	1.86	0.06	0.06	0.14	0.03	0	3.24	1.89	0.06
E09 – Bat Foraging & Commuting - South Site Area	3.12	3.12	1.87	1.87	0.06	0.06	0.02	0.01	0	3.14	1.88	0.06
E10 – Bat Foraging & Commuting - South Site Area	3.87	3.87	2.32	2.32	0.06	0.06	0.01	0	0	3.88	2.32	0.06
E11 – Bat Foraging & Commuting - South East Site Area	0.13	0.12	0.06	0.07	0.06	0.06	0.03	0.02	0.01	0.15	0.09	0.07
E12 – Bat Foraging & Commuting - South East Site Area	0.07	0.07	0.06	0.06	0.06	0.06	0.02	0.01	0.01	0.09	0.07	0.07

Ecology	1) Vertical Illuminance (Lux) at time of Baseline Survey						Calculated Max. Vertical Illuminance (Lux), the sum of:			Resultant Vertical Illuminance (Lux)		
	2) Amended Baseline - Simulated vertical illuminance EXCLUDING lighting scheduled as being subject to replacement (Lux)						1 – Proposed lighting within the MSA Site 2 – Proposed replacement lighting to the roundabout 3 – Existing and retained lighting to the motorway and slip roads					
	2m high		5m high		10m high		2m high	5m high	10 m high	2m high	5m high	10m high
	1	2	1	2	1	2						
E13 – Bat Foraging & Commuting – East Site Area	0.06	0.06	0.06	0.06	0.06	0.06	0.01	0.01	0	0.07	0.07	0.06
E14 – Bat Foraging & Commuting – North East Site Area	0.06	0.06	0.06	0.06	0.06	0.06	0	0	0	0.06	0.06	0.06
E15 – Bat Foraging & Commuting – North East Site Area	0.06	0.06	0.06	0.06	0.06	0.06	0.07	0.01	0	0.13	0.07	0.06
E16 – Bat Foraging & Commuting – North Site Area	0.06	0.06	0.06	0.06	0.06	0.06	15.84	21.23	1.50	15.9	21.29	1.56
E17 – Bat Foraging & Commuting – North Site Area	3.87	1.6	2.32	0.06	0.06	0.06	21.71	23.13	12.97	23.31	23.19	13.03
E18 – Bat Foraging & Commuting – North Site Area	0.13	0.12	0.06	0.07	0.06	0.05	0.41	0.17	0.03	0.53	0.24	0.08
E19 – Bat Foraging & Commuting – North Site Area	0.07	0.06	0.06	0.06	0.06	0.06	0.11	0.01	0	0.17	0.07	0.06
E20 – Bat Foraging & Commuting – North Site Area	0.06	0.06	0.06	0.06	0.06	0.06	0.01	0	0	0.07	0.06	0.06

**Figure 5.1:** Results of lighting assessment on ecological receptors (Bat foraging/commuting habitat) receptor locations are provided in Lighting Impact Assessment Report (Appendix I6 of ES Part I report).

7.36. Given the lighting assessment comparing the baseline with lux levels after the installation of the Development lighting scheme it is anticipated that the habitats to the north, south and south west may be significantly adversely affected by light spill, which may cause foraging bats to be dissuaded from such habitats, in absence of mitigation. This could result in an impact to

suitable bat foraging habitat which is of moderate Magnitude, and is **Minor Adverse** at a Local scale, in the absence of mitigation.

**Loss of invertebrate populations through accidental pollution and / or sediment transfer**

7.37. The overall aquatic invertebrate scores for Silver Lane Brook are not representative of high water quality, and hence the baseline assemblage is already impoverished. During the operational phase, aquatic habitats may be subject to indirect impacts such as accidental pollution and / or sediment transfer, resulting in the permanent damage. Consequent loss of invertebrate communities is of minor Magnitude and is a **Minor Adverse** effect at Local scale, in the absence of mitigation.

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level
Air quality impacts leading to increased Nitrogen deposition to Manchester Mosses SAC	International	Negligible	Negligible	High
Accidental pollution and /or sediment transfer to Silver Lane LWS.	Borough	High <sup>6</sup> Negative	Moderate Adverse	High
Inundation and exceedance of surface water drainage network during extreme rainfall event, leading to erosion damage to habitats	Local	High Negative	Minor Adverse	High
Disturbance to habitats including Silver Lane LWS by recreational users.	Borough	Minor Negative	Minor Adverse	High
Disturbance, of breeding and wintering bird assemblages on habitats adjacent to site.	Local	Moderate Negative	Minor Adverse	High
Disturbance/displacement of foraging and commuting bats via vehicle movements and site lighting.	Local	Moderate Negative	Minor Adverse	High
Loss of invertebrate populations through accidental pollution and / or sediment transfer	Local	Minor Negative	Minor Adverse	High

Table 5.7: Significance of Effect - Operational Phase

<sup>6</sup> Impacts arising from accidental pollution occurrences are variable, depending on the level of pollution, the type of pollutant and the time of year of the event. For the purposes of this assessment a precautionary assessment of a High magnitude adverse effect is assumed

- 7.38. It is concluded that in the absence of mitigation there are no significant adverse effects arising from the operational phase of the development with the exception of a precautionary Moderate Adverse and Significant effect to Silver Lane LWS as a result of accidental pollution and/or sediment transfer.

## 8. Proposed Mitigation

- 8.1. Adverse effects have been predicted for certain receptors assessed during the construction and operation phases of development. These effects are not assessed as being significant based on the criteria given in section 4 however mitigation is proposed to further reduce the magnitude of such impacts, with compensation included where necessary to address any residual impacts. It should be noted that the mitigation hierarchy has been adhered to; in accordance with NPPFI 9 the process being as follows

Step 1 Consider Site Selection

- 8.2. Alternative site options are fully considered in the Alternatives Sites Assessment (ES Part 1 Appendix 12).

Step 2 Assess biological resources and consider impacts

- 8.3. This has been achieved by discussing a scope of required surveys with GMEU and subsequently undertaking the baseline surveys, as discussed in the preceding sections.

Step 3 Design site to minimise impacts

- 8.4. This has been achieved by identifying habitats, which are considered as ecologically notable and designing the development to avoid direct losses.

Step 4 Mitigate/protect to reduce potential impacts

- 8.5. In addition to the critical design provisions to accommodate Step 3, a range of mitigation procedures are discussed to minimise harm.

Step 5 Consider residual impacts

- 8.6. No significant residual impacts have been identified which cannot be mitigated for, non significant impacts have been addressed by compensation e.g. the planting of replacement trees.

#### Step 6 Compensate/offset residual impacts

- 8.7. Measures including the planting of trees, creation of habitats to address the requirement for an overall biodiversity gain and the creation of a wildlife corridor provide compensation for non significant residual effects and an overall enhancement of biodiversity.

### Construction Phase

- 8.8. A Construction Environmental Management Plan (CEMP) will be finalised and agreed with the Local Planning Authority prior to construction commencement. The CEMP will contain all measures required to mitigate identified adverse effects, especially with regard to the scheme drainage design, pollution/sediment prevention measures and excavation and relocation of excavated peat. The CEMP will also include specific measures required for species protection, including update survey and invasive species control.
- 8.9. The CEMP would also include measures to mitigate for pollution, sediment and dust impacts during the construction period. For example, dust would be controlled by means of dust suppression measures such as dampening down of roads and covering of storage areas. These measures would protect adjacent habitat, which is important for invertebrate, breeding bird, wintering bird and bat populations. In addition, it will include dedicated offsite protected areas during construction, where on site workers will be informed that are 'no access' areas, to minimise the working footprint and disturbance issues where possible. The CEMP will also include a number of measures to control Himalayan balsam and Japanese rose as well as the necessary monitoring of any regrowth and remedial action. A framework CEMP is provided as ES Part I Appendix I I.
- 8.10. Habitat enhancement and compensation measures will be in accordance with the measures included in Paper 4 Landscape and Visual Impact Assessment and Illustrative Masterplan provided as and ES Part I, Appendix 8, Indicative Landscape Masterplan.
- 8.11. A Framework Habitat Management Plan (HMP) is provided as Appendix 5.10 including habitat creation and management provisions, including measures in mitigation for the loss and subsequent re-alignment of the Silver Lane Brook corridor. These objectives are as follows:
- Design the channel profile with varied bank treatments and angles to provide a greater diversity of aquatic habitats, to include shallow berms, areas of dense marginal planting, alder and willow tree plantings.



- Design the realigned section with range of features of conservation benefit including in channel features and diverse marginal habitats. These will include riffles, areas of slow/static flow, deep peaty sediment;
- Design the route the realigned section of Brook to follow a more natural 'sinuous' form (where possible);
- Include specific mitigation features for aquatic and terrestrial invertebrates (including dragonflies and damselflies), as well as enhancements for fish, kingfisher and other 'Priority' species such as water vole;
- Create a wildlife corridor - linking habitats within the biodiverse landscaped areas on Site and Silver Lane Local Wildlife Site to the north and west;
- Marshy (acid) grassland: habitats will be established especially in the margins of the brook and within the easement of the HPGM.

8.12. The Framework Habitat Management Plan also includes objectives for the creation of the Peat Habitat Zone (PHZ) as follows:

- The translocated peat will be subject to a different and likely variable hydrological regime and a peatland type habitat will be created with variable peat depth and topography, providing a range of micro-habitats from dry to permanently wet; creating varied habitats for a range of flora and fauna.
- Plant material from 'high quality' peatland vegetation from nearby designated sites will be sourced where possible or existing established nurseries supplying those sites where re-vegetation is taking place, to ensure plants of local provenance establish on site.
- It is expected that the peatland habitat zone will receive water both from rain and from groundwater, given that the external bunds will be semi-permeable and hence allow a degree of continuity with external hydrology. It will therefore be possible to create hollows around groundwater level and to mound areas which will become largely dry heath vegetation. By creating a diversity of topography and habitats, the area will be more resistant to seasonal change as well as climate change.
- During the management phase, parts of the peatland habitat zone would be permitted to develop natural tree and scrub regeneration, with species such as birch willow and alder likely to self-seed from surrounding habitat. This would attract species such as willow warbler, willow tit, and reed bunting. In other areas, trees and scrub may be prevented from establishing, such as parts of the developing floristically diverse heathland and near to the proposed bog pools. This would benefit species of invertebrate that are reliant on open water.

8.13. Creation of new native tree planting and enhancement of retained vegetation within the Site will also be undertaken as well as creation of species-rich grassland and scrub mosaic including along the route of the High Pressure Gas Main which follows the eastern boundary of the site.

8.14. An Ecological Clerk of Works (ECoW) in the form of a suitably qualified ecologist, would oversee all activities during construction and to ensure that mitigation measures and procedures set out in the CEMP are implemented.

- 8.15. Due to the likely presence of nesting bird within the development area, initial site clearance works will be undertaken outside of the usual bird breeding season (normally taken to be March – July inclusive) where possible. If such timescales cannot be accommodated, a check for the presence of active nests, and nesting birds would be undertaken by a suitably qualified ecologist prior to the commencement of works. Any active nests would be identified and protected subject to the relevant legal provisions until the nesting attempt is complete.
- 8.16. Pre-construction surveys of the proposed culverted section of Silver Lane Brook in order to ensure the baseline assessment for water vole remain accurate. Any modifications to the baseline assessments will be described and precautionary measures, such as translocation or habitat manipulation and hence avoiding impacts (including appropriate buffers) will be included within the CEMP and subject to the necessary prior consents.
- 8.17. To avoid soil compaction, and impact on tree root of retained trees; root protection measures, covering the Root Protection Area (RPA), together with barrier protection, should be provided for trees, which lie close to construction areas, both within and outside of site. If these areas cannot be avoided, either the trees due to be impacted should be removed to enable construction and replaced post-construction, given that all trees on site have a low retention value or any track sub-bases, which fall within an RPA, should comprise a geotextile layer overlain with clean angular lime-free stone.

## Operational Phase

- 8.18. The CEMP will include reference to the site drainage design, which includes a number of features to prevent flooding of adjacent land during extreme rainfall events. Measures such as the inclusion of oil and fuel separators will also be included in the drainage design to ensure there will be no incidental pollution of aquatic features.
- 8.19. In order to avoid increased public pressure to Silver Lane LWS a new network of footpath signage within (and potentially outwith) the Development will be installed to direct visitors to the formalized paths already established around the LWS as well as providing optional routes within the Development landscaped areas.
- 8.20. Creation of a sensitive lighting scheme to ensure that the wildlife corridor created by the realigned Brook remains available to foraging and commuting bats. The lighting scheme will

include lighting restrictions both during and post-construction, which may include the following methods, taken from the Bats and Lighting Guidance (Stone, 2013):

- Avoidance of light spill using directional and or baffled lighting;
- The addition of cowls to the fixed lighting installations to ensure the lighting is as directional as possible;
- Variable lighting regimes (VLR) – switching off when human activity levels are low i.e. 21:00 to 05:30;
- Avoid use of blue-white short wavelength lights and high UV content; or
- Creating light barriers utilising tree planting.

8.21. The landscape design for the Development will include a number of tree plantings around the eastern and northern boundaries of the site, this will mitigate for disturbance effects to faunal species occupying the arable farmland habitats to the north of the site, including the limited assemblage of wintering birds.

8.22. It is proposed that a program of vegetation monitoring is implemented to consider any necessary remedial actions to ensure the development of the wildlife corridor habitats along the route of the re-aligned Silver Lane Brook. This will include checks to assess the hydrological conditions of relocated peat deposits, to ensure these areas remain wet, and develop a typical peatland flora. In addition, the structural and species composition of newly created habitats will be monitored by vegetation survey and potentially by fixed point photography. Such monitoring measures will also be included with a Landscape and Habitat Management Plan (LHMP).

## 9. Potential Residual Effects

- 9.1. Overall, the proposed MSA development will result in direct and indirect habitat loss, disturbance impacts (during construction and operation), increased levels of public pressure and potential accidental pollution and sediment transfer. Following mitigation, there will be no adverse residual effects which are significant in EIA terms.

### Potential Residual Effects – Construction Phase

- 9.2. The overall impact of the proposal in terms of Ecology and Nature Conservation issues during the construction phase is highlighted in the table below:

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level	Mitigation	Residual Significance of Effect
Indirect localised hydrological modifications to Manchester Mosses (Astley and Bedford Mosses, Risley Moss and Holcroft Moss) SAC	International	Negligible	Neutral	High	None	Neutral
Indirect localised hydrological modifications to Silver Lane LWS	Borough	Negligible	Negligible	High	None	Neutral
Loss of vegetated Habitat (including section of Silver Lane Brook)	Up to Borough	Minor Negative	Minor Adverse	High	Creation of a wildlife corridor and re-alignment of Silver Lane Brook	Minor Benefit
Loss of trees and impacts to adjacent RPA's	Local	Minor Negative	Minor Adverse	High	Use of geocell/cell web and no dig methods to prevent damage within the RPA's of adjacent trees.	Minor Adverse

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level	Mitigation	Residual Significance of Effect
Loss and disturbance of bird breeding habitat	Local	Minor Negative	Minor Adverse	High	Time initial site clearance operations outside bird breeding season.	Minor Adverse
Loss and disturbance of wintering bird habitat	Local	Minor Negative	Minor Adverse	High	ECoW will monitor site works for to ensure no critical disturbance to wintering birds	Minor Adverse
Disturbance of Bat foraging habitat	Local	Minor Negative	Minor Adverse	High	CEMP controls regarding working times – no night time working allowed.	Neutral
Terrestrial and aquatic invertebrates	Local	Minor Negative	Minor Adverse	High	None	Minor Adverse
Incidental spread of Himalayan balsam	Local <sup>7</sup>	Minor Negative	Minor Adverse	High	Removal measures to be included in CEMP	Neutral

Table 5.8: Residual Significance of Effect - Construction Phase

## Potential Residual Effects – Operational Phase

- 9.3. The overall impact of the proposal in terms of Ecology and Nature Conservation issues during the operational phase is highlighted in the table below:

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<sup>7</sup> Value of habitats to be impacted.

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level	Mitigation	Residual Significance of Effect
Air quality impacts leading to increased Nitrogen deposition to Manchester Mosses SAC	International	Negligible	Negligible	High	None	Neutral
Accidental pollution and /or sediment transfer to Silver Lane LWS.	Borough	High <sup>8</sup> Negative	Minor Adverse	High	Measures included in drainage design for Development including fuel interceptors and SuDS	Neutral
Inundation and exceedance of surface water drainage network during extreme rainfall event, leading to erosion damage to habitats	Local	High Negative	Minor Adverse	High	Measures included in drainage design for Development including SuDS	Neutral
Disturbance to habitats including Silver Lane LWS by recreational users.	Borough	Minor Negative	Minor Adverse	High	Signage improvements and clearly defined path network.	Neutral
Disturbance, of breeding and wintering bird assemblages on habitats adjacent to site.	Local	Moderate Negative	Minor Adverse	High	Screening provided by landscape plantings	Neutral
Disturbance/displacement of foraging and commuting bats via vehicle movements and site lighting.	Local	Minor Negative	Minor Adverse	High	Screening provided by landscape plantings	Neutral
Loss of invertebrate populations through accidental pollution and / or sediment transfer	Local	Minor Negative	Minor Adverse	High	Sediment and pollution control measures	Neutral

Table 5.9: Residual Significance of Effect - Operation Phase

- 9.4. None of the Impacts identified above are significant in EIA terms, however it is not possible to mitigate for the following adverse effects:

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<sup>8</sup> Impacts arising from accidental pollution occurrences are variable, depending on the level of pollution, the type of pollutant and the time of year of the event. For the purposes of this assessment a precautionary assessment of a High magnitude adverse effect is assumed

- Loss of trees during the construction phase – losses will be compensated for by the planting of new native tree stock
- Loss of habitats including Breeding and Wintering Bird Habitat through the construction of the Development – losses will be compensated by the enhancement of retained areas including along the re-aligned Brook corridor.

9.5. The overall impact of the habitat losses and gains arising from the construction of the Development site are summarized in Table 5.10 which indicates that a ‘net biodiversity gain’ of +9.11 Biodiversity Units will be achieved.

Habitats	Area (ha)	Habitat Biodiversity Value
Total existing area on site	16.5	39.08
Habitats negatively impacted by Proposed Development	16.48	38.72
Habitat Impact Score		
On site habitat mitigation - Habitat Mitigation Score		47.83
<b>Habitat Biodiversity Impact Score</b>		<b>9.11</b>
If negative further compensation required		
Hedgerow Impact Assessment	Length (km)	Hedge Biodiversity Value
Total existing length on site	0.62	2.47
Hedgerow features negatively impacted by Proposed Development	0	0
Hedge Impact Score (HIS)		
On site linear mitigation		0
Hedge Mitigation Score (HMS)		
<b>Hedgerow Biodiversity Impact Score</b>		<b>0</b>
If negative further compensation required		
Connectivity Impact Assessment	Length (km)	Connectivity Biodiversity Value
Total existing length on site	0.48	0.95
Connectivity features negatively impacted by Proposed Development	0	0
Connectivity Impact Score (CIS)		
On site linear mitigation		0
Connectivity Mitigation Score (CMS)		
<b>Connectivity Biodiversity Impact Score</b>		<b>0</b>
If negative further compensation required		

Table 5.10 Biodiversity Offsetting Metric (summary)

9.6. The Biodiversity Offsetting metric concludes that the areas of landscape plantings and new peatland type habitat to be created over the current site of an arable field are adequate to compensate for the losses of such land to the construction of the MSA Development. The inclusion of higher ‘quality’ habitats compensates for the losses of habitats such as arable which are considered as lower ‘quality’ habitats and have lower biodiversity value. It should be noted that ‘Good’ condition habitats are created following the development to ensure the ‘net biodiversity gain’ is achieved.

## 10. Additive Impacts (Cumulative Impacts and their Effects)

10.1. For the purposes of this ES we define the additive cumulative effects as:

‘Those that result from additive impacts (cumulative) caused by other existing and/or approved projects together with the project itself’

10.2. The developments that are likely to have a cumulative impact when considered with the proposed development have been scoped with the Local Authority and Key Consultees during the preparation of this ES (a full list is included within Section 9 of the ES Part One Report). The following table includes the agreed list of cumulative developments that have been assessed in respect of Ecology and Nature Conservation. These are also shown geographically on the plan included at ES Part 1, Appendix 14, Cumulative Developments Plan.

No.	Cumulative Development	Details	Status	Justification for Inclusion in Cumulative Assessment
3	HS2 (adjacent to the Site)	Land safeguarded for the HS2 route Government consultation.	Current programme: Advanced works Q4 2022 Development Q4 2024 Commissioning Q4 2031 – Q3 2033	Given the spatial proximity of the Development to the site, it is deemed relevant to the Ecology assessment.

Table 511: Cumulative Development

10.3. Both Construction and Operational phases will be considered and the short, medium and long term impacts assessed.

### Short Term

10.4. The HS2 development is scheduled to undergo construction in Q4 2022, thus will likely occur within the first 5 years of the Proposed Development and may coincide with the construction of the MSA Development.



- 10.5. This overlap in timeframes may result in increased pressure on ecology receptors, particularly breeding and overwintering bird populations, utilising site and the wider area during the short term. Such cumulative impacts are not considered to be significant however, given the wide availability of similar habitats (arable land) within the Borough, although there would be an anticipated cumulative loss of available habitat.

### Medium Term

- 10.6. The HS2 construction would continue through the 6-10 year 'medium term' period and would result in the permanent loss of mainly arable habitats associated with notable and protected species, but especially breeding and wintering birds. However, the MSA Development will be completed and operational at this time, and hence there will be a benefit to many species, including breeding birds via the enhancements to the re-aligned Brook corridor. The combined loss in bird overwintering (arable) habitat would increase the pressure on the wider habitats, however it should be noted that there are widespread alternative provisions elsewhere in the borough. It should also be noted that there is currently limited information available to make the assessment and hence confidence levels are low.

### Long Term

- 10.7. In the longer term the operational impacts of both developments would result in an additive effect via disturbance to a range of ecological receptors, this may lead to displacement of breeding and wintering birds and minor displacement of foraging and commuting bats. As the MSA proposals will be fully mitigated, the impacts of the HS2 development are anticipated to be not significant once mitigation/compensation has been applied, hence additive effects will be of limited significance overall. At the time of writing no confirmation of mitigation/compensation proposals is available and therefore no detailed assessment can be undertaken.

## 11. Conclusion

11.1. The following ecological receptors are assessed in this technical Paper, as identified as being potentially subject to adverse effects by a range of surveys and local records undertaken during 2018 and 2019 (evaluations are provided in parentheses):

- Manchester Mosses SAC/SSSI suite (International);
- Pestfurlong Moss LWS (Borough);
- Silver Lane LWS (Borough);
- Silver Lane Brook (Local);
- Scattered Trees and woodland (plantation) (Local);
- Foraging and commuting bats (Local)
- Breeding Birds (Local);
- Wintering Birds (Local);
- Bats (Local)
- Terrestrial and aquatic Invertebrates (Local)

11.2. The Paper identifies the following likely effects during the construction phase of the Development:

- Hydrological impacts to Manchester Mosses SAC and Pestfurlong Moss LWS.
- Loss of vegetated habitats features and trees (including impacts to root protection areas) arising from the clearance of the development platform and related construction operations.
- Disturbance, displacement and incidental mortality (loss of breeding habitat) on breeding bird assemblages, and loss of active nests present on or adjacent to Site during the breeding season (including barn owl).
- Disturbance/displacement of significant aggregations of wintering birds.
- Disturbance/displacement of foraging and commuting bats.
- Loss of habitats supporting terrestrial and aquatic invertebrates.
- Accidental dispersal of invasive weeds (WCA schedule 9 listed plants including Himalayan Balsam).

11.3. The Paper also identifies the following likely operational phase impacts:

- Air quality impacts leading to increased Nitrogen deposition to Manchester Mosses SAC.
- Accidental pollution and /or sediment transfer to Silver Lane LWS.
- Inundation and exceedance of surface water drainage network during extreme rainfall event, leading to damage of local sites.
- Disturbance to habitats including Silver Lane LWS by recreational users of the Development.
- Accidental pollution and sediment transfer to Silver Lane Brook
- Disturbance, of breeding and wintering bird assemblages on habitats adjacent to site by vehicle movements and increased lighting.
- Disturbance/displacement of foraging and commuting bats via vehicle movements and site lighting.

- Loss of invertebrate populations through accidental pollution and / or sediment transfer.
- 11.4. Mitigation proposals include the provision of a CEMP including a number of protective measures, as the securing of a ECoW to oversee the construction works. Habitat enhancement and compensation measures will be in accordance with the Landscape Design Strategy and Illustrative Masterplan (REFS), and within a Habitat Management Plan (HMP). Framework HMP and CEMP documents are supplied as appendices 5.10 and ES Part 1 Appendix 12.
- 11.5. Following the application of mitigation none of the impacts are considered to be significant in EIA terms although the following impacts require compensatory measures to ensure there is a net biodiversity benefit:
- Loss of trees during the construction phase – losses will be compensated for by the planting of new native tree stock
  - Loss of habitats including Breeding and Wintering Bird Habitat through the construction of the Development – losses will be compensated by the enhancement of retained areas including along the re-aligned Brook corridor.
- 11.6. Regarding cumulative effects the operational impacts of the Development and the proposals for HS2 would result in an additive effect via disturbance to a range of ecological receptors, this may lead to displacement of breeding and wintering birds and minor displacement of foraging and commuting bats. As the MSA proposals will be fully mitigated, the impacts of the HS2 development are anticipated to be not significant once mitigation/compensation has been applied, hence additive effects will be of limited significance overall.
- 11.7. Overall, there will be no significant adverse effects in EIA terms and the Development will deliver a net gain in biodiversity in accordance with NPPF19. This will principally be achieved by the enhancement of currently arable habitats along the southern, eastern and northern boundaries of the site, incorporating the re-alignment of the Silver Lane Brook and the provision of a new peatland type habitat within a bunder area of translocated peat excavated from beneath the development platform. Specific measures to maximise biodiversity benefit associated with the realignment of the Brook will include:
- Design the channel profile with varied bank treatments and angles to provide a greater diversity of aquatic habitats, to include shallow berms, areas of dense marginal planting, alder and willow tree plantings.
  - Design the realigned section with range of features of conservation benefit including in channel features and diverse marginal habitats. These will include riffles, areas of slow/static flow, deep peaty sediment;

- Design the route the realigned section of Brook to follow a more natural 'sinuous' form (where possible);
- Include specific mitigation features for aquatic and terrestrial invertebrates (including dragonflies and damselflies), as well as enhancements for fish, kingfisher and other 'Priority' species such as water vole;
- Create a wildlife corridor - linking habitats within the biodiverse landscaped areas on Site and Silver Lane Local Wildlife Site to the north and west;
- Marshy (acid) grassland: habitats will be established especially in the margins of the brook and within the easement of the HPGM.

11.8. The Framework Habitat Management Plan also includes objectives for the creation of the Peat Habitat Zone (PHZ) as follows:

- The translocated peat will be subject to a different and likely variable hydrological regime and a peatland type habitat will be created with variable peat depth and topography, providing a range of micro-habitats from dry to permanently wet; creating varied habitats for a range of flora and fauna.
- Plant material from 'high quality' peatland vegetation from nearby designated sites will be sourced where possible or existing established nurseries supplying those sites where re-vegetation is taking place, to ensure plants of local provenance establish on site.
- It is expected that the peatland habitat zone will receive water both from rain and from groundwater, given that the external bunds will be semi-permeable and hence allow a degree of continuity with external hydrology. It will therefore be possible to create hollows around groundwater level and to mound areas which will become largely dry heath vegetation. By creating a diversity of topography and habitats, the area will be more resistant to seasonal change as well as climate change.
- During the management phase, parts of the peatland habitat zone would be permitted to develop natural tree and scrub regeneration, with species such as birch willow and alder likely to self-seed from surrounding habitat. This would attract species such as willow warbler, willow tit, and reed bunting. In other areas, trees and scrub may be prevented from establishing, such as parts of the developing floristically diverse heathland and near to the proposed bog pools. This would benefit species of invertebrate that are reliant on open water.

11.9. The monitoring program also to be included within the LHMP will ensure that the peat does not dry and begin to lose its stored carbon and may in time begin to actively sequester carbon.

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## 13. Appendices

## **Appendix 5.1 – Information to Support a Habitats Regulations Assessment**





**EXTRA MSA GROUP**

**MOTORWAY SERVICES, WARRINGTON**

**INFORMATION TO INFORM A HABITATS REGULATIONS ASSESSMENT**

**JULY 2019**

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**EXTRA MSA GROUP**

**MOTORWAY SERVICES, WARRINGTON**

**INFORMATION TO INFORM A HABITATS REGULATIONS ASSESSMENT**

**JULY 2019**

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## APPENDICES

Appendix 1 Legislation and Policy Summary

DRAWINGS	TITLE	SCALE
SH11739/016	Location of Statutory and Non-Statutory Conservation Sites	1:40,000@A3

## EXECUTIVE SUMMARY

This report is provided to inform a Stage 1 (screening) Habitats Regulations Assessment (HRA) for the development of a new motorway service area, located to the north of junction 11 on the M62 (Ordnance Survey grid reference SJ 670936). The Project lies approximately 1 kilometre (Km) to the west of Holcroft Moss Special Area of Conservation (SAC) which is the closest component of the Manchester Mosses SAC suite. Risley Moss SAC is also located approximately 1.4km to the south of the site.

The Project will involve the loss of mainly arable farmland habitat to accommodate buildings, access roads and a new motorway junction. None of the habitat losses will directly impact the SACs given the separation distance. This report considers whether there is any reasonable likelihood of Likely Significant Effects (LSE) arising from the Project on the Manchester Mosses SAC.

Impact pathways considered are:

- Hydrological modifications from the construction and operation of the MSA;
- Adverse air quality arising from any localised traffic increase; and
- Recreational impacts from visitors to the MSA.

The report concludes that there are no Likely Significant Adverse Effects because there will be no changes to the hydrological regime at the location of the SAC for the following reasons:

- The Project is hydrologically separate from the SAC and lies beyond the limits of any localised influences on surface or sub surface flows.
- The Development will not result in any increase in overall traffic flows and any minor changes arising from additional time vehicles spend at the operational MSA site are not within influencing distance.

The users of the MSA will be primarily located within the operational site itself and its immediate environment. The proposed Hotel is designed to accommodate short term use principally for road users taking an overnight break; very limited additional use of the nearby designated sites is predicted by users of the MSA.

## 1 INTRODUCTION

### 1.1 Terms of Reference

1.1.1 Wardell Armstrong LLP (WA) was appointed by Extra MSA Group to provide information to enable a Stage 1 (screening) Habitats Regulations Assessment (HRA) for the development of a new motorway service area (hereafter referred to as Project), located to the north of junction 11 on the M62 (Ordnance Survey grid reference SJ 670936).

1.1.2 The objective of the assessment is to identify any aspects of the project that would cause 'likely significant effects' on the interest features of Manchester Mosses SAC notably, Holcroft Moss and Risley Moss which lie closest to the location of the Project.

1.1.3 Natural England supplied a scoping opinion dated 10<sup>th</sup> January 2019 including the following advice in regard to European sites:

*....the Impact Risk Zones for Risley Moss SSSI and Holcroft Moss SSSI are triggered for this development site. These SSSI's form part of the internationally designated site Manchester Mosses SAC so the EIA will need to conduct a full assessment to ensure that development on this site would not lead to hydrological impacts on the designated site. Changes to air quality as a result of changes to traffic volume/flow should also be considered.*

1.1.4 Greater Manchester Ecology Unit (GMEU) also provided a scoping opinion with the following advice relevant to this assessment:

*The site is within 1km of parts of the Manchester Mosses Special Area of Conservation (SAC), in particular Holcroft Moss and Risley Moss. I would recommend that potential impacts on the special nature conservation interests of these sites are properly considered in the Environmental Statement. The potential of the development to cause –*

- *Indirect hydrological changes and*
- *Increases in diffuse air pollution arising from increased traffic generation*

1.1.5 Impacts to non-European protected sites are considered in the Ecology chapter (8) of the associated Environmental Impact Assessment. Impact pathways considered are:

- Hydrological modifications from the construction and operation of the MSA;

- Adverse air quality arising from any localised traffic increase; and
- Recreational impacts from visitors to the MSA.

1.1.6 Impact pathways are routes by which a change in activity within the project scope can lead to an effect upon a European site. Due to the scale and nature of this project it is considered that only Holcroft Moss and Risley Moss could be affected by the project works being undertaken at the application site. This is due to the fact that the Project is located within potential influencing distance of these conservation sites and could therefore affect their qualifying features (either alone or in combination with other plans or projects) and is not directly connected with or necessary to the management of them.

1.1.7 Due to the negligible contribution of this development to any of the identified potential adverse effects, the scope of the in-combination assessments is limited, as pathways of effect are also inherently restricted.

## **1.2 Site Context**

1.2.1 The proposed development is to be located immediately adjacent to Junction 11 of the M62. The survey area (Site) covers the application area plus adjacent habitats where these are relevant to the assessment of potential adverse effects.

1.2.2 The wider landscape comprises arable farmland/pasture to the east, south east and north, a capped landfill directly west of the site and Birchwood Business and Technology Park to the south west.

1.2.3 Holcroft Moss SSSI & SAC is located approximately 1km to the east of the Application Site. Risley Moss SSSI & SAC and Risley Moss Local Nature Reserve are located approximately 1.4km to the south of the site.

1.2.4 The location of the Application Site relative to these designated areas is shown on the following plan: 'Location of Statutory and Non-statutory Conservation Sites' (Drawing Ref. SH11739/016 Rev. A) contained in the PEA report included in this submission. Non-statutory conservation sites also shown on the plan are not relevant to this assessment.

## **1.3 Project Description**

1.3.1 The planning application is for outline consent for the erection of a Motorway Service Area with all matters reserved with the exception of access from the M62, comprising of:

*The erection of a Motorway Service Area including Facilities Building, up to 100 bedroom Hotel, service yard, Fuel Filling Station, Electric Charging Station, parking facilities for each category of vehicle, access and internal circulation roads, structured and natural landscaping with outside amenity space/picnic space and dog walking zone, pedestrian and cycle links, boundary fencing, surface water drainage areas, ecological mitigation, pumping station(s), substation(s), retaining structures and associated infrastructure and earthworks.*

- 1.3.2 It is proposed to have one MSA development platform serving both westbound and eastbound carriageways of the M62, located to the north of the main carriageway, including one Facilities Building, Hotel and Fuel Filling Station. In addition, areas for parking for all vehicles (light vehicles, HGVs, coaches, caravans/motor homes, motorcycles and abnormal loads) are proposed, as well as electric vehicle charging points. Each of the buildings and parking areas will include specific landscaping.
- 1.3.3 The only vehicular access into the development will be taken from the M62 via the existing junction off the Motorway. This junction already provides access for both westbound and eastbound traffic. No vehicular connections are proposed to the local road network.
- 1.3.4 The habitats on site are summarised in Table 1 below.

<b>Table 1: Phase I Habitat Descriptions</b>
<p><b>Arable</b></p> <p>Arable farmland dominates the survey area. This habitat is actively disturbed by agricultural operations and at the time of survey appeared to have been seeded with autumn sown cereals. Arable margins are scant, but where present, are dominated by cock's-foot <i>Dactylis glomerata</i>, Yorkshire-fog <i>Holcus lanatus</i>, creeping bent <i>Agrostis stolonifera</i> with occasional cleavers <i>Gallium aparine</i>, rosebay willowherb <i>Chamerion angustifolium</i>, bramble <i>Rubus fruticosus</i> and nettle <i>Urtica dioica</i>.</p>
<p><b>Neutral Grassland, Tall Ruderal and scrub</b></p> <p>A mosaic of habitats is present along the southern and western boundaries of the site. Unmanaged neutral grassland being the dominant type with variable areas of continuous/scattered scrub and tall ruderals also present.</p> <p>Species present include great willowherb <i>Epilobium hirsutum</i> (D), broadleaved dock <i>Rumex obtusifolius</i> (D), creeping thistle <i>Cirsium arvense</i> (D), common reed <i>Phragmites australis</i> (A), perennial rye grass <i>Lolium perenne</i> (A), cock's foot (A), bramble (F), common nettle (F), vetch spp. (O), alder <i>Alnus glutinosa</i> (O), elder <i>Sambucus nigra</i> (R), common ragwort <i>Senecio jacobaea</i> (R) and pedunculate oak <i>Quercus robur</i> (R).</p>
<p><b>Marshy Grassland</b></p> <p>There is a small area of wet/marshy grassland within the larger area of tall ruderal habitat located along the western boundary. The species composition includes common reed (D), cocksfoot (F), perennial rye grass (O), great willowherb (O) and marsh thistle <i>Cirsium pallustre</i>. (R).</p>
<p><b>Broadleaved scattered trees</b></p> <p>Bordering the western boundary of the site is a discontinuous line of silver birch <i>Betula pendula</i> (D) trees. Species also present in the tree line are elder (F) and grey willow <i>Salix cinerea</i> (R). The ground flora is comprised of common nettle (D), fern sp. (A), mosses (A), bramble (F), cock's-foot (F) and perennial rye grass (F). Individual silver birch trees are also present along the northern boundary of the site.</p>
<p><b>Dry Ditch</b></p> <p>Running along the eastern boundary under the birch treeline is a dry ditch. The banks are partly bare, with eroding and exposed peat'hags' present. Species present include Himalayan balsam <i>Impatiens glandulifera</i> (A), mosses (F), bramble (O), fern sp. (O), mosses and common nettle (O).</p>
<p><b>Mesotrophic Running Water</b></p> <p>Along the western boundary is a wet ditch (Silver Lane Brook) with running water from the southern boundary to beyond the northern boundary. At the time of the survey, water levels were low with the ditch approx. 1m wide. The banks are vegetated with perennial rye grass (A), cock's-foot (A), common reed (A), great willowherb (A), common nettle (F), and vetch spp. (R).</p>



**Table 1: Phase I Habitat Descriptions**

**Semi-natural Broadleaved Woodland**

Within with north western and south western boundary are small areas of semi-natural broadleaved woodland with high coverage of leaf litter and dead wood. Tree species present include lombardy poplar *Populus nigra* (D), goat willow *Salix caprea* (F), hawthorn *Crataegus monogyna* (O) and alder (R). The ground layer is dominated with bramble (D) with stinging nettle (F), great willowherb (O), cleaver (O), yorkshire fog (F) and broad-leaved dock (O).

**Hard Standing**

From within south western boundary of the site, running north along the western site boundary is an area of hard standing used as parking and as an access track.

## **2 LEGISLATION**

- 2.1.1 The need for an assessment of impacts on Natura 2000 sites is set out within Article 6 of the EC Habitats Directive 1992 and transposed into UK law by the Conservation of Habitats and Species Regulations 2018 (as amended). The ultimate aim of the Directive is to “maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora of Community interest” (Habitats Directive, Article 2(2)). This aim relates to habitats and species, not the European sites themselves, although the sites have a significant role in delivering favourable conservation status.
- 2.1.2 The Habitats Directive applies the precautionary principle to European sites. Plans and projects can only be permitted having ascertained that there will be no adverse effect on the integrity of the site(s) in question. Plans and projects with predicted adverse impacts on European sites may still be permitted if there are no alternatives to them and there are Imperative Reasons of Overriding Public Interest (IROPI) as to why they should go ahead. In such cases, compensation would be necessary to ensure the overall integrity of the site network.
- 2.1.3 In order to ascertain whether or not site integrity will be affected, an assessment should be undertaken of the plan or project in question. While the competent authority (e.g. Natural England) makes the formal decision as to whether adverse effects will result, they are entitled to request the applicant to produce necessary information to assist them. That is the purpose of this report.

### Box 1. The legislative basis for Appropriate Assessment

#### **Habitats Directive 1992**

Article 6 (3) states that:

*“Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site’s conservation objectives.”*

#### **Conservation of Habitats and Species Regulations 2018 (as amended)**

The Regulations state that:

24.—(1) Where it appears to the appropriate nature conservation body that a notice of a proposal under section 28E(1)(a) of the WCA 1981 relates to an operation which is or forms part of a plan or project which—

(a) is likely to have a significant effect on a European site (either alone or in combination with other plans or projects), and

(b) is not directly connected with or necessary to the management of that site, it must make an appropriate assessment of the implications for that site in view of that site’s conservation objectives.

(2) In the light of the conclusions of the assessment, it may give consent for the operation only after having ascertained that the plan or project will not adversely affect the integrity of the site.

2.1.4 Over the years the phrase ‘Habitats Regulations Assessment’ (HRA) has come into wide currency to describe the overall process set out in the Conservation of Habitats and Species Regulations from screening through to Imperative Reasons of Overriding Public Interest (IROPI). This has arisen in order to distinguish the process from the individual stage described in the law as an ‘Appropriate Assessment’. Throughout this report we use the term Habitat Regulations Assessment for the overall process and restrict the use of Appropriate Assessment to the specific stage of that name.

### 3 HRA METHODOLOGY

3.1.1 HRA of projects can be broken down into three discrete stages, each of which effectively culminates in a test. The stages are sequential, and it is only necessary to progress to the following stage if a test is failed. The stages are:

#### Stage 1 – Likely Significant Effect Test

3.1.2 This is essentially a risk assessment, typically utilising existing data, records and specialist knowledge. The purpose of the test is to decide whether ‘full’ Appropriate Assessment is required. The essential question is:

*“Is the project, either alone or in combination with other relevant projects and plans, likely to result in a significant [adverse] effect upon European sites?”*

3.1.3 If it can be demonstrated that significant effects are unlikely, no further assessment is required.

#### Stage 2 – Appropriate Assessment

3.1.4 If it cannot be satisfactorily demonstrated that significant effects are unlikely, a full “Appropriate Assessment” will be required. In many ways this is analogous to an Ecological Impact Assessment, but is focussed entirely upon the designated interest features of the European sites in question. Bespoke survey work and original modelling and data collation are usually required. The essential question here is:

*“Will the project, either alone or in combination with other relevant projects and plans, actually result in an adverse effect upon the integrity of any European sites, without mitigation?”*

3.1.5 If it is concluded that adverse effects will occur, measures will be required to either avoid the impact in the first place, or to mitigate the ecological effect to such an extent that it is no longer significant. Note that, unlike standard Ecological Impact Assessment, compensation for adverse effects (i.e. creation of alternative habitat) is not permitted at the Appropriate Assessment stage.

#### Stage 3 – Imperative Reasons of Overriding Public Interest (IROPI) Test

3.1.6 If a project will have a significant adverse effect upon a European site, and this effect cannot be either avoided or mitigated, the project cannot proceed unless it passes the IROPI test. In order to pass the test it must be objectively concluded that no alternative solutions exist. The project must be referred to Secretary of State on the

grounds that there are Imperative Reasons of Overriding Public Interest as to why the plan should nonetheless proceed.

- 3.1.7 This report deals with the first stage of Habitat Regulations Assessment – the Likely Significant Effect Test.

### **3.2 Confirming Other Plans and Projects That May Act in Combination**

3.2.1 It is a requirement of the Regulations that the impacts of any land use plan being assessed are not considered in isolation but in combination with other plans and projects that may also be affecting the European site(s) in question. In this case a detailed in combination assessment has not been undertaken, given the separation distance between the Application Site and the SAC, however land proposed to be safeguarded for the HS2 route lies adjacent to the Site's northern boundary. This is not a 'lodged development' as it is currently in Government consultation. The current programme is for Advanced works Q4 2022, development during Q4 2024 and commissioning in Q4 2031 – Q3 2033.

3.2.2 There is no current information regarding impacts from HS2 to either of the SAC units considered in this report however it is anticipated that should the development proceed any impacts to peatland resources would be fully mitigated given that it is a nationally significant infrastructure project.

### **3.3 Impact Pathways**

3.3.1 In carrying out an HRA it is important to determine the various ways in which the project in question can impact on European sites by following the pathways along which development can be connected with those sites, in some cases many kilometres distance. Briefly defined, pathways are routes by which a change in activity associated with a development can lead to an effect upon a European site.

### **3.4 Hydrological Modifications**

3.4.1 Manchester Mosses SAC including; Holcroft Moss, SAC and SSSI and Risley Moss, SAC and SSSI are not considered to be 'at risk' of the Proposed Development as it has been determined that there are no water pathways between the SAC and the Site, this is based on a number of reasons:

- The Risley Moss is mainly located on the Bollin Mudstone Member (Mudstone), but the northern areas of this Moss are located on the Tarporley Siltstone Formation (Siltstone, Mudstone and Sandstone). These Formations overlie the Helsby Sandstone Formation (Sandstone, Pebbly (gravelly), as the Helsby

Sandstone Formation is dipping to the south-west. There is unlikely to be hydraulic continuity between the Helsby Sandstone and the overlying lower permeability mudstones / siltstones. Groundwater flow within the sandstone is also recorded to be towards the west / south-west whereas Risley Moss is located to the south of the Site.

- Holcroft Moss and the Site are both located on the Helsby Sandstone Formation (Sandstone, Pebbly (gravelly)). However, as Sirius Environmental's Hydrogeological Risk Assessment (HRA) Review prepared on behalf of Biffa Waste Services for the Risley Landfill Site found that *"the [Helsby Sandstone Formation] groundwater in the vicinity of the [Risley Landfill] site flows in a south westerly/westerly direction."* Holcroft Moss is located to the east the Site. Therefore, this Moss is located across hydraulic gradient from the Site.
- BGS borehole records from BGS GeoRecords Plus<sup>1</sup> suggest that the groundwater in the Helsby Sandstone Formation is confined. Groundwater strikes are recorded at the upper surface of the Sandstone, but rest water levels are recorded as being coincident with the overlying superficial deposits even when these are cased out within the borehole. This is also seen where Peat has been excavated and is limited in thickness within the borehole logs.
- As the M62 is at the similar elevation as the Site it is likely that excavation for the motorway foundations would have cut through the Peat, and possibly into the underlying superficial deposits, removing any hydrogeologic connection via the Peat between the Site and Holcroft Moss.

### 3.5 Air Quality Effects

3.5.1 The potential for adverse air quality effects at the Manchester Mosses SAC has been considered as part of this report.

Construction Phase: Dust and Fine Particulate Matter Emissions

3.5.2 National guidance published by the Institute of Air Quality Management (IAQM), *Guidance on the Assessment of Dust from Demolition and Construction (2014)*, specifies that a construction dust assessment is required where an ecological receptor is:

- i) Situated within 50m of the boundary of a construction site; and/or;

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<sup>1</sup> British Geological Survey (2019) GeoRecords Plus+ [online]. Accessed 26/07/2019. Available at: <http://mapapps.bgs.ac.uk/GeoRecords/GeoRecords.html>

ii) Located within 50m of the route(s) used by construction vehicles on the public highway, up to 500m from the construction site entrance(s).

3.5.3 The Risley Moss SSSI/SAC is situated approximately 1.4/km to the south of the Project and the Holcroft Moss SSSI/SAC is situated approximately 1km to the east. Based on the aforementioned assessment criteria, a construction dust assessment for these conservation sites is not required. Therefore, in accordance with IAQM guidance, the level of risk for any construction phase ecological effects is deemed to be negligible and not significant.

3.5.4 As the requirement for a detailed construction dust assessment can be screened out for the Project, the potential for cumulative effects is not considered to comprise a concern.

#### Construction Phase: Road Traffic Emissions

3.5.5 Recent guidance published by Natural England (NE), Natural England's Approach to Advising Competent Authorities on the Assessment of Road Traffic Emissions under the Habitats Regulations (2018), suggests that the appropriate distance criterion to be applied for road traffic emission assessments is 200m (i.e. 200m from a considered road source).

3.5.6 Although the exact routing of construction vehicles servicing the site is unknown at this stage, it is considered very unlikely that any construction vehicles servicing the Application Site will use the road network situated within 200m of the Holcroft Moss or Risley SSSIs & SACs. It is far more likely that the construction traffic will utilise the existing M62 motorway corridor and slip roads servicing junction 11. On this basis, it is considered that a construction phase road traffic emissions assessment for these two sites is not required.

#### Operational Phase: Road Traffic Emission

3.5.7 The proposed development is not expected to result in newly generated trips, other than a small number associated with deliveries and staff travel. Rather, the majority of trips to/from the proposed development will be transferred trips that are already on the M62.

3.5.8 On this basis, it is considered that the majority of additional vehicle trips generated by the Application Site will be focused on the roads directly servicing the Motorway Service Area (i.e. the existing slip roads and roundabout directing vehicles into and out of the Application Site). These links are well established and located a significant

distance from the SSSIs and SACs ( $\geq 1\text{km}$ ). Therefore, it is considered that an operational phase road traffic emissions assessment for Holcroft Moss and Risley Moss is not required. Any potential contributions to nitrogen deposition at these sites are expected to be negligible and, therefore, any contributions to cumulative effects will equally be negligible.

### **3.6 Recreational impacts from visitors to the MSA**

3.6.1 The purpose of the MSA is to meet the needs of the travelling public, using the M62 and associated road network. The vast majority of visitors to the MSA will use the facilities on a temporary basis before returning to their cars and continuing their planned journey. This means that most users of the MSA are extremely unlikely to break from their journey for an extended period in order to visit an SAC or SSSI conservation site such as Holcroft Moss or Risley Moss, which are located approximately 1km and 1.4km, respectively. Similarly, for uses of the planned Hotel, these sites are unlikely to be utilised as a recreational resource given that the majority of travellers are short term visitors and are not resident for any significant period of time.



## **4 CONCLUSIONS**

4.1.1 Given the separation distance between the Application Site and the two main conservation sites within proximity of the site, adverse effects are considered to be minimal for all potential pathways of impact. This HRA screening assessment therefore concludes that there are no likely significant (adverse) effects to Holcroft Moss or Risley Moss and hence the Manchester Mosses SACs as a result of the Proposed Development acting either alone or in-combination with other relevant plans or projects. Consequently, no mitigation need be applied, and the assessment can be concluded at screening (Stage1).

---

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**Appendix 1**  
**Legislation and Policy Summary**

## Appendix 1 – Legislation and Policy Summary

### *Legislation for Habitats/Sites*

Designated Site/Habitat	Status
Ramsar Sites	Ramsar Sites are wetlands of international importance designated following The Ramsar Convention. RAMSAR sites have the same level of protection as SSSIs under the Wildlife and Countryside Act 1981 (as amended).
SPA (Special Protection Areas)	SPAs are classified in accordance with Article 4 of the EC Directive on the Conservation of Wild Birds (79/409/EEC), the Birds Directive. They are they seek to protect the habitats of rare and vulnerable birds, listed in Annex I of the Birds Directive, and for regularly occurring migratory species. The Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2010 implement the Birds Directive in the UK.
SAC (Special Areas for Conservation)	SACs are strictly protected areas which represent typical European Union of habitats and (non-bird) species listed in Annexes I and II of the EC Habitats Directive. The Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2010 implement the Habitats Directive in the UK.
SSSI (Sites of Special Scientific Interest)	SSSIs protect the best examples of the UK's flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were renotified under the Wildlife and Countryside Act 1981 (as amended). Modified provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000.
NNR (National Nature Reserves)	NNRs are examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. NNRs are declared by the statutory country conservation agencies under the National Parks and Access to the Countryside Act 1949 and the Wildlife and Countryside Act 1981 (as amended). Legal protection of NNRs is provided under The Wildlife and Countryside Act 1981 (as amended).
Hedgerows	All hedgerows are protected by the Hedgerows Regulations 1997, under which it is an offence to remove or destroy certain hedgerows without planning consent or permission from the Local Planning Authority. These regulations do not apply to any hedgerow within the curtilage of, or marking the boundary of the curtilage of, a dwelling house.
LNR (Local Nature Reserves)	Designated by the National Parks and Access to the Countryside Act 1949, LNRs may be declared for nature conservation by local authorities after consultation with the relevant statutory nature conservation agency. Legal protection of LNRs is provided under The Wildlife and Countryside Act 1981 (as amended).

*Legislation for Species*

Species	Legal Status
<i>European Legislation</i>	
Creeping Marshwort, Early Gentian, Fen Orchid, Floating-leaved Water Plantain, Killaney Fern, Lady's Slipper, Shore Dock, Slender Naiad, Yellow Marsh Saxifrage	Under the Conservation of Habitats and Species Regulations 2010 (and as amended), it is illegal to deliberately pick, collect, uproot or destroy any such species.
Bats, Dormouse, Otter, Wild Cat, Great Crested Newt, Natterjack Toad, Sand Lizard, Smooth Snake, Large Blue Butterfly	<p>These animals and their breeding sites or resting places are protected under Regulation 41 of the Conservation of Habitats and Species Regulations 2010 (and as amended), which makes it illegal to:</p> <ul style="list-style-type: none"> <li>• Deliberately capture, injure or kill any such animal or to deliberately take or destroy their eggs;</li> <li>• Deliberately disturb such an animal; and</li> <li>• Damage or destroy a breeding site or resting place of such an animal.</li> </ul> <p>European Protected Species (EPS) licenses can be granted by Natural England in respect of development to permit activities that would otherwise be unlawful under the Conservation Regulations, providing that the following 3 tests (set out in the EC Habitats Directive) are passed, namely:</p> <ul style="list-style-type: none"> <li>• The development is for reasons of overriding public interest;</li> <li>• There is no satisfactory alternative; and</li> <li>• The favourable conservation status of the species concerned will be maintained and/or enhanced.</li> </ul> <p>Under Regulation 9(5) of the Conservation Regulations, Planning Authorities have a duty to 'have regard to the requirements of the EC Habitats Directive' i.e. LPA's must consider the above 3 'tests' when determining whether Planning Permission should be granted for developments likely to cause an offence under the Conservation Regulations.</p>

Species	Legal Status
<i>Domestic (UK) Legislations</i>	
Bats, Dormouse, Great Crested Newt, Heath Fritillary, High Brown Fritillary, Large Blue, Marsh Fritillary, Natterjack Toad, Pine Martin, Otter, Red Squirrel, Sand Lizard, Smooth Snake, Swallowtail, Water Vole, Wildcat	These animals receive full protection under the Wildlife and Countryside Act 1981 (and as amended), which makes it illegal (subject to certain exceptions) to: <ul style="list-style-type: none"> <li>• Intentionally kill, injure or take any such animal;</li> <li>• Intentionally or recklessly damage, destroy or obstruct any place used for shelter or protection by any such animal; and</li> <li>• Intentionally or recklessly disturb such animals while they occupy a place used for shelter or protection.</li> </ul>
Adder, Common Lizard, Grass Snake, Slow Worm, White-clawed Crayfish	These animals receive partial protection under The Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000), which provide protection against intentional killing or injury of any such animal.
Nesting Birds	All wild birds (as defined by the act) are protected under the Wildlife and Countryside Act 1981 (and as amended), which makes it illegal (subject to exceptions) to: <ul style="list-style-type: none"> <li>• Intentionally kill, injure or take any wild bird;</li> <li>• Take, damage or destroy the nest (whilst being built or in use) or eggs of any wild bird.</li> </ul>
WCA Schedule 1 listed Birds	Additional protection is provided to birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 (and as amended). In addition to the offences detailed above relating to all wild birds, it is illegal to: <ul style="list-style-type: none"> <li>• Intentionally or recklessly disturb any bird listed on Schedule 1, or their dependent young while nesting.</li> </ul>
Badgers	The Protection of Badgers Act 1992 makes it illegal to wilfully kill or injure a Badger, or attempt to do so and to intentionally or recklessly interfere with a Badger sett. This includes: <ul style="list-style-type: none"> <li>• damaging or destroying an active sett;</li> <li>• obstructing access to a sett; and</li> <li>• disturbing a Badger while it is occupying a sett.</li> </ul> <p>Licences can be granted to permit sett closure and/or disturbance between July and November inclusive (i.e. outside the sow pregnancy/birth period).</p>

Species	Legal Status
Wild Mammals	The Wild Mammals (Protection) Act 1996 provides legal protection to all wild mammals (as defined by the act) against the following actions: mutilate, kick, beat, nail, or otherwise impale, stab, burn, stone, drown, crush, drag or asphyxiate any wild mammal with intent to inflict unnecessary suffering.
<i>Invasive Species</i>	
WCA Schedule 9 listed animals (Part 1) and plants (part 2)	Certain species of plants and animals that do not naturally occur in Great Britain have become established in the wild and represent a threat to the natural fauna and flora. Section 14 of the Wildlife & Countryside Act prohibits the release of any animal species that are:  <i>“not ordinarily resident in and is not a regular visitor to Great Britain in a wild state”</i>

## *Policy Summary*

Section 40 of the Natural Environment and Rural Communities (NERC) Act imposes a legal duty on Planning Authorities to 'have regard' to the conservation of biodiversity when considering planning applications.

Section 41 of the NERC Act requires the Secretary of State to publish a list of species and habitats of principal importance for conserving biodiversity in the UK. Such Biodiversity Action Plan (BAP) Habitats and Species (2007) do not offer the species any specific protection but help to highlight the species importance at a national level. This list is used by Local Planning Authorities to identify the species and habitats that should be afforded priority when applying the requirements of the National Planning Policy Framework (NPPF).

The NPPF underpins the Government's planning policies for England and how these are to be applied. The central theme of the NPPF is a presumption in favour of sustainable development. This presumption does not apply where development requiring Appropriate Assessment under the Birds or Habitats Directives is being considered, planned or determined.

The NPPF states:

*'When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:*

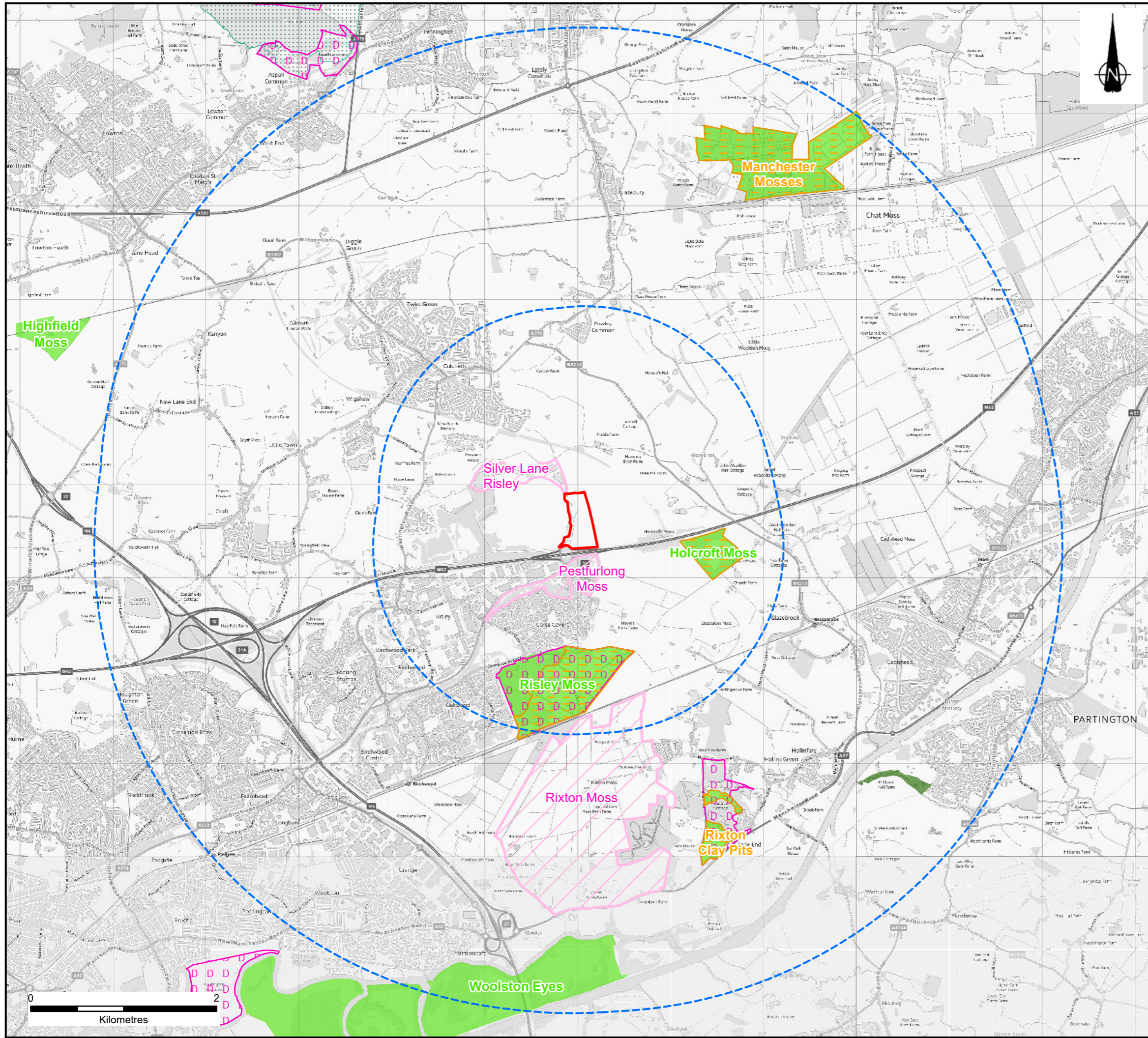
- if significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- proposed development on land within or outside a Site of Special Scientific Interest (SSSI) likely to have an adverse effect on a SSSI (either individually or in combination with other developments) should not normally be permitted. Where an adverse effect on the site's notified special interest features is likely, an exception should only be made where the benefits of the development, at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of SSSIs;*
- development proposals where the primary objective is to conserve or enhance biodiversity should be permitted;*
- opportunities to incorporate biodiversity in and around developments should be encouraged;*



- *planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss; and*
- *the following wildlife sites should be given the same protection as European sites: potential Special Protection Areas (SPA) and possible Special Areas of Conservation (SAC); listed or proposed Ramsar sites; and sites identified, or required, as compensatory measures for adverse effects on European sites, potential SPAs, possible SACs, and listed or proposed Ramsar sites.'*

The NPPF requires the Planning Authority to have a responsibility to promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets, and identify suitable indicators for monitoring biodiversity in the plan. In addition, the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.

## **DRAWINGS**



**KEY**

- Site Boundary
- 2km and 5km Distance Buffer
- Special Areas of Conservation
- Local Nature Reserves
- Country Parks
- Sites of Special Scientific Interest
- Ancient Woodland
- Local Wildlife Sites

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**MOTORWAY SERVICES, WARRINGTON**

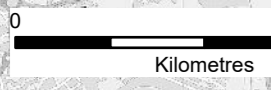
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## **Appendix 5.2 – Water Framework Directive Assessment**



**EXTRA MSA GROUP**

**WARRINGTON MOTORWAY SERVICE AREA, J11 M62**

**REVISED WATER FRAMEWORK DIRECTIVE SCREENING ASSESSMENT**

**MARCH 2020**

**DATE ISSUED:** 20/03/2020  
**JOB NUMBER:** SH11739  
**REPORT NUMBER:** 008  
**VERSION:** V.05  
**STATUS:** Draft

**EXTRA MSA GROUP**

**WARRINGTON MOTORWAY SERVICE AREA, J11 M62**

**REVISED WATER FRAMEWORK DIRECTIVE SCREENING ASSESSMENT**

**MARCH 2020**

**PREPARED BY:**

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Lauren Ballarini Technical Director

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**DRAWINGS**

SH11739-001 Site Location Plan

SH11739-002 Site Plan

SH11739-002D Brook Diversion Layout and Sections

## **1 INTRODUCTION**

- 1.1.1 This Water Framework Directive (WFD) assessment is an updated assessment intended to replace Appendix 5.2 of Paper 5: Ecology and Nature Conservation Technical Paper of the Environmental Statement and Appendix 3.3 of Paper 3: Water Resources Technical Paper of the Environmental Statement.
- 1.1.2 Directive 2000/60/EC of the European Parliament and Council (the Water Framework Directive) came into force on 22<sup>nd</sup> December 2000 and established a framework for community action in the field of water policy. The WFD has been transposed into UK regulations and required each UK nation to aim to reach good chemical and ecological status in inland and coastal waters by 2015. The WFD is designed to enhance the status and prevent further deterioration of aquatic ecosystems and associated wetlands, to promote sustainable water use, to reduce pollution of water and to ensure a progressive reduction in groundwater pollution. The WFD established a strategic framework for managing the water environment and requires a Management Plan for each river basin to be developed every six years. In cases where good status / potential could not be achieved by 2015, a provision is given under Article 4(4) of the WFD extending the deadline to 2021 or 2027. The date has been extended to 2027 in respect of a large number of waterbodies. Within England, the competent authority for delivering the WFD is the Environment Agency (EA).
- 1.1.3 The role of a WFD assessment is to evaluate the potential deterioration in the overall status of a water body from a Proposed Development, based on the 2015 River Basin Management Plan (RBMP). The WFD assessment also determines whether the Proposed Development may hinder any existing programmes of measures in returning a failing water body to Good status.

## **2 PROJECT DESCRIPTION**

### **2.1 Introduction**

2.1.1 This section identifies the Proposed Development's location and context and describes the Proposed Development, summarised from the Environmental Statement (ES) Project Description<sup>1</sup>.

### **2.2 Proposed Development description**

2.2.1 The application will be an outline planning application for the erection of a Motorway Service Area including Facilities Building, up to 100 bedroom Hotel, service yard, Fuel Filling Station, Electric Charging Station, parking facilities for each category of vehicle, access and internal circulation roads, structured and natural landscaping with outside amenity space/picnic space and dog walking zone, pedestrian and cycle links, boundary fencing, surface water drainage areas, ecological mitigation, pumping station(s), substation(s), retaining structures and associated infrastructure and earthworks.

### **2.3 Proposed Development Location and Context**

2.3.1 The Proposed Development is located in the North West of England, within the local authority area of Warrington. The Proposed Development location and regional context is shown on the Site location plan in Drawing SH11739-001.

2.3.2 The Proposed Development is located to the northeast of the urban area of Warrington, approximately 8.5km (5 miles) from the centre of Warrington. The centre of Manchester is located approximately 17.5km (11 miles) to the east of the Proposed Development and the centre of Liverpool, approximately 32 km (20 miles) to the west.

2.3.3 The Proposed Development is located to the north of the M62 Motorway at Junction 11, within its north east quadrant and has direct access to Junction 11 via a spur to the motorway junction roundabout (Birchwood Way). The M62 Motorway also provides access to the wider Strategic Road Network, with the M6 Motorway running north/south, approximately 4km (2.5 miles) to the west of the Proposed

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<sup>1</sup> Extra MSA Group Warrington Motorway Service Area, J11 M62, ES Project Description, Revision C 23 July 2019.

Development, and the M60 Motorway, which runs around Manchester, approximately 10km (6.1 miles) to the east of the Proposed Development.

- 2.3.4 Immediately to the west of the Proposed Development is a former landfill site, Risley Landfill (Figure 2.3), where landfilling began in 1979, but which has now ceased, and the landfill site has been restored and planted as Risley Country Park. To the east and north is arable farmland. A disused railway line crosses the farmland that is beyond the Proposed Development boundary, and arches to the east and north approximately 0.6km (0.4 miles) from the Proposed Development boundary. To the east and north of the Application Proposed Development are agricultural fields.
- 2.3.5 The planning application redline encompasses the M62 J11 Motorway Roundabout, spur from the roundabout and the main part of the Proposed Development. The main part of the Proposed Development relates to an area of land of approximately 15ha in extent, whilst the total land within the redline and therefore including highway works to M62 J11 Motorway Roundabout is c.16ha (see Drawing SH11739-002 showing the site boundary).

## **2.4 Land Use**

- 2.4.1 The Proposed Development area is greenfield and located within the Green Belt. It comprises agricultural land and rough grassland. The agricultural land within the Proposed Development area comprises a large arable field (c.11. ha). A small triangular area of unmanaged neutral grassland is present to the west of the Proposed Development (approximately 1.0 ha), this land previously formed part of a larger agricultural field, the majority of which was incorporated into the Risley Landfill site. The remnant field area was removed from agricultural use by the operation of the landfill site and is therefore considered to be non-agricultural. All other land within the Proposed Development area is also non-agricultural comprising areas of restored landfill and hardstanding. The agricultural land is partially located over peat deposits, which are located predominantly to the south eastern section of the Proposed Development.

## 2.5 Hydrology

- 2.5.1 The following description of the Hydrology of the Proposed Development is taken from the Wardell Armstrong report entitled Flood Risk Assessment and Surface and Foul Water Drainage Strategies (Version 4 Final) forming Appendix 3.1 to the Environmental Statement.
- 2.5.2 The nearest named watercourse to the Proposed Development is the Silver Lane Brook, designated as a main river. The Silver Lane Brook flows along the western boundary as a linear watercourse and flows partly into north western edge of the Proposed Development for a short section.
- 2.5.3 The Silver Lane Brook starts at the southern end of the Proposed Development and is fed by a 900mm diameter culvert which receives surface water flows from the restored Risley Landfill to the west. This watercourse has a variable channel profile, typically having a base width of 1m or more and a depth of 0.8m or more. The watercourse's longitudinal gradient varies between 1 in 600 to 1 in 2000. There are a number of culverted crossing points allowing access to the eastern field.
- 2.5.4 The Silver Lane Brook, after passing the north west corner of the Proposed Development, flows north into Willow Brook which in turn flows eastward to Glaze Brook, which is approximately 1.4km east of the Proposed Development.
- 2.5.5 An unnamed watercourse also runs approximately three quarters of the length of the Proposed Development along the eastern boundary from the south to north. At this point it is culverted to the north and is understood to discharge to the Silver Lane Brook to the north of the Proposed Development. A culvert to the south end of the watercourse also exists and this connects into the motorway drainage system to the south via a backdrop. The watercourse falls from south to north and was observed to be dry during a site visit described in the August 2019 Flood Risk Assessment and Drainage Strategy Report<sup>2</sup>. This watercourse has never been observed to be holding water.

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<sup>2</sup> Wardell Armstrong, 2019. EXTRA MSA GROUP Warrington MSA, J11 M62 Flood Risk Assessment and Surface and Foul Water Drainage Strategies, August 2019 (ref. SH11739 Appendix 3.1 V4.0 (final))

## **2.6 Hydrogeology**

2.6.1 The Proposed Development is located upon the Helsby Sandstone Formation, a designated Principal aquifer which provides the water resource for private and public water supplies in the regional vicinity of the Proposed Development. The Proposed Development is located within Source Protection Zone 3 (SPZ 3) of two abstractions operated by United Utilities (New Land End, Houghton Green). The Helsby Sandstone is overlain by peat and glacial till which forms a stiff clay unit between 7 and 13m thick which confines the sandstone. The public water supplies and other controlled water receptors are recognised as sensitive and important groundwater receptors and resources.

## **2.7 Designated Ecological Sites**

2.7.1 The Proposed Development lies within 5km of Manchester Mosses SAC and within 2km of Risley Moss SSSI and LNR and Holcroft Moss SSSI. Beyond the M62 Motorway, to the south of the Proposed Development is Pestfurlong Moss, a Local Wildlife Site. To the north west of the Proposed Development is Silver Lane Risley, which is also a Local Wildlife site and incorporates the ponds to the north of the restored landfill site.

### **3 PROPOSED DEVELOPMENT**

#### **3.1 Silver Lane Brook Diversion**

- 3.1.1 The following description of the Silver Lane Brook diversion is extracted from the Wardell Armstrong report entitled Flood Risk Assessment and Surface and Foul Water Drainage Strategies (Version 4 Final) forming Appendix 3.1 to the Environmental Statement, which is illustrated by Drawing SH11739-002D entitled 'Brook Diversion Layout and Sections' shows the preliminary diversion proposals.
- 3.1.2 Part of the development proposal is to divert the Silver Lane Brook around the eastern Proposed Development boundary. The existing brook is a relative narrow, channel width being 1m or more, with a longitudinal gradient range between approximately 1 in 600 and 1 in 2000. The channel has two culverted crossings allowing access into the eastern agricultural fields.
- 3.1.3 As noted previously, the brook receives clean surface water flows from the Biffa restored Risley landfill site's surface water drainage system, via a half-submerged 900mm diameter inlet pipe to the south western corner of the Proposed Development. The water entering the brook is relatively clean as it has travelled through a variety of treatments within the landfill restoration area that removed debris and silts.
- 3.1.4 To divert the brook around the eastern boundary, the average longitudinal gradient will be approximate 1 in 1300 which is within the current range of the existing brook.
- 3.1.5 The proposed brook diversion has been designed with an alignment that follows the eastern boundary of the development with localised widening provided at available points to offer landscaping opportunities.
- 3.1.6 One culverted crossing is included in the design to allow access to the eastern land and the gas main. This culvert will be sized as per the inlet of the watercourse, 900mm diameter minimum, to replicate the existing flow capacity.
- 3.1.7 No development proposals exist to the eastern side of the brook diversion while to the west generally only the proposed development's access road and landscaping is in close proximity. The access road and landscaping areas will facilitate direct maintenance access to the brook with minimal environmental impact expected. No buildings are proposed near to the diverted brook.

- 3.1.8 The design ensures that the brook diversion mimics the existing brook's flow characteristics, is not a flood risk source and can be maintained throughout the life of the development.
- 3.1.9 The length of the diverted brook will be inspected as part of a site inspection programme to check that it is performing satisfactorily with no signs of silt/debris build up within the channel, to grilles or culverts. The inspection will include checking of the channel, banks and structures to ensure no scouring or damage is taking place.



## 4 REVIEW OF THE RIVER BASIN MANAGEMENT PLAN AND CATCHMENT

### 4.1 Surface Water

- 4.1.1 The Proposed Development is located within the North West River Basin District, which is monitored by the Environment Agency (EA)<sup>3</sup> under the WFD and the results of the WFD classification are summarised in the North West River Basin Management Plan (RBMP). The Proposed Development is in the 'Mersey Lower' management catchment, the 'Glaze' operational catchment, and the 'Glaze' surface water body (ID: GB112069061420).<sup>4</sup> The Glaze surface water body is 39.36km<sup>2</sup> in area and the river is 16.75km in length. A summary of the Glaze surface water body can be found in Table 4.1.
- 4.1.2 In terms of pressures identified by the WFD, the Glaze surface water body is At Risk or Probably At Risk from eutrophication, suspended sediment, physical modification, invasive species, Benzo(a)pyrene and nickel.
- 4.1.3 The WFD objectives are detailed in Table 4.1. The overall objective set by the EA for the Glaze surface water body is Poor by 2015. This indicates the adoption of less stringent environmental objectives under Article 4.4 of the WFD for the reason of the less stringent objective as 'Disproportionate Burdens' where the WFD timescales for achievement of Good Ecological Status (GES) is 'unreasonable'. In the case of the individual status elements for the Glaze water body, there is 'No known technical solution available'.

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<sup>3</sup> Environment Agency (2019) Catchment Data Explore: North West River Basin District [online]. Accessed 16/04/2019. Available at: <https://environment.data.gov.uk/catchment-planning/RiverBasinDistrict/12>

<sup>4</sup> Environment Agency (2019) Catchment Data Explore: Glaze [online]. Accessed 16/04/2019. Available at: <https://environment.data.gov.uk/catchment-planning/Water body/GB112069061420>

**Table 4.1: WFD Status of Glaze Surface Water body**

Classification Element	2013 Cycle	2014 Cycle	2015 Cycle	2016 Cycle	Objectives	Reasons
<b>Overall Water body</b>						
Overall Water body	Moderate	Poor	Poor	Poor	Poor by 2015	Disproportionate burdens. No known technical solution is available
<b>Ecological</b>						
Biological quality elements	Moderate	Poor	Poor	Poor	Poor by 2015	No known technical solution is available
Fish	Moderate	Moderate	Moderate	Poor	Moderate by 2015	No known technical solution is available
Invertebrates		Poor	Poor	Poor	Poor by 2015	No known technical solution is available
Macrophytes and Phytobenthos	Good	Good	Moderate	Poor	Good by 2015	-
Hydromorphological supporting elements	Supports Good	Supports Good	Supports Good	Supports Good	Supports Good by 2015	-
Physico-chemical quality elements	Moderate	Moderate	Moderate	Moderate	Moderate by 2015	Disproportionate burdens. No known technical solution is available
Ammonia	Good	Moderate	Moderate	Moderate	Good by 2027	Disproportionate burdens.
Phosphate	Poor	Poor	Poor	Poor	Poor by 2015	No known technical solution is available
Specific pollutants	Moderate	Moderate	High	High	High by 2015	
<b>Chemical</b>						
Priority substances	Fail	Fail	Good	Good	Good by 2015	
Other pollutants	DNRA*	DNRA	DNRA	DNRA	DNRA	
Priority hazardous substances	Good	Good	Good	Good	Good by 2015	
<b>Note</b>						
*DNRA: Does Not Require Assessment						

4.1.4 The EA have reported a list of reasons why rivers in the Glaze water body have failed to achieve good WFD status and reasons for deterioration<sup>4</sup>, which are presented in Table 4.2.

<b>Year</b>	<b>Classification Element Affected</b>	<b>Sector</b>	<b>Activity</b>
2014	Phosphate	Waste water treatment	Water Industry
2014	Phosphate	Unknown (pending investigation)	Agriculture and rural land management
2014	Phosphate	Urbanisation - urban development	Urban and transport
2014	Macrophytes and Phytobenthos Combined	Sewage discharge (continuous)	Water Industry
2014	Fish	Barriers - ecological discontinuity	Industry
2014	Ammonia (Phys-Chem)	Urbanisation - urban development	Urban and transport
2014	Biochemical Oxygen Demand (BOD)	Sewage discharge (intermittent)	Water Industry
2014	Invertebrates	Sewage discharge (intermittent)	Water Industry
2014	Fish	Sewage discharge (intermittent)	Water Industry
2014	Invertebrates	Urbanisation - urban development	Urban and transport
2014	Invertebrates	Transport Drainage	Urban and transport

4.1.5 The EA have provided information on the planned Programme of Measures for the Glaze water body, which is summarised in Table 4.3. For the Glaze water body, there is only one measure planned under the current river basin management cycle, which is in relation to phosphorus reduction in the Glazebury WwTW. The other measures in Table 4.3 are for upstream or adjacent water bodies. None of the measures planned are for the downstream Mersey/Manchester Ship Canal (Irwell/Manchester Ship Canal to Bollin) water body.

**Table 4.3: Summary of Programme of Measures in the Glaze Operational Catchment**

<b>CPS Action ID</b>	<b>Water Body</b>	<b>Title</b>	<b>Measure Aim</b>
<b>19758</b>	Astley Brook (Mersey)	Astley Brook 1: diffuse agricultural pollution	1. To control or manage diffuse source inputs 2. Reduce diffuse pollution at source 3. Field & Crop - Arable soils
19761	Astley Brook (Mersey)	Astley Brook 4 – Worsley WwTW P Reduction	1. To control or manage point source inputs 2. Mitigate/Remediate point source impacts on receptor 3. Install nutrient reduction
<b>19764</b>	Astley Brook (Mersey)	Astley Brook 7 – Tyldesley WwTW P Reduction	1. To control or manage point source inputs 2. Mitigate/Remediate point source impacts on receptor 3. Install nutrient reduction
<b>19767</b>	Bedford Brook	Bedford Brook 12 - WIG0082 CSO Improvements	1. To control or manage point source inputs 2. Mitigate/Remediate point source impacts on receptor 3. Change timing or frequency of discharge
<b>20832</b>	Hey/Borsdane Brook	Hey/Borsdane Brook 17 - Hindley Pumping Station CSO Improvements	1. To control or manage point source inputs 2. Mitigate/Remediate point source impacts on receptor 3. Change timing or frequency of discharge
<b>19770</b>	Pennington Brook (Glaze)	Pennington Brook (Glaze) 19 - WIG0074 CSO Improvements	1. To control or manage point source inputs 2. Mitigate/Remediate point source impacts on receptor 3. Change timing or frequency of discharge
<b>39165</b>	Pennington Brook (Glaze)	Pennington Brook (Glaze) 72 - Leigh WwTW P Reduction	1. To control or manage point source inputs 2. Mitigate/Remediate point source impacts on receptor 3. Install nutrient reduction
19771	Glaze	River Glaze 23 – Glazebury WwTW P Reduction	1. To control or manage point source inputs 2. Mitigate/Remediate point source impacts on receptor 3. Install nutrient reduction
19775	Westleigh Brook	Westleigh Brook 28: weir removal	1. To improve modified habitat 2. Removal or easement of barriers to fish migration 3. Enable fish passage (e.g. fish pass)
<b>19776</b>	Westleigh Brook	Westleigh Brook 29 - Westhoughton WwTW P Reduction	1. To control or manage point source inputs 2. Mitigate/Remediate point source impacts on receptor 3. Install nutrient reduction

## 4.2 Groundwater

4.2.1 The Proposed Development is located within the 'North West' groundwater management catchment, the 'Mersey Basin Lower and Merseyside North Permo-Triassic Sandstone Aq' operational catchment, and the 'Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers' groundwater body (ID: GB41201G101700).<sup>5</sup> This groundwater body is 627.5km<sup>2</sup> in area and a summary of the WFD Status and environmental objectives (together with published reasons for derogations) can be found in Table 4.4.

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<sup>5</sup> Environment Agency (2019) Catchment Data Explore: Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers [online]. Accessed 16/04/2019. Available at: <https://environment.data.gov.uk/catchment-planning/Water body/GB41201G101700>

<b>Table 4.4: WFD Status of Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers Groundwater Body</b>						
<b>Classification Element</b>	<b>2013 Cycle</b>	<b>2014 Cycle</b>	<b>2015 Cycle</b>	<b>2016 Cycle</b>	<b>Objectives</b>	<b>Reasons</b>
<b>Overall Water body</b>						
Overall Water body	Poor	Poor	Poor	Poor	Good by 2027	Cause of adverse impact unknown
<b>Quantitative</b>						
Quantitative Saline Intrusion	Poor	Poor	Poor	Poor	Good by 2027	Cause of adverse impact unknown
Quantitative Water Balance	Good	Good	Good	Good	Good by 2015	Cause of adverse impact unknown
Quantitative GWDTes test	Good	Good	Good	Good	Good by 2015	
Quantitative Dependent Surface Water body Status	Good	Good	Good	Good	Good by 2015	
<b>Chemical (GW)</b>						
Chemical Drinking Water Protected Area	Poor	Poor	Poor	Poor	Good by 2027	Disproportionate burdens
General Chemical Test	Good	Good	Good	Good	Good by 2015	
Chemical GWDTes test	Good	Good	Good	Good	Good by 2015	
Chemical Dependent Surface Water body Status	Poor	Poor	Poor	Poor	Good by 2027	Cause of adverse impact unknown
Chemical Saline Intrusion	Poor	Poor	Poor	Poor	Good by 2027	Cause of adverse impact unknown

4.2.2 The EA have reported a list of reasons why the Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers groundwater body failed to achieve good WFD status and reasons for deterioration,<sup>5</sup> which are presented in Table 4.5.

<b>Table 4.5: Reasons why Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers groundwater body failed to achieve Good WFD Status</b>			
<b>Year</b>	<b>Classification Element Affected</b>	<b>Sector</b>	<b>Activity</b>
2014	Chemical Drinking Water Protected Area	Wastewater treatment Other	Water Industry
2014	Chemical Drinking Water Protected Area	Unknown (pending investigation)	Other
2014	Chemical Drinking Water Protected Area	Private Sewage Treatment	No sector responsible
2014	Chemical Drinking Water Protected Area	Poor nutrient management	Agriculture and rural land management
2014	Quantitative Saline Intrusion	Saline or other intrusion	No sector responsible
2014	Chemical Drinking Water Protected Area	Poor pesticide management	Agriculture and rural land management
2015	Chemical Saline Intrusion	Saline or other intrusion	No sector responsible
2015	Chemical Dependent Surface Water Body Status	Unknown (pending investigation)	Sector under investigation
2015	Trend Assessment	Unknown (pending investigation)	Sector under investigation

## 5 WATER FRAMEWORK DIRECTIVE SCREENING ASSESSMENT

5.1.1 The Environment Agency's 'Water Framework Directive Risk Assessments: How to Assess the Risk of your Activity'<sup>6</sup> (April 2016) provides guidance as to how to undertake a WFD Assessment. The guidance identifies four stages:

- 1) make sure that the assessment covers the receptors that are protected by WFD;
- 2) demonstrate that the activity supports the objectives of the local River Basin Management Plan (RBMP). The wider environmental objectives of the RBMPs that are relevant to physical works are:
  - i. to prevent deterioration of the status or potential of surface waters and groundwater; and
  - ii. to aim to achieve good status for all water bodies (or for heavily modified water bodies and artificial water bodies, good ecological potential) and good surface water chemical status;
- 3) if a high level of confidence that your activity supports the objectives of your RBMP cannot be reached then you need to carry out more investigation into the risks on WFD receptors and possible ways of managing those risks. After amending the project to avoid, minimise, mitigate or compensate for the risks to WFD receptors the following questions need to be addressed:
  - i. could the activity still cause a water body (catchment/sub-catchment) to deteriorate from one WFD status class to another or cause significant localised impacts that could contribute to this happening?
  - ii. could the activity prevent or undermine action to get water bodies to good status? and
- 4) if the answer to the above questions is yes and your activity still does not support RBMP objectives, it will need to be demonstrated that the project meets the sustainability criteria set out in Article 4(7) of the WFD. Article 4(7) sets out stringent environmental and socio-economic tests to assess if a scheme meets strict environmental and sustainability criteria.

5.1.2 Table 6.1 summarises the risk that the development may have on the Glaze surface water body achieving its objectives. Table 6.2 summarises the risk from the

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<sup>6</sup> Environment Agency (2016) Water Framework Directive Risk Assessment: How to Assess the Risks of your Activity [online]. Accessed 15/04/2019. Available at: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/522426/LIT\\_10445.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/522426/LIT_10445.pdf)



development on the Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers groundwater body from achieving its objectives.

## **5.2 Stage 1**

5.2.1 The WFD protects the surface waterbodies and groundwater bodies. This assessment covers the Glaze surface water body (ID: GB112069061420) and the Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers groundwater body (ID: GB41201G101700), therefore the assessment covers the appropriate receptors protected by the WFD.

## **5.3 Stage 2: Surface Water - Deterioration**

5.3.1 In relation to the potential for deterioration in WFD status, the following section describes the assessment for each construction or operation phase activity in terms of the WFD status elements, which are summarised in the screening summary table (Table 6.1). The approach of this section is to assess potential impacts to identified water environment receptors through the WFD screening assessment, whether that be for aquatic ecology, water quality or hydromorphology.

### **Construction phase**

5.3.2 The following potential construction phase activities have been identified for the Proposed Development:

- Earthworks including excavations.
- Dewatering of excavations.
- Use of machinery and storage of chemicals on Proposed Development.
- Soil stripping and vegetation removal.
- Soil compaction.
- Construction of impermeable surfaces such as roads / pavements.
- Construction of subsurface infrastructure such as foundations.
- Use of cement and concrete and lime stabilisation.
- Removal of peat (used in habitat enhancement).
- Gas pipeline – retaining wall in peat.

- Working in proximity to the water environment associated with the river diversion.
- Working in proximity to the water environment associated with watercourse crossing.

5.3.3 The following presents the above construction activities in terms of the WFD status classification elements that could be affected (Table 6.1).

5.3.4 **Biological Quality Elements:** Ecological surveys undertaken for the Proposed Development are summarised in the Environmental Statement, Part 2 – Ecology and Nature Conservation (Technical Paper 5, dated 22<sup>nd</sup> August 2019) and were as follows. The Preliminary Ecological Appraisal evaluated the presence of Aquatic Invertebrates (relevant to the WFD Assessment) as well as Protected Species including Great Crested Newts, Water Voles and Wintering Birds (not considered in WFD Classification). In terms of receptors identified on Proposed Development, water vole and great crested newt were not observed in the Silver Lane Brook and are considered highly unlikely to be present at the Proposed Development, there is a lack of suitable habitat for great crested newt and no evidence of water vole presence was observed during the surveys.. Therefore, these were scoped out of the assessment.

5.3.5 With regard to outcomes of the aquatic ecology survey for the WFD Ecological Elements, these are summarised in Table 5.1, outlined below and full detail of the survey work is provided in Appendix 1.

5.3.6 A fish survey was not undertaken of the Silver Lane Brook, due to the poor supporting habitats i.e. variable flow and shallow environment (ditch) that comprises the Silver Lane Brook in its headwaters adjacent to the Proposed Development. The only fish life in this watercourse that is considered likely to be present are Stickleback. Therefore, this type of receptor was scoped out of the ES assessment.

5.3.7 Aquatic invertebrates remained scoped into the assessment; specifically regarding the loss of habitats supporting aquatic invertebrates. Approximately 755m of the Silver Lane Brook will also be removed to accommodate the Development and diverted along the eastern boundary of the Proposed Development, which was assessed in the ES to result in a Minor Adverse (Not Significant) effect, in the absence of mitigation. The invertebrate survey report confirms that there are no likely populations of note within the Proposed Development. Therefore, any effects upon the aquatic

invertebrates would be considered to be short-lived and reversible from the construction for the Silver Lane Brook diversion, therefore, no deterioration in status is expected for the local Silver Lane Brook or the wider River Glaze water body.

<b>Table 5.1: Summary of Aquatic Ecological Survey by Harris Lamb (Appendix 1) and Assessment Outcomes for WFD Ecological Elements</b>			
<b>WFD Element</b>	<b>Ecological Quality</b>	<b>Element Name</b>	<b>Assessment of impacts</b>
Biological Element	Quality	Macrophytes and Phytobenthos	The proposed channel realignment will remove the existing macrophytes and phytobenthos from the channel in its current location. Upon reinstatement of the new channel it is considered that the flora will readily colonise the new channel. This would be aided by additional planting and reseedling of the banks where appropriate. Therefore, impacts will be temporary in nature and the new channel can be designed to allow greater diversity in macrophyte assemblages. No significant long-term negative impacts upon macrophytes or phytobenthos are anticipated and increased biodiversity is likely to be seen as a result of the Assessment of impacts development. Hence, no significant impacts upon macrophytes or phytobenthos are anticipated.
		Fish	No fish were noted within the watercourse during the site visit and due to the ditch like nature of the watercourse it is expected that only small numbers of robust species such as stickleback ( <i>Gasterosteidae</i> ) would be present in the reach. During works to protect and remove fish from risk of harm, the channel will be electro-fished prior to the channel being drained. Fish would be placed downstream and following the channel works they would be able to readily recolonise the site. No significant impacts upon fish are anticipated [SCREENED OUT].
		Invertebrates	The repositioning of the channel would remove invertebrates from the works footprint in the short term. However, following opening of the new channel the habitats have been designed to improve channel morphology which will be of benefit to invertebrates. Due to the ephemeral nature of invertebrates, recolonisation is anticipated to occur readily upon completion of the works and no long-term negative impacts are anticipated. No significant impacts upon benthic invertebrates are expected.

<b>Table 5.1: Summary of Aquatic Ecological Survey by Harris Lamb (Appendix 1) and Assessment Outcomes for WFD Ecological Elements</b>		
<b>WFD Ecological Element</b>	<b>Element Name</b>	<b>Assessment of impacts</b>
Hydromorphological Supporting Elements	Hydrological Regime	The new channel will be designed to improve morphology and no impacts are anticipated that could affect the hydrological regime of the watercourse in this location. The hydrological regime is expected to remain the same as it is currently albeit within the new channel location.
	Morphology - River depth and width variation	Currently the channel is straightened and shows previous management to function as a drainage ditch for the surrounding agricultural land. The new channel will be designed to increase the river length and provide additional morphological features. For example, variation in flow types will be encouraged by increasing sinuosity of the channel and through the installation of deflectors where appropriate.
	Morphology - Structure and substrate of the riverbed	Although the channel is being moved, the structure and substrate of the riverbed will be kept the same and no significant changes to this aspect of river morphology are anticipated.
	Morphology - Structure of the riparian zone	The riparian zone will be altered, but the design will be to increase the diversity and improve structure of the riparian zone from its current condition. Planting schemes will be developed to enhance the riparian zone and ensure a buffer between the development and the watercourse.

**5.3.8 Biological Quality Elements, Physico-chemical Quality Elements:** Earthworks, excavations, soil stripping and construction of structures have the potential to result in the release of silt-laden water (from dewatering or unmitigated Proposed Development runoff), concrete/lime leachate (from construction or lime stabilisation of soil) or hydrocarbons (from leaks and spills from machinery) to surface water to either the existing or diverted Silver Lane Brook. However, best practice sediment management incorporating settlement and, if required, active treatment (e.g. by Siltbuster) and on-Proposed Development fuel storage and refuelling in accordance with The Control of Pollution (Oil Storage) (England) Regulations 2001 would be implemented through strict adherence to the Proposed Development's Construction Environmental Management Plan (CEMP).

- 5.3.9 **Hydromorphological Supporting Elements:** The Proposed Development includes the diversion of 755m of the Silver Lane Brook. The channel of the existing brook has already been modified comprising a linear ditch along the toe of the former Risley Landfill. Hydromorphological Elements are responsible principally for distinguishing between Good Status and High Status, so does not contribute to the status definition of status below Good status<sup>7</sup>. However, further discussion will be given to this element in the Operation phase section below.
- 5.3.10 **Hydromorphological Supporting Elements, Biological Quality Elements:** The watercourse crossing required for access to the area between the Proposed Development and the eastern land for maintenance and access to the gas main for National Grid is proposed as a culvert (or a bridge). The crossing will only be installed prior to flow diversion to prevent pollution of the watercourse by suspended sediments from in channel works during construction. No deterioration in status is expected as a result of the construction of the watercourse crossing.
- 5.3.11 **Physico-chemical Quality Elements:** In relation to the Peat Habitat Zone (PHZ) construction to the east of the Proposed Development, the related PHZ piling and bunding will be completed in a phased manner with the peat removal and clay/structural fill replacement being completed prior to the watercourse diversion. Once the fill has been placed then the watercourse diversion will most likely be completed. On this basis there should not be any impact on water quality. As there is no interaction predicted between the PHZ and the diverted watercourse, it is likely that there will be no status deterioration for the local Silver Lane Brook. However, further checks will be required in relation to the watercourse tie in works at the detailed design stage.
- 5.3.12 As such, potential impacts from construction activities that could impact water quality and WFD status on the spatial scale (both local and water body scale) and over the timescale of surface WFD water classification (3 years) are considered unlikely to result in WFD status deterioration. In fact, for the Silver Lane Brook diversion there is the potential of betterment from the baseline condition of the existing Silver Lane Brook in relation to aspects like water quality, hydromorphology and aquatic ecology, that are included in the outline design of the Proposed Development and can be

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<sup>7</sup> Environment Agency, 2015. Rules for assessing Surface Water Body Status and Potential. Decision document for 2015 new building block (cycle 2) Water Framework Directive classifications Version 2.0 (updated October 2015)

refined in the detailed design of the diversion. This will be presented in the Operation phase assessment that follows.

### Operation phase

5.3.13 The following potential operation phase activities have been identified for the Proposed Development:

- Loss of hydrocarbons from motorised vehicles and fuel storage/refuelling facilities.
- De-Icing of roads, walkways and parking areas.
- Proximity to the water environment associated with river diversion and watercourse crossing.
- Peat used in habitat enhancement.
- New drainage regime in developed areas of the Proposed Development.
- Loss of aquatic invertebrate populations through accidental pollution and / or sediment transfer to surface water.

5.3.14 The following sections describe the elements of the design that address the above activities in terms of the WFD status classification elements:

5.3.15 **Priority Substances, Specific Pollutants:** There will be a surface water inlet to the diverted Silver Lane Brook watercourse (from a small headwall/inlet) from the on-site surface water system from the Proposed Development (excluding the petrol station forecourt as this will be taken to the foul sewer system). The Proposed Development surface water drainage will be pumped into the watercourse due to the difference levels between the surface water drains and the diverted watercourse. Potential WFD status elements that could be affected could be Priority Substances due to leaks of hydrocarbons and deposition of polycyclic aromatic hydrocarbons (PAHs) from vehicular exhausts and Specific Pollutants (heavy metals like copper from vehicles) transported in runoff from car parks. Water quality improvement measures proposed will include the use of SuDs across the Proposed Development where feasible to improve water quality for traces of hydrocarbons and heavy metals from parking areas and roadways. This will include the use of filter drains, swales, rills (in form of drainage channels), small dry basins, tanks (for water storage of significant storm events) and finally treatment through Class 1 petrol interceptors. The SuDS train should provide

attenuation of dissolved heavy metals and traces of hydrocarbons, whilst any free phase hydrocarbons will be separated out by the petrol interceptor. Therefore, no status deterioration is expected with respect to water quality impacts following implementation of these measures.

**5.3.16 Hydromorphological Supporting Elements:** Modest scour protection will be included in the diverted channel as required to protect the channel bed and banks from erosion during peak runoff events from the capping of the former Risley Landfill. The existing 900mm diameter Inlet will be retained as an existing structure including, if necessary, minor scour protection for the southern section of channel as flow makes a turn in the diverted channel at the southwest corner of the Proposed Development. No status deterioration is expected from changes in the hydromorphology following the establishment of the Silver Lane Brook diversion.

**5.3.17 Hydromorphological Supporting Elements:** The watercourse crossing required for access to the area between the Proposed Development and the eastern land for maintenance and access to the gas main for National Grid is proposed as a culvert (or a bridge) that is appropriately sized to avoid any reduction in the channel's capacity so that the channel can accommodate the envisaged flows. If the structure is to be a culvert, this would only be over a short length of watercourse, so limited debris would be expected, therefore no grilles would be proposed at either end of the crossing. No status deterioration is expected from changes in the hydromorphology resulting from the construction of the watercourse crossing.

**5.3.18 Hydromorphological Supporting Elements, Biological Quality Elements:** Retaining walls in the diverted channel: There are two lengths, to the southern boundary (70m) and also at the corner as the watercourse turns west at the northern end (40m) of retaining wall proposed in order to accommodate the channel in between the Proposed Development boundary and the road layout. Currently retaining structures are proposed to provide 0.5m and 1m of retaining height. However, this could result in the concern that this presents a reduction in the width of the riverbank area that could bring about further deterioration with respect to ecological elements of classification, albeit at the localised site scale. Further consideration would be given to the design of retaining structures and supplementary channel design features (e.g. as a low flow channel with enhanced habitat features) at the detailed design stage in order to provide a betterment where possible with respect to ecological status elements.

**5.3.19 Hydromorphological Supporting Elements:** Part of the existing watercourse will be retained in the north west of the Proposed Development under the drainage design. This retained section of Silver Lane Brook receives minor surface water runoff from the slopes from the restored landfill area and no base flow from the landfill surface water management system. This component of the design represents retained baseline conditions, so no status deterioration is expected as a result of this component.

**5.3.20 Physico-chemical Quality Elements:** As there is no interaction likely between the PHZ and the diverted watercourse, it is likely that there will be no status deterioration for the local Silver Lane Brook during the Operation phase.

#### **5.4 Stage 2: Surface Water - Hinderance of measures**

**5.4.1** The need to prevent any existing WFD programmes of measures (for improvement in status) being hindered by any of the activities during the Construction and Operation phases is the second general RBMP objective. The main reasons why the Glaze water body is not achieving Good WFD status are defined by the EA as sewage discharge and urbanisation (see Table 4.2) causing impacts on the phosphate, biochemical oxygen demand and ammonia status elements.

**5.4.2** Table 5.2 outlines the programme of measures that have been planned or are on-going for the Glaze Operational Catchment. Of the ten measures outlined, only one is applicable to the River Glaze water body or its downstream water body (Mersey/Manchester Ship Canal (Irwell/Manchester Ship Canal to Bollin). Measure 19771 for “Glazebury WwTW P Reduction” is a measure to counteract the failure of the phosphate element of classification resulting from the sewage discharges from the water industry. The capacity of the foul sewage infrastructure has been confirmed with the United Utilities water company<sup>8</sup>, which indicated that foul sewage is directed to a connection that is southwest of the Proposed Development, which indicates that this does not connect to the Glazebury WwTW and therefore does not hinder any of the programme of measures for the Glaze Operational Catchment.

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<sup>8</sup> Wardell Armstrong, 2019. EXTRA MSA GROUP - WARRINGTON MOTORWAY SERVICE AREA, UTILITIES ASSESSMENT, AUGUST 2019 (Ref. SH11739R02 V1.0).



**Table 5.2: Summary of Programme of Measures in the Glaze Operational Catchment**

<b>CPS Action ID</b>	<b>Water Body</b>	<b>Title</b>	<b>Applicable to River Glaze water body?</b>	<b>Reason</b>
19758	Astley Brook (Mersey)	Astley Brook 1: diffuse agricultural pollution	No	Not connected to River Glaze water body.
19761	Astley Brook (Mersey)	Astley Brook 4 – Worsley WwTW P Reduction	No	Not connected to River Glaze water body.
19764	Astley Brook (Mersey)	Astley Brook 7 – Tyldesley WwTW P Reduction	No	Not connected to River Glaze water body.
19767	Bedford Brook	Bedford Brook 12 - WIG0082 CSO Improvements	No	Upstream water body.
20832	Hey/Borsdane Brook	Hey/Borsdane Brook 17 - Hindley Pumping Station CSO Improvements	No	Upstream water body.
19770	Pennington Brook (Glaze)	Pennington Brook (Glaze) 19 - WIG0074 CSO Improvements	No	Upstream water body.
39165	Pennington Brook (Glaze)	Pennington Brook (Glaze) 72 - Leigh WwTW P Reduction	No	Upstream water body.
19771	Glaze	River Glaze 23 – Glazebury WwTW P Reduction	Yes	
19775	Westleigh Brook	Westleigh Brook 28: weir removal	No	Upstream water body.
19776	Westleigh Brook	Westleigh Brook 29 - Westhoughton WwTW P Reduction	No	Upstream water body.

## 5.5 Stage 2: Groundwater - Deterioration

5.5.1 The WFD objectives for the Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers groundwater body are detailed in Table 4.4. The overall objective set by the Environment Agency is Good by 2027.

5.5.2 The main reasons why the Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers groundwater body is not achieving Good WFD status is defined by the EA as agriculture and sewage treatment, however the reason for failure of three classification elements is unknown (pending investigation) (see Table 4.5).

### Construction phase

5.5.3 The principal effects considered during the groundwater assessment for the Construction phase were as follows:

- Earthworks including excavations.

- Dewatering of excavations.
- Use of machinery and storage of chemicals on Proposed Development.
- Soil stripping and vegetation removal.
- Soil compaction.
- Construction of impermeable surfaces such as roads / pavements.
- Construction of subsurface infrastructure such as foundations.
- Use of cement and concrete and lime stabilisation.
- Removal of peat (used in habitat enhancement).
- Gas pipeline – retaining wall in peat.
- Installation of underground fuel storage tanks.

5.5.4 Groundwater in the Helsby Sandstone Formation bedrock was identified as the At Risk Receptor in the ES for Earthworks including excavations, Dewatering of excavations, Use of machinery and storage of chemicals on site, Construction of impermeable surfaces such as roads / pavements, Construction of subsurface infrastructure such as foundations, Use of cement and concrete. For each of these potential effects scoped in, the Significance of Effect was assessed as Minor Adverse (High confidence) or Negligible, which was deemed to be Not Significant. The other potential effects were scoped out for the Principal Aquifer.

### **Operation phase**

5.5.5 The principal effects considered during the groundwater assessment for the Operation phase were as follows:

- Loss of hydrocarbons from motorised vehicles and fuel storage/refuelling facilities (including underground fuel storage tanks).
- De-Icing of roads, walkways and parking areas.
- Peat used in habitat enhancement.
- New drainage regime in developed areas of the Proposed Development.

5.5.6 **General Chemical Test**, Groundwater in the Helsby Sandstone Formation bedrock was identified as the At Risk Receptor in the ES for Use of motorised vehicles and storage of fuel and chemicals, De-Icing of roads and walkways and parking areas For each of

these potential effects scoped in, the Significance of Effect was assessed as Minor Adverse (High confidence) or Negligible, which was deemed to be Not Significant.

- 5.5.7 **Quantitative Water Balance:** Creation of new drainage regime in developed areas of the Proposed Development was assessed as Minor Adverse (High confidence) or Negligible, which was deemed to be Not Significant.
- 5.5.8 The other potential effects identified in the ES were scoped out for the Principal Aquifer.
- 5.5.9 **General Chemical Test, Chemical Drinking Water Protected Area:** The underground fuel storage tanks required additional assessment, which was undertaken as a Conceptual Site Model Report<sup>9</sup>. The results of the assessment conclude a negligible to low risk, travel times in the aquifer are long and likely to result in degradation and complete contaminant destruction of the principal risk drivers. Also, the aquifer quality is compromised in the downgradient area due to Risley landfill meaning it is implausible to consider a future water resource development in close proximity to the Proposed Development.

## 5.6 Stage 3

- 5.6.1 The Proposed Development, as indicated throughout the Environmental Statement (ES), would be designed and constructed in line with appropriate guidance and legislation. A Construction Environmental Management Plan (CEMP) (or equivalent) would include appropriate pollution prevention measures, which would prevent polluting materials from entering into the water environment, or minimise the effect if accidental pollution were to occur. The Proposed Development has been designed with appropriate drainage design including the incorporation of SuDS, which would mimic the natural hydrological regime.
- 5.6.2 Therefore, the Proposed Development is unlikely to cause a deterioration in WFD status class or prevent waterbodies in these catchments from achieving their WFD objectives.

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<sup>9</sup> Wardell Armstrong, 2020. EXTRA MSA GROUP, WARRINGTON MSA J11/M62, CONCEPTUAL SITE MODEL REPORT, JANUARY 2020 (Ref. SH11739R019 V2.0)

## **5.7 Stage 4**

5.7.1 Stage 4 is not required.

## 6 CONCLUSION

- 6.1.1 The Proposed Development has been determined to have no effects that are likely to cause deterioration in WFD status or prevent waterbodies from achieving their WFD objectives, provided that best practice and established guidance is adhered to.
- 6.1.2 Bodies of water within the WFD water body have been assessed attributing equal importance whether a watercourse was a headwater tributary or the main river channel that is the reporting unit for WFD classification.
- 6.1.3 The WFD Screening Assessment has presented the assessment for the local scale Silver Lane Brook and the River Glaze on the water body scale. At either scale, no effect has been identified that risks causing deterioration in WFD status at either spatial scale. The construction and operation phase activities assessed are broadly similar to those presented in the Environmental Statement, which provided impact assessment outcomes with High Confidence. In addition, the assessment for surface water was made for durations appropriate to the temporal scale of the surface water classification cycle (3 years) and the groundwater classification cycle (6 years).
- 6.1.4 For surface water, the risk of status deterioration for aquatic ecological, water quality and hydromorphological elements was assessed. For aquatic ecological elements, ecological surveys determined that the Proposed Development did not contain protected species or vulnerable receptors that would be impacted by the construction or operation of the Proposed Development. The diversion of the Silver Lane Brook has been assessed and found to be a short-lived and reversible effect for aquatic ecological receptors. Similarly, for hydromorphological elements, the construction will result in a channel form that is likely to lead to betterment, rather than deterioration. It should be noted that the purpose of hydromorphological elements are for defining High status or Supports Good. For surface water quality elements, the assessment presents the risk of deterioration in relation to suspended sediments (silt laden water discharges during construction), hydrocarbons (from construction plant leaks, operation phase car parks and refuelling facilities), and heavy metals (operation phase car parks). These effects are effectively mitigated by the Construction Environmental Management Plan and during operation phase the Sustainable Drainage System train of treatment culminating in a Class I Petrol Interceptor, prior to discharge to the diverted Silver Lane Brook.

- 6.1.5 The only measure from the WFD programme of measures that applies to the River Glaze surface water body is the Phosphorus Reduction in the Glazebury WwTW measure, which is not relevant to the Proposed Development that would not affect or be served by the Glazebury WwTW.
- 6.1.6 Although groundwater in the Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers groundwater body is within a Principal Aquifer and a Source Protection Zone (SPZ 3), the site is overlain by a 7-13m thick cover of clay-rich Till which provides the groundwater with effective protection from groundwater pollutants. The assessment, which included the assessment of the installation and operation of underground fuel storage tanks within the Till, concluded that no deterioration in WFD status was likely from the Proposed Development.

**Table 6.1: WFD Assessment Summary Table for Glaze Surface Water body (following implementation of CEMP)**

Activities	WFD objective*						
	Ecological				Chemical		
	Biological quality elements	Hydromorphological supporting elements	Physio-chemical quality elements	Specific pollutants	Priority substances	Other Pollutants	Priority hazardous substances
	Poor by 2015	Supports Good by 2015	Moderate by 2015	High by 2015	Good by 2015	Does not require assessment	Good by 2015
<b>Construction Phase</b>							
Earthworks including excavations	L	N/A	N/A	N/A	N/A	DNRA	N/A
Dewatering of excavations	N/A	N/A	L	N/A	N/A	DNRA	N/A
Loss of hydrocarbons from motorised vehicles and fuel storage/refuelling facilities	L	N/A	L	L	L	DNRA	L
Soil stripping and vegetation removal	N/A	N/A	L	N/A	N/A	DNRA	N/A
Soil compaction	N/A	L	L	N/A	N/A	DNRA	N/A
Construction of impermeable surfaces such as roads / pavements	L	N/A	L	N/A	N/A	DNRA	N/A
Construction of subsurface infrastructure such as foundations.	L	N/A	L	N/A	N/A	DNRA	N/A
Use of cement and concrete/lime stabilisation	L	N/A	L	N/A	N/A	DNRA	N/A
Removal of peat (used in habitat enhancement).	L	N/A	L	L	L	DNRA	L
Gas pipeline – retaining wall in peat	L	N/A	L	L	L	DNRA	L
Working in proximity to the water environment associated with the river diversion	L	L	L	N/A	N/A	DNRA	L
Working in proximity to the water environment associated with watercourse crossing	L	L	L	N/A	N/A	DNRA	L
<b>Operation Phase</b>							
Loss of hydrocarbons from motorised vehicles	L	N/A	L	L	L	DNRA	L
De-icing of roads, walkways and parking areas	L	N/A	L	L	L	DNRA	L
Proximity to the water environment associated with river diversion.	L	L	L	L	L	DNRA	L
Proximity to the water environment associated with watercourse crossing.	L	L	L	L	L	DNRA	L
Peat used in habitat enhancement	N/A	N/A	N/A	N/A	N/A	DNRA	N/A
Gas pipeline – retaining wall in peat	N/A	N/A	N/A	N/A	N/A	DNRA	N/A
New drainage regime in developed areas of the Proposed Development	L	L	L	N/A	N/A	DNRA	N/A
<b>Note</b>							
* From Environment Agency's RBMP.							
L - Low risk following implementation of best practice construction measures to be detailed in CEMP.							
RPS – Regulatory Position Statement (for dewatering clean groundwater and discharging to surface water)							
DNRA	Does not require assessment.						
N/A	WFD Element is not applicable to this activity.						
L	Low risk of deterioration from current surface water body WFD status.						
M	Medium risk of deterioration from current surface water body WFD status.						
H	High risk of deterioration from current surface water body WFD status.						

**Table 6.2: WFD Assessment Summary Table for Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers Groundwater Body**

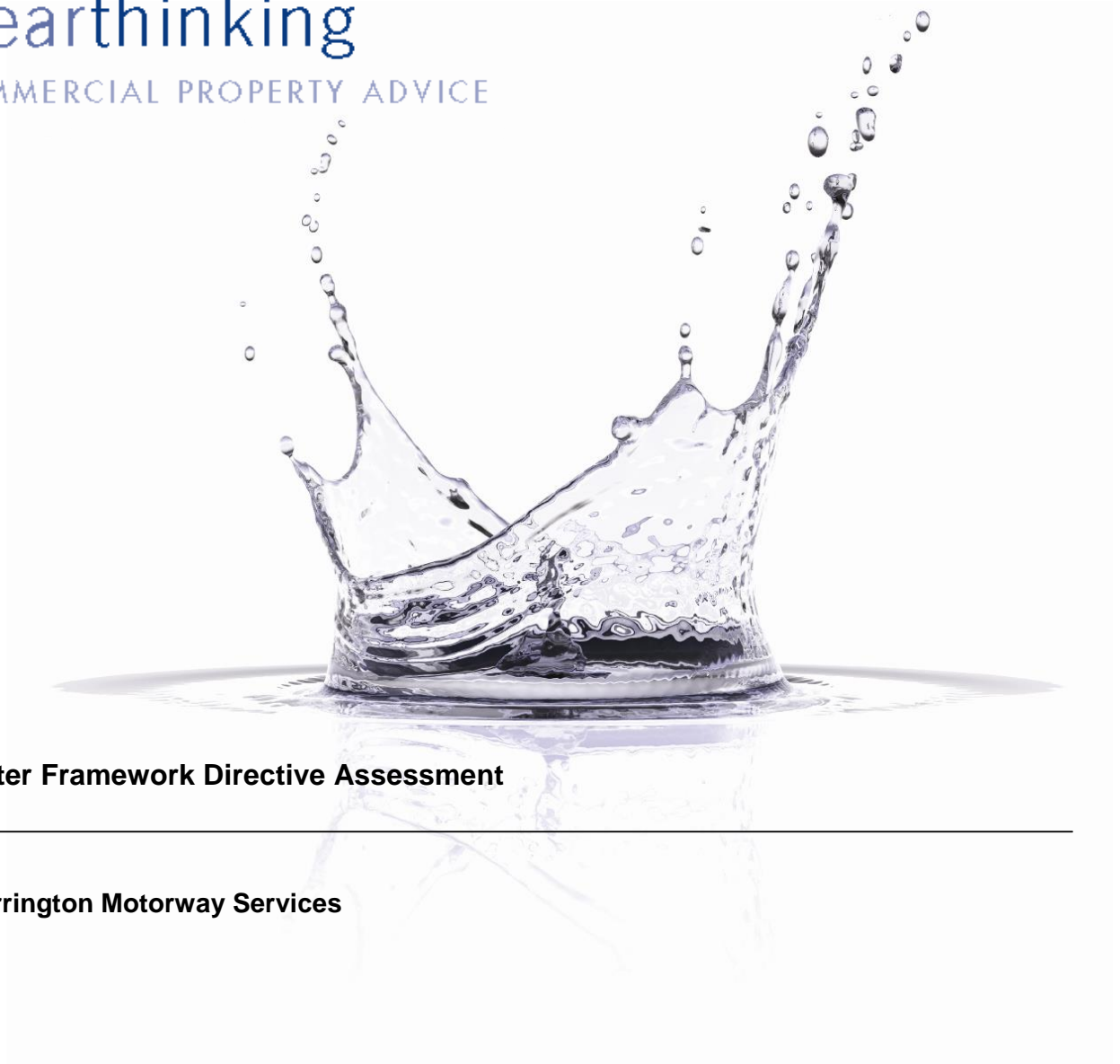
Activities	WFD objective*								
	Quantitative				Chemical				
	Quantitative Saline Intrusion	Quantitative Water Balance	Quantitative GWDTes test	Quantitative Dependent Surface Water body Status	Chemical Drinking Water Protected Area	General Chemical Test	Chemical GWDTes test	Chemical Dependent Surface Water body Status	Chemical Saline Intrusion
	Good by 2027	Good by 2015	Good by 2015	Good by 2015	Good by 2027	Good by 2015	Good by 2015	Good by 2027	Good by 2027
<b>Construction Phase</b>									
Earthworks including excavations	N/A	L	L	L	L	L	L	L	L
Dewatering of excavations	N/A	L	L	L	N/A	N/A	N/A	N/A	N/A
Use of machinery and storage of chemicals on Proposed Development	N/A	L	L	L	L	L	L	L	L
Soil compaction	N/A	L	L	L	N/A	N/A	N/A	N/A	N/A
Construction of impermeable surfaces such as roads / pavements	N/A	L	L	L	N/A	N/A	N/A	N/A	N/A
Construction of subsurface infrastructure such as foundations	N/A	L	L	L	N/A	N/A	N/A	N/A	N/A
Use of cement and concrete	N/A	N/A	N/A	N/A	L	L	L	L	L
Peat Stabilisation	N/A	L	L	L	L	L	L	L	L
Gas pipeline – retaining wall in peat	N/A	L	L	L	N/A	N/A	N/A	N/A	N/A
Installation of underground fuel storage tanks	N/A	N/A	N/A	N/A	L	L	L	L	L
<b>Operation Phase</b>									
Loss of hydrocarbons from motorised vehicles and fuel storage/refuelling facilities (including underground fuel storage tanks).	N/A	N/A	N/A	N/A	L	L	L	L	L
De-icing of roads, walkways and parking areas	N/A	N/A	N/A	N/A	L	L	L	L	L
Peat used in habitat enhancement	N/A	L	L	L	N/A	N/A	N/A	N/A	N/A
Creation of new drainage regime in developed areas of the Proposed Development	N/A	L	L	L	N/A	N/A	N/A	N/A	N/A
Underground fuel storage tanks	N/A	N/A	N/A	N/A	L	L	L	L	L
<b>Note</b>									
* From Environment Agency's RBMP.									
DNRA	Does not require assessment.								
N/A	WFD Element is not applicable to this activity.								
L	Low risk of deterioration from current groundwater body WFD status.								
M	Medium risk of deterioration from current groundwater body WFD status.								
H	High risk of deterioration from current groundwater body WFD status.								



**APPENDIX 1 HARRIS LAMB PROPERTY CONSULTANCY WATER FRAMEWORK DIRECTIVE  
ASSESSMENT**

# clearthinking

COMMERCIAL PROPERTY ADVICE



## **Water Framework Directive Assessment**

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### **Warrington Motorway Services**

**Prepared By:**

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Job Ref: PE00072

Date: 30<sup>th</sup> April 2019

**Water Framework Directive Assessment**

Warrington Motorway Services

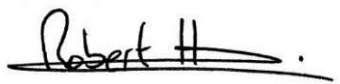
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## **EXECUTIVE SUMMARY**

Harris Lamb Property Consultants (HLPC) were commissioned by Wardell Armstrong to complete a Water Framework Directive (WFD) assessment for a new Motorway Service Area (MSA) at Warrington. The footprint of infrastructure would require the realignment of Willow Brook which is the subject of this WFD assessment. This WFD assessment reports on the likely impacts of realignment of this brook and provides recommendations for WFD compliance.

The scheme as proposed is likely to have short term impacts during construction phase which will disturb the fluvial waterbody whilst it is being repositioned. However, the new channel would be designed to have significant enhancements installed which would be of benefit to the overall ecological status of the watercourse. With the implementation of pollution prevention measures and the design to enhance the new channel, it is considered that improvements will be seen for ecological status. All WFD receptors can be screened out as having negligible impact as a result of the scheme provided the correct mitigation is applied. No deterioration is anticipated for either fluvial or ground waterbodies and WFD status would be maintained or improved.

## **1.0 INTRODUCTION**

### **1.1 Background**

- 1.1.1 A strategic review of the Motorway Service Area (MSA) provision by Extra MSA Group along the M62 / M6 / M58 / M60 / M61 corridor within the areas occupied by Greater Manchester, Warrington and St Helens has been undertaken in accordance with the Government policy set out in Circular 02/2013 'The Strategic Road Network and the Delivery of Sustainable Development' and the objective and clear recommendation of Highways England (as part of the National Planning Policy Framework).
- 1.1.2 This review confirmed that there was a significant gap in the MSA provision along this motorway corridor and a new MSA to address essential public road safety 'need' and provide motorists with high quality facilities to take a break, relax and refresh before continuing their journey.
- 1.1.3 The review also identified that Junction 11 of the M62 was an optimal location to address the gap between existing services with the proposed Site being central to the area of deficiency and development land being available within the north eastern quadrant of the junction.
- 1.1.4 Following the above review, full consideration and assessment of creating a new MSA on the Site has been implemented by Extra MSA Group.
- 1.1.5 The proposed location of the new MSA and footprint of infrastructure would require the realignment of Willow Brook. As a result, the Water Framework Directive (WFD) status of the watercourse will need to be assessed and shown to have no deterioration in status in order to be compliant with WFD legislation. This WFD assessment reports on the likely impacts of realignment of this brook and provides recommendations for WFD compliance.

### **1.2 Site location**

- 1.2.1 The site is located to the north east of Warrington with junction 11 of the M62 running along the southern boundary. The site comprises c.12 hectares of arable land. The land adjacent to the west is a decommissioned landfill site which has been remediated.



**Figure 1. Site location**

## **2.0 LEGISLATION**

2.1.1 The WFD came into force in 2000 and was transposed into UK law in 2003. The principal aims of the WFD are to protect and improve the water environment and promote the sustainable use of water. Environmental Quality Standards<sup>1</sup> for priority substances were set by the daughter directive to the WFD<sup>2</sup> and the Groundwater Directive<sup>3</sup>. The environmental objectives of the WFD are to:

- prevent deterioration of aquatic ecosystems;
- protect, enhance and restore waterbodies to Good status; which is based on ecology (with its supporting hydromorphological and physico-chemical factors) and chemical factors for surface water, and water quantity and chemical status for groundwater;
- comply with water related standards and objectives for environmentally protected areas established under other European Union (EU) legislation;
- progressively reduce pollution from priority substances and cease or phase out discharges of priority hazardous substances; and
- prevent or limit the input of pollutants into groundwater and reverse any significant or sustained upward trends in the concentration of any groundwater pollutant.

2.1.2 The WFD sets a default objective for all rivers, lakes, estuaries, groundwater and coastal waterbodies to achieve Good status by 2027 at

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<sup>1</sup> Council Directive 2008/105/EC of the European Parliament and of the Council of 16 December 2008 on environmental quality standards in the field of water policy, amending and subsequently repealing Council Directives 82/176/EEC, 83/513/EEC, 84/156/EEC, 84/491/EEC, 86/280/EEC and amending Directive 2000/60/EC of the European Parliament and of the Council (the Priority Substances Directive).

<sup>2</sup> The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.

<sup>3</sup> Council Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration (the Groundwater Directive) including Commission Directive 2014/80/EU which amends Annex II of the original Directive 2006/118/EC.



the latest. Where it is not possible to achieve Good status by 2027, alternative waterbody objectives can be set. The current (baseline) status, and the measures required to achieve the 2027 status objective are set out, for each waterbody, in the relevant River Basin Management Plans (RBMPs). The plans provide the baseline condition of the water environment at the time of publication, and indicate the measures needed and timescales required to attain their target status.

#### Surface Water / Fluvial Waterbodies

- 2.1.3 For surface waterbodies, overall waterbody status has an ecological and a chemical component. Ecological status is measured on the scale of high, good, moderate, poor and bad. Chemical status is measured as good or fail, based on the presence or absence of priority substances which present a risk to the environment. Good ecological status (GES) is defined as a slight variation from undisturbed natural conditions, with minimal distortion arising from human activity. The ecological status of waterbodies is determined by examining biological elements (e.g. fish, invertebrates, plants) and a number of supporting elements and conditions, including physico-chemical (e.g. metals and organic compounds), and hydromorphological (e.g. depth, width, flow, and 'structure') factors.

#### Ground waterbodies

- 2.1.4 For ground waterbodies, Good status has quantitative and chemical components that are assessed via a series of tests. Together, these provide a single final classification: good or poor status. Quantitative status is evaluated on the basis of overall aquifer water balance, impacts of abstraction on dependent surface waters or wetlands and potential for saline intrusion. Chemical status is evaluated on the basis of evidence for impacts of poor water quality on dependent surface waters or wetlands or deterioration of the quality of groundwater used for potable supply.

### **3.0 METHODOLOGY**

#### **3.1 Site visit / River Corridor Survey**

3.1.1 To understand the site the watercourse was visited by the WFD surveyor. The aim of the site visit was to ground truth desk study information and undertake a River Corridor Survey (RCS). The RCS aims to map the habitats and features of the brook to provide a record of the existing conditions. The existing conditions can then be used to provide targets for features to include in any new channel design.

3.1.2 RCS followed the standard methodology as outlined by the National Rivers Authority RCS manual<sup>4</sup>.

#### **3.2 WFD methodology**

3.2.1 The WFD assessment methodology follows a structure to determine potential impacts as a result of activities impacting a watercourse. This covers construction phases and operational phases. Accordingly, the WFD assessment collates data and presents the discussion on WFD status as follows:

- WFD waterbodies screened in;
- WFD waterbodies screened out;
- baseline conditions of waterbodies screened in;
- assessment of impacts;
- assessment for cumulative impacts;
- review of relevant WFD mitigation measures and whether these can be implemented;
- discussion on delivering 'Good Ecological Status', and
- conclusion on overall WFD impact as a result of the scheme.

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<sup>4</sup> National River Authority (1992). River Corridor Survey Methods and Procedures – Conservation Technical Handbook No. 1.

### **3.3 Limitations**

- 3.3.1 All survey was undertaken at an ideal time of year and during good weather and low flow conditions which is ideal for assessment.
- 3.3.2 Detailed design is not yet available for the scheme. Therefore, this WFD assessment is based on the outline/high level design information. This will allow the overall WFD impacts to be determined. However, the report should be updated as the design progresses to determine whether additional detail would change the findings.
- 3.3.3 The WFD mitigation measures for WFD Cycle 2 were requested from the Environment Agency. Their response stated that these mitigation measures have not been published for this area of the catchment. Therefore, for the purpose of this report, generic mitigation measures based of the WFD status of the waterbodies have been suggested based on the assessor's experience.

## **4.0 RESULTS AND DISCUSSION**

### **4.1 River Corridor Survey**

4.1.1 A River Corridor Survey has been completed for Willow Brook within the site boundary area subject to watercourse realignment. The assessment was undertaken on 29<sup>th</sup> April 2019 by Harris Lamb aquatic ecologist Rob Harrison BSc MSc MCIEEM and assisted by Miles Haslam BSc. Mapping for the RCS is provided in Appendix 1. Photographs for general character and key river features as shown on the RCS map are provided in Appendix 2.

#### General watercourse character

4.1.2 The general character of Willow Brook was of a straightened channel with a trapezoidal profile indicating previous realignment. The setting adjacent to an agricultural field suggests that the brook has previously been realigned to aid drainage of the field and accommodate agricultural practices. The channel emerges from a culverted section and flows north into Glaze Brook. Within the site boundary Willow Brook flows through two short c.10m culvert pipes which have been installed to allow the crossing of foot traffic and farm vehicles.

4.1.3 Surrounding land use was an arable field on the left bank, occasional scrub on the right bank with a track and decommissioned landfill site beyond.

4.1.4 Substrates were predominantly silt and the earth banks were approximately 2-3 m high on each bank with a 45° angle. There were a few short sections of bank reinforcement consisting of rip rap and gabions. The wetted channel was typically c.1.5m and c.0.2m deep. Flows were either slow or non-perceptible and it is likely that the watercourse could dry up during prolonged dry weather conditions. This was reinforced by the presence of more terrestrial species such as Coltsfoot *Tussilago farfara* within the channel in some locations.

4.1.5 Plant species identified during the survey are presented in Table 1 below. Species assemblages were typical of a eutrophic ditch/brook. No species of note were encountered other than a small patch of the invasive non-native Japanese Rose *Rosa rugosa* on the left bank top at National Grid Reference: SJ66969351.

**Table 1. Vegetation recorded**

Common name	Taxonomic name	Abundance (DAFOR scale)
<b>Bank / bank top</b>		
Japanese rose	<i>Rosa rugosa</i>	R
Greater willowherb	<i>Epilobium hirsutum</i>	O
Meadowsweet	<i>Filipendula ulmaria</i>	O
Nettle	<i>Urtica dioica</i>	F
Cleavers	<i>Galium aparine</i>	F
Broad-leaved dock	<i>Rumex obtusifolius</i>	F
Bramble	<i>Rubus fruticosus</i> agg.	F
Tufted forget-me-not	<i>Myosotis laxa</i>	O
Red campion	<i>Silene dioica</i>	O
Hogweed	<i>Heracleum sphondylium</i>	O
Bittersweet	<i>Solanum dulcamara</i>	O
Creeping thistle	<i>Cirsium arvense</i>	O
Creeping buttercup	<i>Ranunculus repens</i>	O
Cow parsley	<i>Anthriscus sylvestris</i>	O
Wavy bitter-cress	<i>Cardamine flexuosa</i>	O
<b>Emergent</b>		
Lesser water-parsnip	<i>Berula erecta</i>	O
Celery-leaved buttercup	<i>Ranunculus scleratus</i>	R
Water forget-me-not	<i>Myosotis scorpioides</i>	O
Soft rush	<i>Juncus effusus</i>	O
Creeping bent	<i>Agrostis stolonifera</i>	F
Bulrush	<i>Typha latifolia</i>	F
Reed canary-grass	<i>Phalaris arundinacea</i>	F
Water cress	<i>Rorippa nasturtium aquaticum</i>	O
Water plantain	<i>Alisma plantago aquatica</i>	O
Water horetail	<i>Equisetum fluviatile</i>	O
Coltsfoot	<i>Tussilago farfara</i>	R
Common comfrey	<i>Symphytum officinale</i>	O
Lesser water-parsnip	<i>Berula erecta</i>	O
<b>Floating leaved</b>		
Floating sweet-grass	<i>Glyceria fluitans</i>	O
Common duckweed	<i>Lemna minor</i>	O
Common water-starwort	<i>Callitriche stagnalis</i>	O
<b>Submerged</b>		
Green algae	<i>Cladophora glomerata</i> agg.	O

## **4.2 Requirement for WFD assessment**

- 4.2.1 WFD assessment is required as the scheme involves works to divert a c.580m section of the Willow Brook on the western boundary of the site. The proposed diversion is shown on Drawing Number: SH11739-002 provided in support of this report.
- 4.2.2 Construction works will also involve groundworks and the extraction of peat which has the potential to impact ground waterbodies. Furthermore, operation of the MSA could have implications for water chemistry.

## **4.3 WFD waterbodies screened in**

### Fluvial Waterbodies

- 4.3.1 Willow Brook is a fluvial waterbody and will be directly impacted via diversion within the proposed scheme. WFD data is not published within the Environment Agency Catchment Data Explorer<sup>5</sup> for this waterbody, however, Willow Brook flows into the main river Glaze Brook (GB112069061420), for which there is Catchment Data Explorer data available<sup>6</sup>. Glaze Brook is located c.2.2km downstream of the area of Willow Brook within the proposed development area. No direct impacts are anticipated but there is potential for indirect impacts due to pollution events and water chemistry influences. Therefore, Glaze Brook (GB112069061420) has been screened into this assessment.

### Ground Waterbodies

- 4.3.2 The works footprint is within the GB41201G101700 Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers<sup>7</sup>. There is potential for direct and indirect impacts as a result of works and this groundwater body has been screened into the WFD assessment.

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<sup>5</sup> <https://environment.data.gov.uk/catchment-planning/> [accessed 21/3/19]

<sup>6</sup> <https://environment.data.gov.uk/catchment-planning/WaterBody/GB112069061420> [accessed 21.03.2019]

<sup>7</sup> <https://environment.data.gov.uk/catchment-planning/WaterBody/GB41201G101700> [accessed 21.03.2019]

#### **4.4 WFD waterbodies screened out**

4.4.1 There are no waterbodies identified upstream of Willow Brook and this is the upstream limit of this part of the catchment.

4.4.2 The fluvial waterbody downstream of Glaze Brook is GB112069061011 Mersey/ Manchester Ship Canal (Irwell/Manchester Ship Canal to Bollin)<sup>8</sup> which is located c.3.8km downstream of Glaze Brook and c.6.0km from the area of Willow Brook within the proposed development area. No direct impacts are anticipated for this waterbody. Due to the significant distance and likely dilution effects of any water chemistry impacts within Willow Brook, any impacts to GB112069061011 Mersey/ Manchester Ship Canal (Irwell/Manchester Ship Canal to Bollin) are likely to be negligible. This waterbody has been screened out of this WFD assessment.

#### **4.5 Baseline condition of waterbodies screened in**

##### Glaze Brook (GB112069061420) fluvial waterbody

4.5.1 Table 2 below shows the current WFD cycle 2 data from the Environment Agency Catchment Data Explorer for Glaze Brook (GB112069061420) fluvial waterbody<sup>9</sup>. The status of the waterbody is currently classed as 'Poor' and 'not designated artificial or heavily modified'.

##### GB41201G101700 Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers ground waterbody

4.5.2 Table 3 below shows the current WFD cycle 2 data from the Environment Agency Catchment Data Explorer for Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers (GB41201G101700) ground waterbody<sup>10</sup>. The status is currently classed as 'Poor'.

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<sup>8</sup> <https://environment.data.gov.uk/catchment-planning/WaterBody/GB112069061011> [accessed 21.03.2019]

<sup>9</sup> <https://environment.data.gov.uk/catchment-planning/WaterBody/GB112069061420> [accessed 21.03.2019]

<sup>10</sup> <https://environment.data.gov.uk/catchment-planning/WaterBody/GB41201G101700> [accessed 21.03.2019]

**Table 2. GB112069061420 Glaze Brook**

Classification Item		2013	2014	2015	2016
▼	<b>Overall Water Body</b>	Moderate	Poor	Poor	Poor
▼	<b>Ecological</b>	Moderate	Poor	Poor	Poor
▼	<b>Biological quality elements</b>	Moderate	Poor	Poor	Poor
	Macrophytes and Phytobenthos Combined	Good	<u>Good</u>	Moderate	Poor
	Fish	Moderate	<u>Moderate</u>	Moderate	Poor
	Invertebrates	-	<u>Poor</u>	Poor	Poor
▼	<b>Hydromorphological Supporting Elements</b>	Supports Good	Supports Good	Supports Good	Supports Good
	Hydrological Regime	Supports Good	Supports Good	Supports Good	Supports Good
	Morphology	Supports Good	Supports Good	Supports Good	Supports Good
▼	<b>Physico-chemical quality elements</b>	Moderate	Moderate	Moderate	Moderate
	Ammonia (Phys-Chem)	Good	<u>Moderate</u>	Moderate	Moderate
	Biochemical Oxygen Demand (BOD)	Good	Moderate	<u>Moderate</u>	Poor
	Dissolved oxygen	Good	Good	Good	Good
	pH	High	High	High	High
	Phosphate	Poor	<u>Poor</u>	Poor	Poor
	Temperature	High	High	High	High
▼	<b>Specific pollutants</b>	Moderate	Moderate	High	High
	Tricocan	Moderate	Moderate	High	High
	Manganese	-	-	-	High
	Copper	High	High	High	High
	Iron	-	-	High	High
	Zinc	High	High	High	High
▼	<b>Chemical</b>	Fail	Fail	Good	Good
▼	<b>Priority substances</b>	Fail	Fail	Good	Good
	Lead and Its Compounds	Good	Good	Good	Good
	Nickel and Its Compounds	Fail	Fail	Good	Good
▼	<b>Other Pollutants</b>	Does not require assessment	Does not require assessment	Does not require assessment	Does not require assessment
▼	<b>Priority hazardous substances</b>	Good	Good	Good	Good
	Brominated diphenyl ether (BDPE) Calc	-	-	Good	-
	Benzo (b) and (k) fluoranthene	-	-	Good	Good
	Benzo (ghi) perylene and indeno (123 cd) pyrene	-	-	Good	Good
	Benzo(a)pyrene	-	-	Good	Good
	Cadmium and Its Compounds	Good	Good	Good	Good
	Di(2-ethylhexyl)phthalate (Priority hazardous)	Good	Good	Good	Good
	Mercury and Its Compounds	-	-	Good	Good
	Nonylphenol	Good	Good	Good	Good
	Tributyltin Compounds	Good	Good	-	-



**Table 3. GB41201G101700 Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers**

Classification Item	2013	2014	2015	2016
Overall Water Body	Poor	Poor	Poor	Poor
Quantitative	Poor	Poor	Poor	Poor
Quantitative Status element	Poor	Poor	Poor	Poor
Quantitative Saline Intrusion	Poor	<u>Poor</u>	Poor	Poor
Quantitative Water Balance	Good	Good	Good	Good
Quantitative GWDEs test	Good	Good	Good	Good
Quantitative Dependent Surface Water Body Status	Good	Good	Good	Good
Chemical (GW)	Poor	Poor	Poor	Poor
Chemical Status element	Poor	Poor	Poor	Poor
Chemical Drinking Water Protected Area	Poor	<u>Poor</u>	Poor	Poor
General Chemical Test	Good	Good	Good	Good
Chemical GWDEs test	Good	Good	Good	Good
Chemical Dependent Surface Water Body Status	Poor	Poor	<u>Poor</u>	Poor
Chemical Saline Intrusion	Poor	Poor	<u>Poor</u>	Poor

#### 4.6 Assessment of impacts

4.6.1 An assessment of WFD elements that could be affected by the proposed changes in river morphology have been provided in Tables 4 and 5 below for the respective fluvial and ground waterbodies that have been screened in. Rationale for the WFD elements screened in or out has been provided.

**Table 4. GB112069061420 Glaze Brook**

WFD element	Assessment of impacts
Macrophytes and Phytobenthos	The proposed channel realignment will remove the existing macrophytes and phytobenthos from the channel in its current location. Upon reinstatement of the new channel it is considered that the flora will readily colonise the new channel. This would be aided by additional planting and reseedling of the banks where appropriate. Therefore, impacts will be temporary in nature and the new channel can be designed to allow greater diversity in macrophyte assemblages. No significant long-term negative impacts upon macrophytes or phytobenthos are anticipated and increased biodiversity is likely to be seen as a result of the

WFD element	Assessment of impacts
	development. In addition, the adoption of Pollution Prevention Guidelines will limit any indirect impacts upon these WFD receptors. Hence, no significant impacts upon macrophytes or phytobenthos are anticipated [SCREENED OUT].
Fish	No fish were noted within the watercourse during the site visit and due to the ditch like nature of the watercourse it is expected that only small numbers of robust species such as stickleback <i>Gasterosteidae</i> would be present in the reach. During works to protect and remove fish from harms way the channel will be electro-fished prior to the channel being drained. Fish would be placed downstream and following the channel works they would be able to readily recolonise the site. In addition, the adoption of Pollution Prevention Guidelines will limit any indirect impacts upon these WFD receptors and no significant impacts upon fish are anticipated [SCREENED OUT].
Invertebrates	The repositioning of the channel would remove invertebrates from the works footprint in the short term. However, following opening of the new channel the habitats have been designed to improve channel morphology which will be of benefit to invertebrates. Due to the ephemeral nature of invertebrates recolonisation is anticipated to occur readily upon completion of the works and no long-term negative impacts are anticipated. In addition, the adoption of Pollution Prevention Guidelines will limit any indirect impacts to these WFD receptors and no significant impacts upon benthic invertebrates are expected [SCREENED OUT].
Hydrological Regime	The new channel will be designed to improve morphology and no impacts are anticipated that could affect the hydrological regime of the watercourse in this location. The hydrological regime is expected to remain the same as it is currently albeit within the new channel location [SCREENED OUT].

WFD element	Assessment of impacts
Morphology	<p><b>River depth and width variation</b> – Currently the channel is straightened and shows previous management to function as a drainage ditch for the surrounding agricultural land. The new channel will be designed to increase the river length and provide additional morphological features. For example variation in flow types will be encouraged by increasing sinuosity of the channel and through the installation of deflectors where appropriate [SCREENED OUT].</p> <p><b>Structure and substrate of the river bed</b> – Although the channel is being moved, the structure and substrate of the river bed will be kept the same and no significant changes to this aspect of river morphology are anticipated [SCREENED OUT].</p> <p><b>Structure of the riparian zone</b> – The riparian zone will be altered, but the design will be to increase the diversity and improve structure of the riparian zone from its current condition. Planting schemes will be developed to enhance the riparian zone and ensure a buffer between the development and the watercourse [SCREENED OUT].</p>
Water Chemistry/Pollution	<p><b>Thermal conditions</b> - the proposed works do not have the potential to significantly impact thermal conditions within the river system [SCREENED OUT].</p> <p><b>Oxygenation conditions</b> - the proposed works may cause suspension of silt and impact upon dissolved oxygen within the river. However, Pollution Prevention Guidance and silt management measures will be followed, and dissolved oxygen levels will be monitored. As a result, no significant impact upon dissolved oxygen is anticipated as a result of the planned works [SCREENED OUT].</p> <p><b>Salinity</b> – the proposed works would not cause increased salinity during construction phase. However, there is potential for the operation of the MSA to increase salinity (e.g. salt spreading during winter). However, the design of the scheme will incorporate measures to filter drainage</p>

WFD element	Assessment of impacts
	<p>water coming from the site. Buffers between the development and the watercourse will also be installed and planted to allow filtration of any runoff before it enters the watercourse. Provided these measures are included the developments operation should have minimal impact on salinity within the watercourse [SCREENED OUT].</p> <p><b>Acidification status</b> - works associated with the construction and operation phases are not known to have a link with acidification and are therefore not considered to have a significant impact upon this WFD receptor [SCREENED OUT].</p> <p><b>Nutrient conditions</b> – the proposed works during construction phase have the potential to suspend silt and associated nutrients which may increase nutrient concentrations within the river. However, Pollution Prevention Guidance will be followed. Similarly, the temporary nature and limited area of work is not anticipated to have any significant or permanent impact upon nutrient conditions. As a result, no significant impact upon nutrient conditions is anticipated as a result of the channel widening works. Operation phase of the MSA may also increase nutrient input as a result of increased anthropogenic activity in the area. However, the design of the scheme will incorporate measures to filter drainage water coming from the site. Buffers between the development and the watercourse will also be installed and planted to allow filtration of any runoff before it enters the watercourse. Provided these measures are included the developments operation should have minimal impact on nutrient input within the watercourse [SCREENED OUT].</p>

**Table 5. GB41201G101700 Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers**

WFD element	Assessment of impacts
<i>Quantitative status element</i>	
Water balance	Water balance is not anticipated to be impacted as a result of the development. Although works require breaking of ground, this would not be at a depth or in an area that would impact the water balance [SCREENED OUT].
Dependent surface water body status	Within the area the GB112069061420 Glaze Brook fluvial waterbody is present and covered within this WFD assessment. No barriers would be installed that would limit water connectivity between the fluvial waterbody and the ground waterbody. Therefore, there are no anticipated impacts that could cause deterioration of a dependent surface waterbody [SCREENED OUT].
<i>Chemical status element</i>	
Chemical drinking water protected area	The site falls within a drinking water protected area. During construction phase pollution prevention measures will be adopted to prevent deterioration to drinking water. Similarly, during operation, the design of the scheme will incorporate measures to filter drainage water coming from the site. Buffers between the development and the watercourse will also be installed and planted to allow filtration of any runoff. Provided these measures are included the developments operation should have minimal impact on drinking water [SCREENED OUT].
General chemical test	During construction phase pollution prevention measures will be adopted to prevent deterioration to the ground waterbody. Similarly, during operation, the design of the scheme will incorporate measures to filter drainage water coming from the site. Buffers between the development and the watercourse will also be installed and planted to allow filtration of any runoff.

WFD element	Assessment of impacts
	<p>Provided these measures are included the developments operation should have minimal impact on the chemical status of the ground waterbody [SCREENED OUT].</p>
<p>Chemical dependent surface water body status</p>	<p>During construction phase pollution prevention measures will be adopted to prevent pollution reaching the ground waterbody. Similarly, during operation, the design of the scheme will incorporate measures to filter drainage water coming from the site. Buffers between the development and the watercourse will also be installed and planted to allow filtration of any runoff. Provided these measures are included the developments operation should have minimal impact on the chemical status of the ground waterbody or any dependent surface waterbody [SCREENED OUT].</p>
<p>Saline intrusion</p>	<p>There is potential for the operation of the MSA to increase salinity e.g. salt spreading during winter. This could find its way to the ground waterbody. However, the design of the scheme will incorporate measures to filter drainage water coming from the site. Buffers between the development and the watercourse will also be installed and planted to allow filtration of any runoff before it enters the fluvial watercourse and prevent saline reaching any ground waterbody. Provided these measures are included the developments operation should have minimal impact on saline intrusion to ground waterbodies [SCREENED OUT].</p>

#### 4.7 Cumulative effects

4.7.1 The following schemes in the local area have been identified:

- 96/35737 – PROPOSED DEVELOPMENT OF 2 NO INDUSTRIAL/WAREHOUSE UNITS - UNIT 1 CAPABLE OF SUB-DIVISION (B2 & B8) ASSOCIATED SERVICING & CAR PARKING

- A02/46361 – CONSTRUCTION AND OPERATION OF LANDFILL GAS UTILISATION SYSTEM COMPRISING FLARING EQUIPMENT, TWO ELECTRICITY GENERATING ENGINES AND ASSOCIATED EQUIPMENT AND ELECTRICITY SUB STATION.
- A00/40869 - FULL APPLICATION FOR B2 AND B8 INDUSTRIAL UNITS AND ASSOCIATED OFFICES SERVICE AREAS AND CAR PARKING
- 2004/03623 - Remediation of Contaminated Soils using Biological Activity (Completed in 2011)
- 2009/15667 - Proposed refurbishment of vacant industrial unit to include alterations to 2 no. vehicular access & the installation of 2 external condensers at ground floor level.

4.7.2 It is not considered that any of the above schemes would have an impact on waterbodies and therefore a cumulative impact is not anticipated that could cause deterioration of WFD status.

#### **4.8 Relevant WFD mitigation measures**

4.8.1 Mitigation measures have not been published within the River Basin Management Plan for Glaze Brook GB112069061420 or GB41201G101700 Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers. Consultation was undertaken with the Environment Agency to determine whether they held any internal documentation for mitigation measures, but this information was not available. Therefore, there are no published mitigation measures that the scheme could prevent from being attained.

4.8.2 Since no published mitigation measures are available, generic mitigation has been proposed in the recommendations (see Section 5.2). Following these recommendations would ensure no deterioration to WFD status as a result of the scheme.

#### **4.9 Delivering GES**

4.9.1 The scheme as proposed will not prevent the achievement of Good Ecological Status (GES).

- 4.9.2 Measures would be put in place to ensure that both fluvial and ground waterbodies are protected during the construction phase and operation of the MSA. In particular, the inclusion of pollution prevention measures and scheme design to filter drainage water will limit pollution impacts which are the greatest concern from the scheme.
- 4.9.3 The design also incorporates enhancement of the new channel. This includes increasing the overall length and sinuosity of the channel which will provide additional habitat areas and increase biodiversity. The planting scheme also has potential to increase diversity and improve both the diversity of channel macrophytes and riparian zone structure.
- 4.9.4 Overall with the implementation of pollution prevention measures and the design to enhance the new channel, it is considered that improvements will be seen for ecological status and the MSA as proposed would help to deliver GES.



## **5.0 CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Conclusion**

5.1.1 In conclusion, the scheme as proposed is likely to have short term impacts during construction phase which will disturb the fluvial waterbody whilst it is being repositioned. However, the new channel would be designed to have significant enhancements installed which would be of benefit to the overall ecological status of the watercourse. With the implementation of pollution prevention measures and the design to enhance the new channel, it is considered that improvements will be seen for ecological status. All WFD receptors can be screened out as having negligible impact as a result of the scheme provided the correct mitigation is applied. No deterioration is anticipated for either fluvial or ground waterbodies and WFD status would be maintained or improved.

### **5.2 Recommendations**

5.2.1 The existing design proposals for the watercourse, site drainage and landscaping submitted with this application will allow compliance with the WFD and prevent deterioration of waterbodies. In addition, it is recommended that additional measures are included to cover toolbox talks, fish rescue, biosecurity and pollution prevention. These are detailed below.

#### Toolbox Talks

5.2.2 To ensure compliance with the WFD all site personnel should be instructed on their responsibilities via toolbox talk at site induction and a record kept to show that they have been briefed. The toolbox talk should make them aware of waterbodies and measures such as pollution prevention that they need to action on site.

#### Fish rescue

5.2.3 Prior to works in the wetted channel and any drainage of the channel a fish rescue should be undertaken. This can be done via electrofishing from a qualified and experienced fisheries consultant. Fish removed should be placed downstream away from the works area. Note that the movement of fish will require a licence from the Environment Agency and this should be applied for in advance.

### Biosecurity

5.2.4 Due to the presence of invasive species associated with the brook biosecurity is required. Good biosecurity practices are vital for preventing the spread of invasive non-native species and pathogens such as waterborne fish diseases/crayfish plague. General biosecurity measures can include:

- All site personnel and visitors to be inducted in good biosecurity practices. This can include adoption of the check-clean-dry campaign: <http://www.nonnativespecies.org/checkcleandry/> [site accessed: 03/05/19].
- The check-clean-dry poster could be displayed in the site office as a reminder of good biosecurity practices: <http://www.nonnativespecies.org/downloadDocument.cfm?id=608> [site accessed: 03/05/19].
- If access to the water is required, particular care should be taken, and equipment and PPE should be checked and cleaned to prevent the spread of invasive species and waterborne diseases. A suitable disinfectant would be Virkon® S Aquatic. Following application of a suitable disinfectant, machinery and PPE should be allowed to fully dry for at least 72 hours before being used on another aquatic site.

### Pollution Prevention

5.2.5 Appropriate mitigation measures can be implemented to ensure that habitats within proximity of the works are not degraded as a result of pollution events during the construction phase. Mitigation could include:

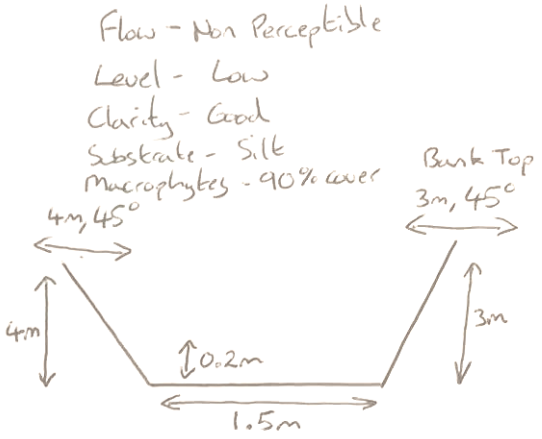
- Abiding by relevant pollution prevention measures e.g. CIRIA Guidance: Control of water pollution from construction sites. Guidance for consultants and contractors (C532D) (Masters-Williams, 2001). Information useful for Toolbox Talks on working near water and pollution prevention can be found at: [https://www.ciria.org/Resources/All\\_toolbox\\_talks/Env\\_toolbox\\_talks/Working\\_on\\_or\\_near\\_watercourses.aspx](https://www.ciria.org/Resources/All_toolbox_talks/Env_toolbox_talks/Working_on_or_near_watercourses.aspx) [site accessed: 03/05/19].

- Preventing accidental oil and fuel leaks can be achieved by the following actions:
  - Any chemical, fuel and oil stores should be located on impervious bases within a secured bund with a storage capacity 110% of the stored volume.
  - Biodegradable oils and fuels should be used where possible.
  - Drip trays should be placed underneath any standing machinery to prevent pollution by oil/fuel leaks. Where practicable, refuelling of vehicles and machinery should be carried out on an impermeable surface in one designated area well away from any watercourse or drainage (at least 10m).
  - Emergency spill kits should be available on site and staff trained in their use.
  - Operators should check their vehicles on a daily basis before starting work to confirm the absence of leakages. Any leakages should be reported immediately.
  - Daily checks should be carried out and records kept on a weekly basis and any items that have been repaired/replaced/rejected noted and recorded. Any items of plant machinery found to be defective should be removed from site immediately or positioned in a place of safety until such time that it can be removed.
- Silt run off can be prevented by incorporating the following actions:
  - Silt curtains should be used where appropriate to prevent silt from the construction works entering the watercourse.
  - Water quality downstream of the works can be monitored to detect any changes in water quality that could indicate a pollution incident. Should monitoring indicate potential pollution from the construction activities, works should be stopped, and a solution found to prevent the pollution source entering the watercourse. Monitoring could include:
    - Visual monitoring to see if water colour has changed or if a plume is visible indicating sediment input.

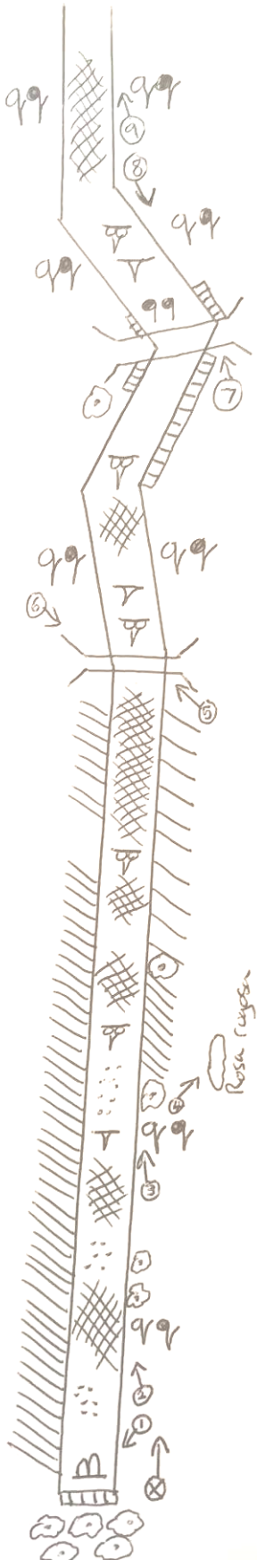
- Water quality meter measurements for Dissolved Oxygen and pH.

## **6.0 APPENDICES**

### **Appendix 1 – River Corridor Survey Map**



C. 100m



## Standard Symbols for use in River Corridor Surveys

### AQUATIC AND MARGINAL ZONES

#### CHANNEL FEATURES

	Bridge (road/track)
	Footbridge
	Lock
	Inlet
	Weir
	Pool
	Riffle
	Rapids
	Run
	Waterfall
	Protruding rock
	Island (with vegetation)
	Direction of flow

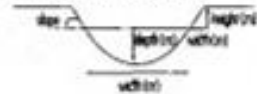
#### SUBSTRATE

	Mud
	Sand
	Bare gravel/shingle
	Vegetated gravel/shingle
	Cobbles
	Boulders

#### CHANNEL VEGETATION

	Emergent Monocots
	Emergent Dicots
	Submerged Monocots
	Submerged Dicots
	Bryophytes
	Floating leaves

#### CHANNEL CROSS-SECTION



#### SURVEY INFORMATION

	Direction of survey/bank used
	Photograph

### BANK AND ADJACENT LAND ZONES

#### BANK FEATURES

	Base of bank
	Top of bank
	Slump
	Stable earth cliff
	Eroding earth cliff
	Rock cliff
	Artificial bank protection
	Cattle drink
	Shelf / berm
	Spring / flush
	Inflow stream
	Outfall
	Dredgings/spoil

#### ADJACENT LAND FEATURES

	Fence
	Gate
	Road / track
	Railway
	Footpath
	Power lines
	Building
	Sewage works
	Flood bank
	Land use category Defined name / Phase 1 code

#### VEGETATION

<b>Trees</b>	
	Conifer
	Broadleaf
	- overhanging
	- fallen
	- exposed roots
	Woodland + symbol for type
	Pollarded tree
	Tree needs pollarding
	Coppiced tree
	Sapling

#### Shrubs/hedgerows

	Shrub (single)
	Dense shrubs
	Sparse shrubs
	Hedgerow
	Hedgerow with trees

#### Grasses and herbs

	Reed / sedge
	Tall grass
	Tall herb / ruderal
	Tall grass with herbs
	Short grass
	Mown

**Appendix 2 - Site photographs**



**Plate 1. RCS photograph 1**



**Plate 2. RCS photograph 2**



**Plate 3. RCS photograph 3**



**Plate 4. RCS photograph 4**



**Plate 5. RCS photograph 5**



**Plate 6. RCS photograph 6**





**Plate 7. RCS photograph 7**



**Plate 8. RCS photograph 8**



**Plate 9. RCS photograph 9**



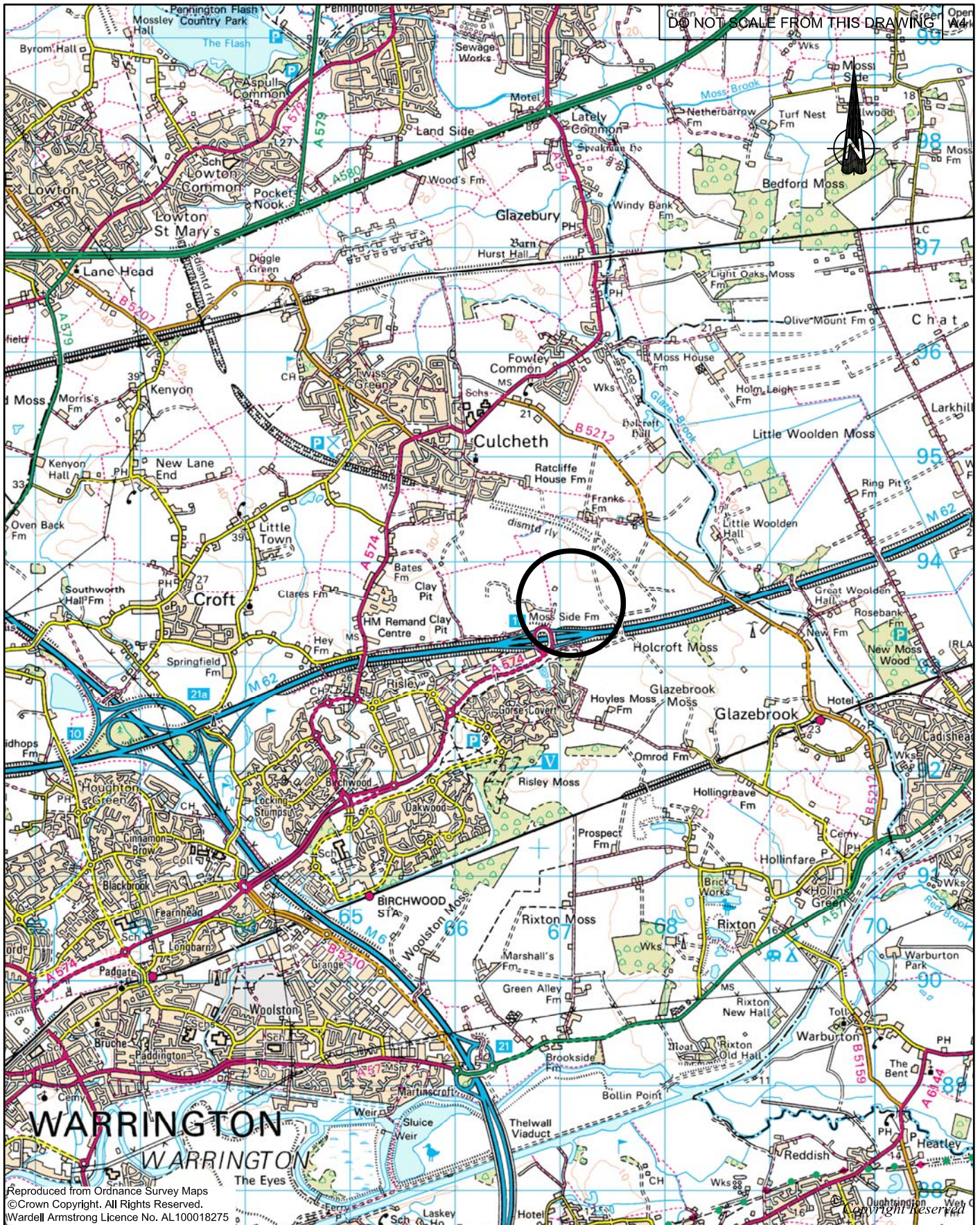
**Plate 10. RCS photograph 10**



**Plate 11. Panoramic view of the application area showing the brook to the left along the boundary**

## **DRAWINGS**

DO NOT SCALE FROM THIS DRAWING

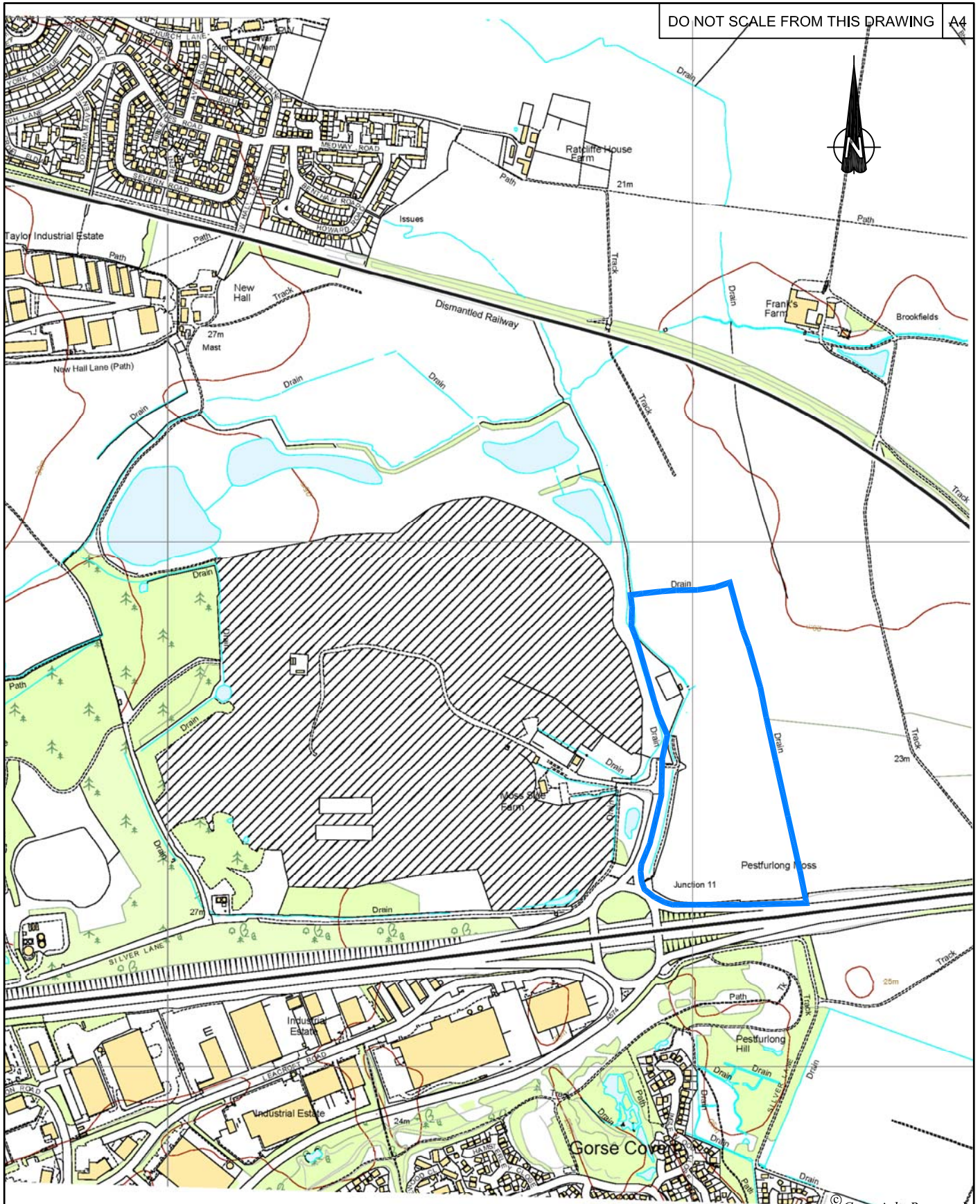


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CLIENT	EXTRA MOTORWAY SERVICE AREA GROUP	DRG No.	SH11739-001	SCALE	1:50000 @ A4	DATE	27/01/16
PROJECT	POTENTIAL WARRINGTON MSA	DRAWN BY	DP	CHECKED BY	AJD	APPROVED BY	AJD

DRAWING TITLE  
 SITE LOCATION PLAN






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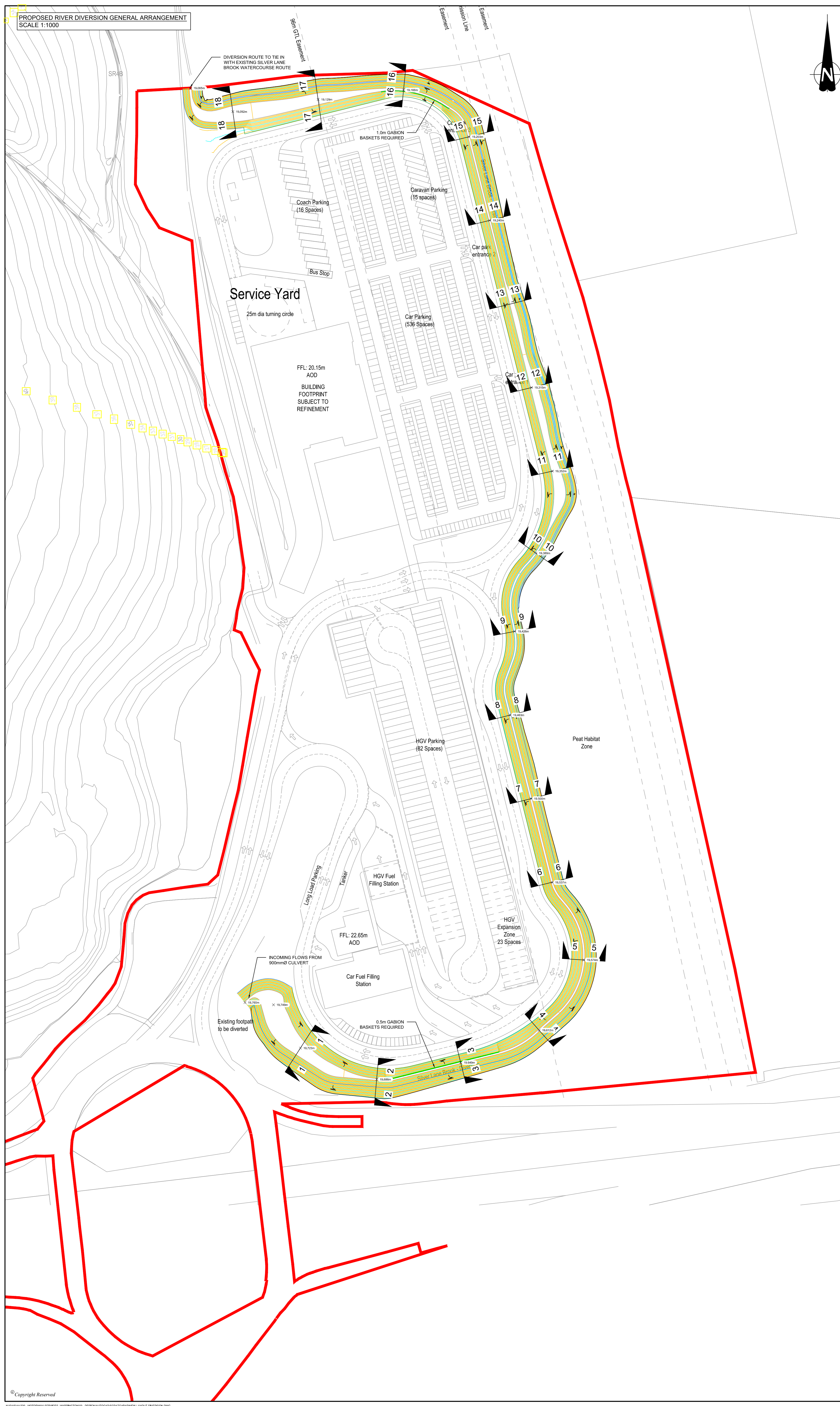
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PROJECT	POTENTIAL WARRINGTON MSA	DRAWN BY	DP	CHECKED BY	AJD	APPROVED BY	AJD

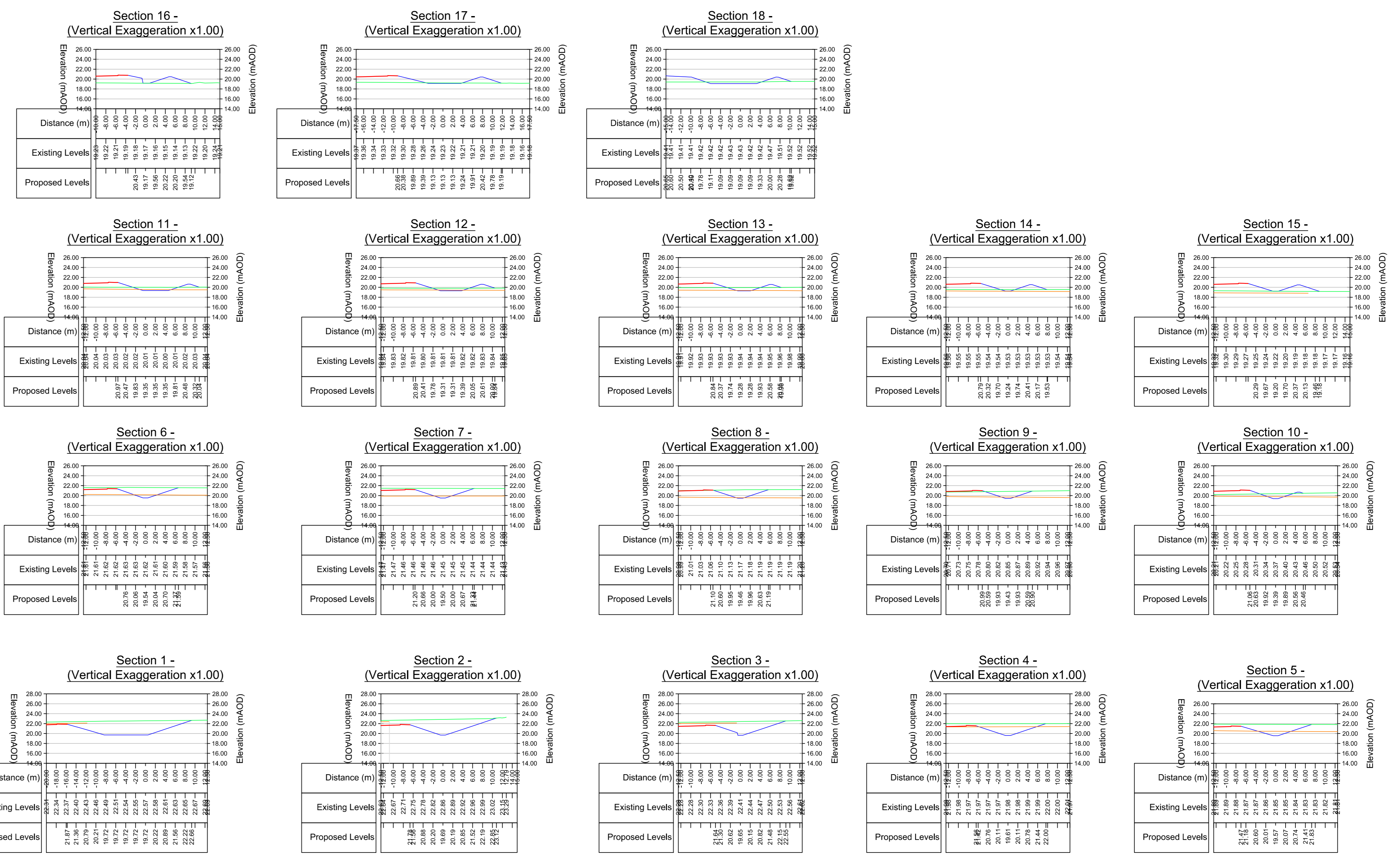
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**SITE PLAN**



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armstrong** your earth our world

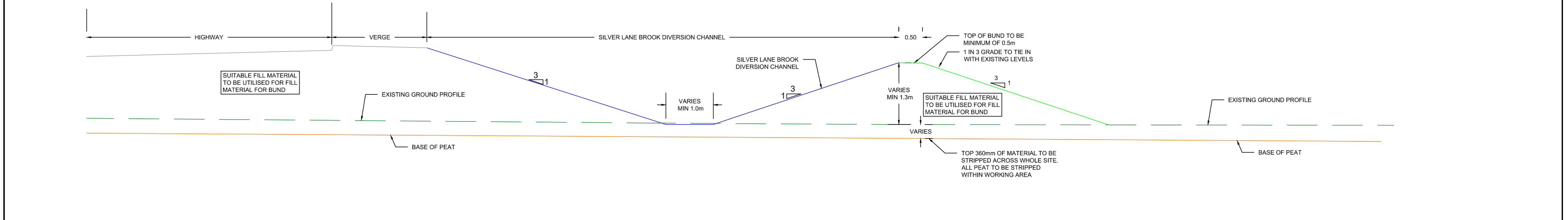


CROSS SECTIONS  
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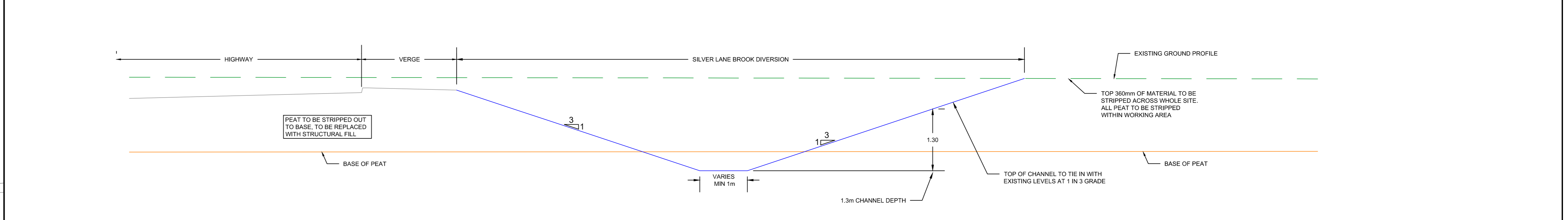


DO NOT SCALE FROM THIS DRAWING

TYPICAL SECTION OF SILVER LANE BROOK DIVERSION  
ABOVE EXISTING GROUND LEVELS  
SCALE 1:50



TYPICAL SECTION OF SILVER LANE BROOK DIVERSION  
BELOW EXISTING GROUND LEVELS  
SCALE 1:50



- KEY
- EXISTING GROUND PROFILE
  - PROPOSED ACCESS ROAD
  - BROOK CHANNEL
  - BASE OF PEAT

- NOTES:
1. FOR OUTLINE PLANNING PURPOSES ONLY.
  2. DRAWING TO READ IN CONJUNCTION WITH WARDELL ARMSTRONG FLOOD RISK ASSESSMENT DATED AUGUST 2019.
  3. WATER COURSE DIVERSION SUBJECT TO DETAILED DESIGN & ENVIRONMENT AGENCY.
  4. DRAWING ONLY SHOWS WATERCOURSE CORRIDOR. EXCLUDING DEVELOPMENT AND PEAT HABITAT ZONE.

D	PLANNING ISSUE RELINE BOUNDARY ADDED.	08/03/19	MS	JS	JS
C	ROUTE CHANGED TO SUIT NEW LAYOUT & RETENTION OF PEAT ON SITE.	16/03/19	MS	JS	JS
B	ADDITIONAL SPOT HEIGHTS ADDED	10/03/19	MS	JS	JS
A	BROOK DIVERSION ROUTE UPDATED	08/03/19	MS	JS	JS
REVISION	REVISION	DATE	BY	CHECKED	APPROVED
EXTRA MSA GROUP					
PROJECT MOTORWAY SERVICES, WARRINGTON					
DRAWING TITLE BROOK DIVERSION PLAN AND SECTIONS					
REV:	SH11739-002	REV:	D		
DRG SIZE:	A0	SCALE:	AS SHOWN	DATE:	30/04/19
DRAWN BY:	MB	CHECKED BY:	JS	APPROVED BY:	JS
<p>wardell armstrong</p> <p>WARDLE &amp; PARTNERS LLP, 115-119, 2014          12, GERRARD STREET, WARRINGTON, CH1 3JN          01925 434343          WWW.WARDELL-ARMSTRONG.COM</p>					

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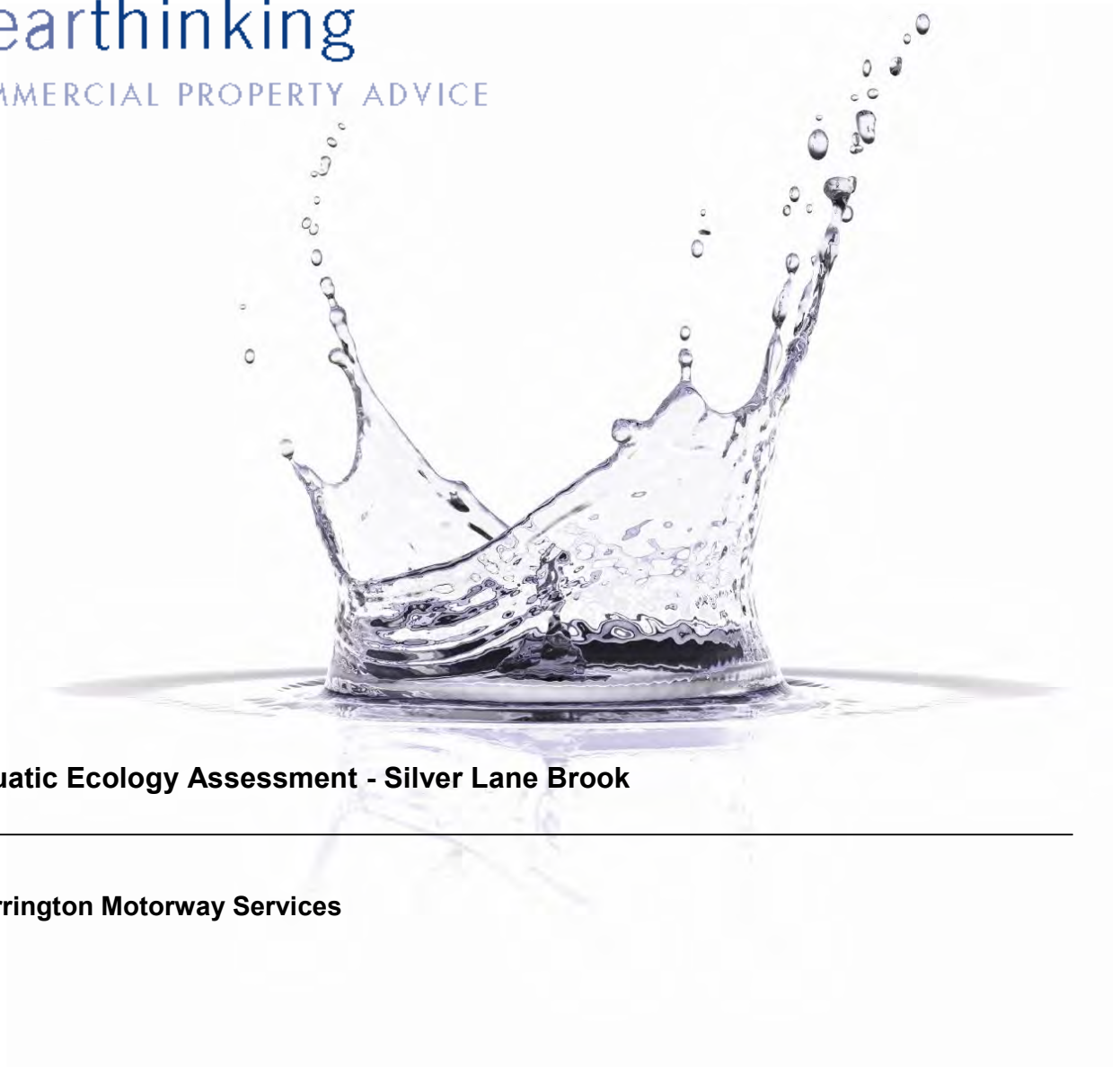
**MOSCOW**

21/5 Kuznetskiy Most St.  
Moscow  
Russia  
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## **Appendix 5.3 - Great Crested Newt Survey report**

# clearthinking

COMMERCIAL PROPERTY ADVICE



## **Aquatic Ecology Assessment - Silver Lane Brook**

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### **Warrington Motorway Services**

**Prepared By:**

Harris Lamb | Grosvenor House | 75-76 Francis Road | Edgbaston | Birmingham B16 8SP  
Telephone: 0121 455 9455 Facsimile: 0121 455 6595 E-mail: [rob.harrison@harrislamb.com](mailto:rob.harrison@harrislamb.com)

Job Ref: PE00072

Date: 24<sup>th</sup> May 2019



**Aquatic Ecology Assessment - Silver Lane Brook**

Warrington Motorway Services

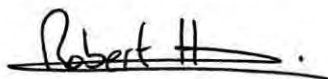
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**Main Contributors**

**Rob Harrison BSc MSc MCIEEM & Joshua Randhawa BSc**

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**Issued By**

  
**Signature**.....

**Print Name:** Rob Harrison

**Date:** 24/05/2019

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**Approved By**

  
**Signature**.....

**Print Name:** Holly Smith

**Date:** 24/05/2019

## CONTENTS

1.0	INTRODUCTION	1
2.0	METHODOLOGY	3
3.0	RESULTS AND DISCUSSION	4
4.0	CONCLUSIONS AND RECOMMENDATIONS	8
5.0	APPENDICES	11

## **EXECUTIVE SUMMARY**

Harris Lamb Property Consultants (HLPC) were commissioned by Wardell Armstrong to complete a Water aquatic ecology assessment for a new Motorway Service Area (MSA) at Warrington. The footprint of infrastructure would require the realignment of Silver Lane Brook which is the subject of this assessment. This assessment reports on the likely impacts of realignment of this brook and provides best practice recommendations.

The scheme as proposed is likely to have short term impacts during construction phase which will disturb the fluvial waterbody whilst it is being repositioned. However, the new channel would be designed to have significant enhancements installed which would be of benefit to the overall ecological status of the watercourse. With the implementation of pollution prevention measures and the design to enhance the new channel, it is considered that improvements will be seen for ecological status.

## **1.0 INTRODUCTION**

### **1.1 Background**

- 1.1.1 A strategic review of the Motorway Service Area (MSA) provision by Extra MSA Group along the M62 / M6 / M58 / M60 / M61 corridor within the areas occupied by Greater Manchester, Warrington and St Helens has been undertaken in accordance with the Government policy set out in Circular 02/2013 'The Strategic Road Network and the Delivery of Sustainable Development' and the objective and clear recommendation of Highways England (as part of the National Planning Policy Framework).
- 1.1.2 This review confirmed that there was a significant gap in the MSA provision along this motorway corridor and a new MSA to address essential public road safety 'need' and provide motorists with high quality facilities to take a break, relax and refresh before continuing their journey.
- 1.1.3 The review also identified that Junction 11 of the M62 was an optimal location to address the gap between existing services with the proposed Site being central to the area of deficiency and development land being available within the north eastern quadrant of the junction.
- 1.1.4 Following the above review, full consideration and assessment of creating a new MSA on the Site has been implemented by Extra MSA Group.
- 1.1.5 The proposed location of the new MSA and footprint of infrastructure would require the realignment of Silver Lane Brook. As a result, ecological status of the watercourse will need to be assessed and shown to have no deterioration in order to be compliant with legislation. This aquatic ecology assessment reports on the likely impacts of realignment of this brook and provides best practice recommendations.

### **1.2 Site location**

- 1.2.1 The site is located to the north east of Warrington with junction 11 of the M62 running along the southern boundary. The site comprises c.12 hectares of arable land. The land adjacent to the west is Risely Landfill Site which is a restored future country park.



Figure 1. Site location from Phase 1 Habitat Survey

## **2.0 METHODOLOGY**

### **2.1 Site visit / River Corridor Survey**

2.1.1 To understand the site, the watercourse was visited by the Harris Lamb Aquatic Ecology Team. The aim of the site visit was to ground truth desk study information and undertake a River Corridor Survey (RCS). The RCS aims to map the habitats and features of the brook to provide a record of the existing conditions. The existing conditions can then be used to provide targets for features to include in any new channel design.

2.1.2 RCS followed the standard methodology as outlined by the National Rivers Authority RCS manual<sup>1</sup>.

### **2.2 Limitations**

2.2.1 All survey was undertaken at an ideal time of year and during good weather and low flow conditions which is ideal for assessment.

2.2.2 Detailed design is not yet available for the scheme. Therefore, this assessment is based on the outline/high level design information. This will allow the overall aquatic ecology impacts to be determined. However, the report should be updated as the design progresses to determine whether additional detail would change the findings.

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<sup>1</sup> National River Authority (1992). River Corridor Survey Methods and Procedures – Conservation Technical Handbook No. 1.

### **3.0 RESULTS AND DISCUSSION**

#### **3.1 River Corridor Survey**

3.1.1 A River Corridor Survey has been completed for Silver Lane Brook within the site boundary area subject to watercourse realignment. The assessment was undertaken on 29<sup>th</sup> April 2019 by Harris Lamb aquatic ecologist Rob Harrison BSc MSc MCIEEM and assisted by Miles Haslam BSc. Mapping for the RCS is provided in Appendix 1. Photographs for general character and key river features as shown on the RCS map are provided in Appendix 2.

##### General watercourse character

3.1.2 The general character of Silver Lane Brook was of a straightened channel with a trapezoidal profile indicating previous realignment. The setting adjacent to an agricultural field suggests that the brook has previously been realigned to aid drainage of the field and accommodate agricultural practices. The channel emerges from a culverted section following drainage from the adjacent restored landfill and flows north into Glaze Brook. Within the site boundary Silver Lane Brook flows through two short c.10m culvert pipes which have been installed to allow the crossing of foot traffic and farm vehicles.

3.1.3 Surrounding land use was an arable field on the left bank, occasional scrub on the right bank with a track and restored landfill site beyond.

3.1.4 Substrates were predominantly silt and the earth banks were approximately 2-3 m high on each bank with a 45° angle. There were a few short sections of bank reinforcement consisting of rip rap and gabions. The wetted channel was typically c.1.5m and c.0.2m deep. Flows were either slow or non-perceptible and it is likely that the watercourse could dry up during prolonged dry weather conditions. This was reinforced by the presence of more terrestrial species such as Coltsfoot *Tussilago farfara* within the channel in some locations.

3.1.5 Plant species identified during the survey are presented in Table 1 below. Species assemblages were typical of a eutrophic ditch/brook. No species of note were encountered other than a small patch of the invasive non-native

Japanese Rose *Rosa rugosa* on the left bank top at National Grid Reference: SJ66969351.

**Table 1. Vegetation recorded**

Common name	Taxonomic name	Abundance (DAFOR scale)
<b>Bank / bank top</b>		
Japanese rose	<i>Rosa rugosa</i>	R
Greater willowherb	<i>Epilobium hirsutum</i>	O
Meadowsweet	<i>Filipendula ulmaria</i>	O
Nettle	<i>Urtica dioica</i>	F
Cleavers	<i>Galium aparine</i>	F
Broad-leaved dock	<i>Rumex obtusifolius</i>	F
Bramble	<i>Rubus fruticosus</i> agg.	F
Tufted forget-me-not	<i>Myosotis laxa</i>	O
Red campion	<i>Silene dioica</i>	O
Hogweed	<i>Heracleum sphondylium</i>	O
Bittersweet	<i>Solanum dulcamara</i>	O
Creeping thistle	<i>Cirsium arvense</i>	O
Creeping buttercup	<i>Ranunculus repens</i>	O
Cow parsley	<i>Anthriscus sylvestris</i>	O
Wavy bitter-cress	<i>Cardamine flexuosa</i>	O
<b>Emergent</b>		
Lesser water-parsnip	<i>Berula erecta</i>	O
Celery-leaved buttercup	<i>Ranunculus scleratus</i>	R
Water forget-me-not	<i>Myosotis scorpioides</i>	O
Soft rush	<i>Juncus effusus</i>	O
Creeping bent	<i>Agrostis stolonifera</i>	F
Bulrush	<i>Typha latifolia</i>	F
Reed canary-grass	<i>Phalaris arundinacea</i>	F
Water cress	<i>Rorippa nasturtium aquaticum</i>	O
Water plantain	<i>Alisima plantago aquatica</i>	O
Water horestail	<i>Equisetum fluviatile</i>	O
Coltsfoot	<i>Tussilago farfara</i>	R
Common comfrey	<i>Symphytum officinale</i>	O
Lesser water-parsnip	<i>Berula erecta</i>	O
<b>Floating leaved</b>		
Floating sweet-grass	<i>Glyceria fluitans</i>	O
Common duckweed	<i>Lemna minor</i>	O
Common water-starwort	<i>Callitriche stagnalis</i>	O
<b>Submerged</b>		
Green algae	<i>Cladophora glomerata</i> agg.	O



### 3.2 Assessment of impacts

3.2.1 An assessment of aquatic ecology elements that could be affected by the proposed changes in river morphology have been provided in Table 2 below.

**Table 2. Aquatic ecology receptor assessment**

<b>Aquatic ecology element</b>	<b>Assessment of impacts</b>
Macrophytes	The proposed channel realignment will remove the existing macrophytes from the channel in its current location. Upon reinstatement of the new channel it is considered that the flora will readily colonise the new channel. This would be aided by additional planting and reseedling of the banks where appropriate. Therefore, impacts will be temporary in nature and the new channel can be designed to allow greater diversity in macrophyte assemblages. No significant long-term negative impacts upon macrophytes are anticipated and increased biodiversity is likely to be seen as a result of the development. In addition, the adoption of Pollution Prevention Guidelines will limit any indirect impacts upon aquatic plants. Hence, no significant impacts upon macrophytes are anticipated.
Fish	No fish were noted within the watercourse during the site visit and due to the ditch like nature of the watercourse it is expected that only small numbers of robust species such as stickleback <i>Gasterosteidae</i> would be present in the reach. If at any point fish are observed, then to protect and remove fish from harms way the channel should be electro-fished prior to the channel being drained. Fish would be placed downstream and following the channel works they would be able to readily recolonise the site. In addition, the adoption of Pollution Prevention Guidelines will limit any indirect impacts upon fish and no significant impacts are anticipated.
Invertebrates	The repositioning of the channel would remove invertebrates from the works footprint in the short term. However, following opening of the new channel the habitats

<b>Aquatic ecology element</b>	<b>Assessment of impacts</b>
	<p>have been designed to improve channel morphology which will be of benefit to invertebrates. Due to the ephemeral nature of invertebrates, recolonisation is anticipated to occur readily upon completion of the works and no long-term negative impacts are anticipated. In addition, the adoption of Pollution Prevention Guidelines will limit any indirect impacts to invertebrates and no significant impacts are expected.</p>

## **4.0 CONCLUSIONS AND RECOMMENDATIONS**

### **4.1 Conclusion**

4.1.1 In conclusion, the scheme as proposed is likely to have short term impacts during construction phase which will disturb the fluvial waterbody whilst it is being repositioned.

4.1.2 Provided the new channel is designed to include mitigation for aquatic ecology then impacts can be minimised and ecological enhancement could be seen.

### **4.2 Recommendations**

4.2.1 The existing design proposals for the watercourse, site drainage and landscaping submitted with this application will minimise impacts to aquatic ecology on site. In addition, it is recommended that additional measures are included to cover toolbox talks, fish rescue, biosecurity and pollution prevention. These are detailed below.

#### Toolbox Talks

4.2.2 To ensure compliance with best practice for working in aquatic environments, all site personnel should be instructed on their responsibilities via toolbox talk at site induction and a record kept to show that they have been briefed. The toolbox talk should make them aware of waterbodies and measures such as pollution prevention that they need to action on site.

#### Potential fish rescue

4.2.3 Prior to works in the wetted channel and any drainage of the channel observations should be made to see if fish are present (fish have previously been unrecorded). If present, a fish rescue should be undertaken. This can be done via electrofishing from a qualified and experienced fisheries consultant. Fish removed should be placed downstream away from the works area. Note that the movement of fish will require a licence from the Environment Agency, and this should be applied for in advance.

#### Biosecurity

4.2.4 Due to the presence of the invasive species Japanese Rose good biosecurity is required. Good biosecurity practices are vital for preventing

the spread of invasive non-native species and pathogens such as waterborne fish diseases/crayfish plague. General biosecurity measures can include:

- All site personnel and visitors to be inducted in good biosecurity practices. This can include adoption of the check-clean-dry campaign: <http://www.nonnativespecies.org/checkcleandry/> [site accessed: 03/05/19].
- The check-clean-dry poster could be displayed in the site office as a reminder of good biosecurity practices: <http://www.nonnativespecies.org/downloadDocument.cfm?id=608> [site accessed: 03/05/19].
- If access to the water is required, particular care should be taken, and equipment and PPE should be checked and cleaned to prevent the spread of invasive species and waterborne diseases. A suitable disinfectant would be Virkon® S Aquatic. Following application of a suitable disinfectant, machinery and PPE should be allowed to fully dry for at least 72 hours before being used on another aquatic site.

#### Pollution Prevention

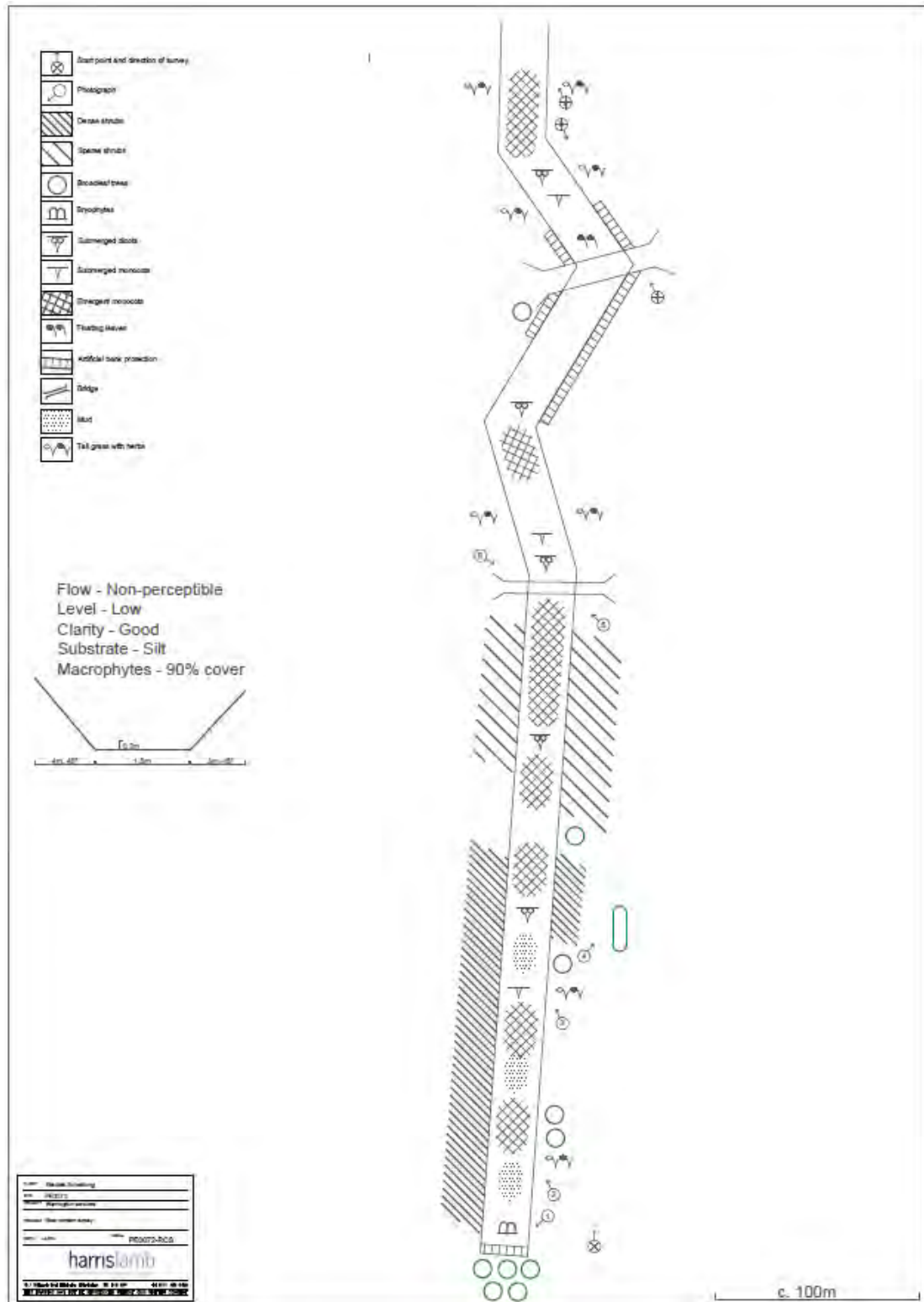
4.2.5 Appropriate mitigation measures can be implemented to ensure that habitats within proximity of the works are not degraded as a result of pollution events during the construction phase. Mitigation could include:

- Abiding by relevant pollution prevention measures e.g. CIRIA Guidance: Control of water pollution from construction sites. Guidance for consultants and contractors (C532D) (Masters-Williams, 2001). Information useful for Toolbox Talks on working near water and pollution prevention can be found at: [https://www.ciria.org/Resources/All\\_toolbox\\_talks/Env\\_toolbox\\_talks/Working\\_on\\_or\\_near\\_watercourses.aspx](https://www.ciria.org/Resources/All_toolbox_talks/Env_toolbox_talks/Working_on_or_near_watercourses.aspx) [site accessed: 03/05/19].
- Preventing accidental oil and fuel leaks can be achieved by the following actions:

- Any chemical, fuel and oil stores should be located on impervious bases within a secured bund with a storage capacity 110% of the stored volume.
- Biodegradable oils and fuels should be used where possible.
- Drip trays should be placed underneath any standing machinery to prevent pollution by oil/fuel leaks. Where practicable, refuelling of vehicles and machinery should be carried out on an impermeable surface in one designated area well away from any watercourse or drainage (at least 10m).
- Emergency spill kits should be available on site and staff trained in their use.
- Operators should check their vehicles on a daily basis before starting work to confirm the absence of leakages. Any leakages should be reported immediately.
- Daily checks should be carried out and records kept on a weekly basis and any items that have been repaired/replaced/rejected noted and recorded. Any items of plant machinery found to be defective should be removed from site immediately or positioned in a place of safety until such time that it can be removed.
- Silt run off can be prevented by incorporating the following actions:
  - Silt curtains should be used where appropriate to prevent silt from the construction works entering the watercourse.
  - Water quality downstream of the works can be monitored to detect any changes in water quality that could indicate a pollution incident. Should monitoring indicate potential pollution from the construction activities, works should be stopped, and a solution found to prevent the pollution source entering the watercourse. Monitoring could include:
    - Visual monitoring to see if water colour has changed or if a plume is visible indicating sediment input.
    - Water quality meter measurements for Dissolved Oxygen and pH.

**5.0 APPENDICES**

**Appendix 1 – River Corridor Survey Map**



**Standard Symbols for use in River Corridor Surveys**

**AQUATIC AND MARGINAL ZONES**

**CHANNEL FEATURES**

	Bridge (road/track)
	Footbridge
	Lock
	Inlet
	Weir
	Pool
	Riffle
	Rapids
	Run
	Waterfall
	Protruding rock
	Island (with vegetation)
	Direction of flow

**CHANNEL CROSS-SECTION**



**SUBSTRATE**

	Mud
	Sand
	Bare gravel/shingle
	Vegetated gravel/shingle
	Cobbles
	Boulders

**CHANNEL VEGETATION**

	Emergent Monocots
	Emergent Dicots
	Submerged Monocots
	Submerged Dicots
	Bryophytes
	Floating leaves

**SURVEY INFORMATION**

	Direction of survey/bank used
	Photograph

**BANK AND ADJACENT LAND ZONES**

**BANK FEATURES**

	Base of bank
	Top of bank
	Slump
	Stable earth cliff
	Eroding earth cliff
	Rock cliff
	Artificial bank protection
	Cattle drink
	Shelf / berm
	Spring / flush
	Inflow stream
	Outfall
	Dredgings/spoil

**ADJACENT LAND FEATURES**

	Fence
	Gate
	Road / track
	Railway
	Footpath
	Power lines
	Building
	Sewage works
	Flood bank
	Land use category
	Defined name / Phase 1 code

**VEGETATION**

**Trees**

	Conifer
	Broadleaf
	- overhanging
	- fallen
	- exposed roots
	Woodland + symbol for type
	Pollarded tree
	Tree needs pollarding
	Coppiced tree
	Sapling

**Shrubs/hedgerows**

	Shrub (single)
	Dense shrubs
	Sparse shrubs
	Hedgerow
	Hedgerow with trees

**Grasses and herbs**

	Reed / sedge
	Tall grass
	Tall herb / ruderal
	Tall grass with herbs
	Short grass
	Mown

**Appendix 2 - Site photographs**



**Plate 1. RCS photograph 1**



**Plate 2. RCS photograph 2**



**Plate 3. RCS photograph 3**



**Plate 4. RCS photograph 4**



**Plate 5. RCS photograph 5**



**Plate 6. RCS photograph 6**





**Plate 7. RCS photograph 7**



**Plate 8. RCS photograph 8**



**Plate 9. RCS photograph 9**



**Plate 10. RCS photograph 10**



**Plate 11. Panoramic view of the application area showing the brook to the left along the boundary**

## Appendix 1 – Legislation

The WFD came into force in 2000 and was transposed into UK law in 2003. The principal aims of the WFD are to protect and improve the water environment and promote the sustainable use of water. Environmental Quality Standards<sup>2</sup> for priority substances were set by the daughter directive to the WFD<sup>3</sup> and the Groundwater Directive<sup>4</sup>. The environmental objectives of the WFD are to:

- prevent deterioration of aquatic ecosystems;
- protect, enhance and restore waterbodies to Good status; which is based on ecology (with its supporting hydromorphological and physico-chemical factors) and chemical factors for surface water, and water quantity and chemical status for groundwater;
- comply with water related standards and objectives for environmentally protected areas established under other European Union (EU) legislation;
- progressively reduce pollution from priority substances and cease or phase out discharges of priority hazardous substances; and
- prevent or limit the input of pollutants into groundwater and reverse any significant or sustained upward trends in the concentration of any groundwater pollutant.

The WFD sets a default objective for all rivers, lakes, estuaries, groundwater and coastal waterbodies to achieve Good status by 2027 at the latest. Where it is not possible to achieve Good status by 2027, alternative waterbody objectives can be

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<sup>2</sup> Council Directive 2008/105/EC of the European Parliament and of the Council of 16 December 2008 on environmental quality standards in the field of water policy, amending and subsequently repealing Council Directives 82/176/EEC, 83/513/EEC, 84/156/EEC, 84/491/EEC, 86/280/EEC and amending Directive 2000/60/EC of the European Parliament and of the Council (the Priority Substances Directive).

<sup>3</sup> The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.

<sup>4</sup> Council Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration (the Groundwater Directive) including Commission Directive 2014/80/EU which amends Annex II of the original Directive 2006/118/EC.

set. The current (baseline) status, and the measures required to achieve the 2027 status objective are set out, for each waterbody, in the relevant River Basin Management Plans (RBMPs). The plans provide the baseline condition of the water environment at the time of publication, and indicate the measures needed and timescales required to attain their target status.

### **Surface Water / Fluvial Waterbodies**

For surface waterbodies, overall waterbody status has an ecological and a chemical component. Ecological status is measured on the scale of high, good, moderate, poor and bad. Chemical status is measured as good or fail, based on the presence or absence of priority substances which present a risk to the environment. Good ecological status (GES) is defined as a slight variation from undisturbed natural conditions, with minimal distortion arising from human activity. The ecological status of waterbodies is determined by examining biological elements (e.g. fish, invertebrates, plants) and a number of supporting elements and conditions, including physico-chemical (e.g. metals and organic compounds), and hydromorphological (e.g. depth, width, flow, and 'structure') factors.

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**EXTRA MSA GROUP**

**MOTORWAY SERVICES, WARRINGTON**

**GREAT CRESTED NEWT SURVEY REPORT**

**JULY 2019**

**DATE ISSUED:** JULY 2019  
**JOB NUMBER:** SH11739  
**REPORT NUMBER:** 003  
**VERSION:** V1.0  
**STATUS:** FINAL

**EXTRA MSA GROUP**

**MOTORWAY SERVICES, WARRINGTON**

**GREAT CRESTED NEWT SURVEY REPORT**

**JULY 2019**

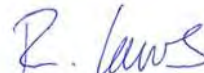
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Tim Palmer Technical Director (Ecology)



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## APPENDICES

Appendix 1	DNA Analysis Report
Appendix 2	Waterbody Descriptions, HSI and eDNA Survey Results

<b>DRAWINGS</b>	<b>TITLE</b>	<b>SCALE</b>
SH11739-008	Waterbody Location Plan	1:5,000@A3

## **1 INTRODUCTION**

### **1.1 Terms of Reference**

1.1.1 Wardell Armstrong LLP (WA) was commissioned by Extra MSA Group to undertake Environmental DNA (eDNA) testing for great crested newt (GCN) at a proposed Motorway Services Area development (hereafter referred to as the 'site'), located on the northern side of the M62 at Junction 11, central Ordnance Survey (OS) grid reference: SJ 67053 93630.

1.1.2 The site is located immediately adjacent to Junction 11 of the M62, on the north side of the motorway. On site, there are two ditches (WB8 and 9) and a single pond (WB11), there are eight waterbodies located within 500m of the site boundary. All waterbodies are highlighted on Drawing number SH11739-008. Suitable GCN terrestrial habitat including grassland, scrub, arable field margins, mixed broadleaved woodland and wet grassland are present on site. The wider landscape comprises arable farmland/pasture to the east, south east and north, a capped landfill directly west of the site and Birchwood Business and Technology Park to the south west.

1.1.3 Surveys followed recommendations from a Preliminary Ecological Appraisal (PEA) undertaken by Wardell Armstrong in 2018 which recommended that the potential for presence/absence of great crested newts within the site and surrounding area should be investigated further.

### **1.2 Scoping Consultation**

1.2.1 A scoping report was issued to Tameside Metropolitan Borough Council (TMBRC) during December 2018. Comments were returned during February 2019. The scoping response from TMBRC agreed that impacts on great crested newt terrestrial habitat need to be considered in the Environmental Statement (ES). A recommendation of biodiversity net gain was made in line with the NPPF.

### **1.3 Legislative Framework**

1.3.1 All native amphibians receive legal protection in Great Britain arising from the following legislation:

- Wildlife and Countryside Act 1981 (as amended) (in Great Britain).
- Nature Conservation (Scotland) Act 2004.
- Conservation of Habitats and Species Regulations 2010 (as amended).

- 1.3.2 In England and Wales all amphibians are listed on Schedule 5 of the Wildlife and Countryside Act 1981 and the more threatened species (great crested newt, natterjack toad *Epidalea calamita* and pool frog *Pelophylax lessonae*) are also listed on Schedule 2 of the Conservation of Habitats and Species Regulations (2010 as amended).
- 1.3.3 It is an offence to deliberately capture, possess, disturb, kill, injure, or trade in great crested newts. In addition, it is an offence to damage or destroy the places they use for breeding or resting.
- 1.3.4 Other amphibian species, including smooth newt *Lissotriton vulgaris*, palmate newt *Lissotriton helveticus*, common frog *Rana temporaria* and common toad *Bufo bufo* are protected against unlicensed trade. The legislation applies to all life stages of these animals.



## **2 SURVEY METHODOLOGY**

### **2.1 Desk Study**

2.1.1 A desk study was carried out prior to the survey to identify suitable habitats for great crested newts, such as additional water features within the site and within 500m of the site boundary. This included a review of OS maps, aerial photographs and the Multi-Agency Geographical Information for the Countryside (MAGIC) website.

2.1.2 RECORD Local Record Centre were contacted to ascertain whether there were any known records of great crested newts within the last 10 years within a 2km radius of the central grid reference of the site. Any records exceeding a 10-year period are omitted from reference in the report.

### **2.2 Field Survey**

2.2.1 The eDNA testing of the eleven waterbodies was carried out on the 15th April 2019 and 3<sup>rd</sup> May 2019. Methodologies were undertaken in strict accordance with the relevant DEFRA guidelines<sup>1</sup> (Biggs et al., 2014).

2.2.2 The following field sampling protocols were followed when taking water samples of each pond:

- Twenty sub-samples at each pond were taken and evenly spaced around the pond margin and where possible, targeted areas where there was vegetation which could be used by great crested newts for egg laying.
- Using gloves, the surveyor opened the sterile Whirl-Pak bag plastic strip and collected 20 samples of 30mL each of pond water from around the margins of the pond. The samples were emptied into the Whirl-Pak bag and closed securely and shaken for 10 seconds.
- With a fresh pair of gloves on the surveyor used the clear plastic pipette provided and take 15ml of water from the Whirl-Pak bag into a sterile tube containing 35ml of ethanol to preserve the eDNA samples. The tubes were closed and shaken for 10 seconds to mix the samples and the preservatives.
- The above process was repeated to obtain six conical tubes for each pond.
- The remaining water in the Whirl-Pak bag was emptied back into the pond.

---

<sup>1</sup> Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F (2014). *Analytical and methodological development for improved surveillance of the Great Crested Newt. Defra Project WC1067*. Freshwater Habitats Trust: Oxford

- The above process was carried out for each pond surveyed.

2.2.3 All samples were labelled with the relevant eDNA testing kit reference and pond number.

2.2.4 The eDNA samples were returned to FERA on 16<sup>th</sup> April 2019 and Surescreen on 07<sup>th</sup> May 2019.

### **2.3 Constraints**

2.3.1 The majority of samples give a definitive positive or negative answer for eDNA presence; however, there is a risk of a false negative result due to detecting a problem within the water sample. Sample kits contain a DNA marker, if less of this marker is detected than expected, this indicates that the DNA, including any eDNA present, may have undergone some degradation. This is potentially due to presence of enzymes (nucleases) or compounds (e.g. phenolics) which can degrade DNA. If eDNA survey results are inconclusive, full conventional GCN presence/absence surveys may be required.

### **3 RESULTS**

#### **3.1 Desk Study**

3.1.1 RECORD provided 13 records of great crested newt within 2km of the site, the closest record being 870m east of the site.

#### **3.2 Field Survey**

3.2.1 Of the eleven waterbodies surveyed for great crested newt eDNA, none returned a positive result for the presence of eDNA. All results returned are negative showing great crested newt are absent from the ponds at the time of survey.

3.2.2 A single male great crested newt was recorded terrestrially during a reptile survey on 21<sup>st</sup> May 2019 under refugia in marshy grassland.

---

#### 4 REFERENCES

Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F (2014). *Analytical and methodological development for improved surveillance of the Great Crested Newt. Defra Project WC1067*. Freshwater Habitats Trust: Oxford.

**Appendix 1**  
**DNA Analysis Report**

# DNA Analysis Report - Commercial in Confidence



**Customer:** Wardell Armstrong LLP  
**Address:** Sir Hentry Doulton House, Forge Lane  
Etruria  
Stoke-on-Trent  
Stoke-on-Trent  
ST1 5BD

**Contact:** Michael Moores  
**Email:** m.moores@wardell-armstrong.com  
**Tel:** 01204227227

**Report date:** 25-Apr-2019

**Order Number:** GCN19-1021

**Samples:** Pond Water

**Analysis requested:** Detection of Great Crested Newt eDNA from pond water.

Thank you for submitting your samples for analysis with the Fera eDNA testing service. The details of the analysis are as follows:

## Method:

The method detects pond occupancy from great crested newts (GCN) using traces of DNA shed into the pond environment (eDNA). The detection of GCN eDNA is carried out using real time PCR to amplify part of the cytochrome 1 gene found in mitochondrial DNA. The method followed is detailed in Biggs J., et al, (2014). Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA. Freshwater Habitats Trust, Oxford.

The limits of this method are as follows: 1) the results are based on analyses of the samples supplied by the client and as received by the laboratory, 2) any variation between the characteristics of this sample and a batch will depend on the sampling procedure used. 3) the method is qualitative and therefore the levels given in the score are for information only, they do not constitute the quantification of GCN DNA against a calibration curve, 4) a 'not detected' result does not exclude presence at levels below the limit of detection.

The results are defined as follows:

- Positive:** DNA from the species was detected.
- eDNA Score:** Number of positive replicates from a series of twelve.
- Negative:** DNA from the species was not detected; in the case of negative samples the DNA extract is further tested for PCR inhibitors and degradation of the sample.
- Inconclusive:** Controls indicate degradation or inhibition of the sample, therefore the lack of detection of GCN DNA is not conclusive evidence for determining the absence of the species in the sample provided.

# DNA Analysis Report - Commercial in Confidence



CustomerReference	Fera Reference	GCN Detection	eDNA Score	Inhibition	Degradation
P1	S19-015962	Negative	0	No	No
P6	S19-015963	Negative	0	No	No
P5	S19-015966	Negative	0	No	No
P2	S19-015970	Negative	0	No	No
P4	S19-015971	Negative	0	No	No
P7	S19-015950	Negative	0	No	No
P3	S19-015951	Negative	0	No	No

The results indicate that eDNA for great crested newts was not detected in any of the samples submitted. Analysis was conducted in the presence of the following controls: 1) extraction blank, 2) appropriate positive and negative PCR controls for each of the TaqMan assays (GCN, Inhibition, and Degradation). All controls performed as expected.



This test procedure was developed using research funded by the Department of Environment, Food and Rural Affairs.


**Issuing officer: Steven Bryce**  
**Tel: 01904 462 070**  
**Email: e-dna@fera.co.uk**



**Appendix 2**  
**Waterbody Descriptions, HSI and eDNA Survey Results**






## Appendix 2: Waterbody Descriptions and HSI Results

Waterbody Description and Photograph		HSI & eDNA Survey Results
<p><b>Waterbody 1</b>                      Grid Reference SJ 65980 94037                      Large open waterbody located offsite, approximately 800 m to the north-west of site boundary. Wildfowl/gulls present.</p>		<p>HSI Score – 0.49 – Poor                      eDNA Result – Negative</p>
<p><b>Waterbody 2</b>                      Grid Reference SJ 66248 94152                      Large open waterbody located offsite, approximately 530m to the north-west of the site boundary. Wildfowl present.</p>		<p>HSI Score – 0.49 – Poor                      eDNA Result – Negative</p>
<p><b>Waterbody 3</b>                      Grid Reference SJ 66696 94174                      Large waterbody located offsite, approximately 290m to the north-west of the site boundary.</p>	<p>Image not available</p>	<p>HSI Score – 0.49 – Poor                      eDNA Result – Negative</p>

Waterbody Description and Photograph	HSI & eDNA Survey Results	
<p><b>Waterbody 4</b>                      Grid Reference SJ 66793 94066                      Medium sized waterbody located offsite, approximately 140m to the north-west of the site boundary.</p>	<p>Image not available</p>	<p>HSI Score – 0.76 – Good                      eDNA Result – Negative</p>
<p><b>Waterbody 5</b>                      Grid Reference SJ 67337 94339                      Medium sized waterbody located offsite, approximately 490m to the north east of the site boundary.</p>	<p>N/A -Access Restricted</p>	<p>N/A</p>
<p><b>Waterbody 6</b>                      Grid Reference SJ 66893 93531                      Medium sized waterbody located adjacent to the western site boundary. Unshaded margins and surrounded by bulrush <i>Typha latifolia</i>. Low number of wildfowl observed using waterbody.</p>		<p>HSI Score – 0.72 – Good                      eDNA Result – Negative</p>

Waterbody Description and Photograph	HSI & eDNA Survey Results	
<p><b>Waterbody 7</b>                      Grid Reference - SJ 67252 93599                      Small waterbody located offsite, within rush pasture surrounded by acid grassland approximately 87m to the east of the site boundary.</p>		<p>HSI Score – 0.63 – Average                      eDNA Result – Negative</p>
<p><b>Waterbody 8</b>                      Grid Reference - SJ 66920 93700                      Extends approximately 227m in length to the west of the public footpath with no connectivity to waterbody 9. The ditch is approximately 2.5m wide but varies in size throughout the channel. Average water depth is approximately 0.5m with areas fluctuating to 1m. Submerged, vegetation is dominated by bulrush with occasional water cress <i>Nasturtium officinale</i>, water forget me not <i>Myosotis scorpioides</i>, common water crowfoot <i>Ranunculus aquatilis</i> and brooklime <i>Veronica beccabunga</i>.</p>		<p>HSI Score – Not surveyed                      eDNA Result – Negative</p>

Waterbody Description and Photograph		HSI & eDNA Survey Results
<p><b>Waterbody 9</b>                      Grid Reference - SJ 66960 93554                      Approximately 1-1.5m wide with shallow embankments. Water depth is approximately 0.5m deep with slow flowing water to the north. The embankments within the southern section heavily shaded by trees and dense scrub including bramble <i>Rubus fruticosus</i>, hawthorn <i>Crataegus sp.</i> and goat willow <i>Salix caprea</i>. In places is heavily vegetated with tall ruderals including willowherb species <i>Epilobium sp.</i> and reed canary grass <i>Phalaris arundinacea</i>.</p>		<p>HSI Score – Not surveyed                      eDNA Result – Negative</p>
<p><b>Waterbody 10</b>                      Grid Reference - SJ 66757 93317                      Small waterbody located to the west of the site, adjacent to the boundary. Wildfowl observed using the waterbody.</p>		<p>HSI Score – Not surveyed                      eDNA Result – Negative</p>

Waterbody Description and Photograph	HSI & eDNA Survey Results
<p><b>Waterbody 11</b> Grid Reference - SJ 66863 93403 Small waterbody located within the site boundary to the south west. Shallow depth with birch <i>Betula spp.</i> trees growing within the waterbody.</p>	 <p>HSI Score – Not surveyed eDNA Result – Negative</p>

## **DRAWINGS**



**KEY**

- Site Boundary
- Waterbodies
- Running water

**Notes:**

Boundaries are indicative.

Aerial imagery shown for context purposes only.

S A	SITE BOUNDARY AMENDMENTS FIRST ISSUE	JULY 2019 APRIL 2019	SW SW	TP JI	TP TP
REVISION	DETAILS	DATE	DRAWN	CHKD	APPD

CLIENT	EXTRA MSA GROUP
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PROJECT	MOTORWAY SERVICES, WARRINGTON
---------	-------------------------------

DRAWING TITLE	WATERBODY LOCATION PLAN
---------------	-------------------------

DRG No.	SH11739/008	REV	B
DRG SIZE	A3	SCALE	1:5,000
		DATE	22/07/2019
DRAWN BY	SW	CHECKED BY	JJ
		APPROVED BY	TP

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## **Appendix 5.4 - Preliminary Ecological Appraisal**



**EXTRA MSA GROUP**

**MOTORWAY SERVICES, WARRINGTON**

**PRELIMINARY ECOLOGICAL APPRAISAL**

**JULY 2019**

**DATE ISSUED:** JULY 2019  
**JOB NUMBER:** SH11739  
**REPORT NUMBER:** 004  
**VERSION:** V1.0  
**STATUS:** FINAL

**EXTRA MSA GROUP**

**MOTORWAY SERVICES, WARRINGTON**

**PRELIMINARY ECOLOGICAL APPRAISAL**

**JULY 2019**

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## APPENDICES

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Appendix 2 Habitat Suitability Survey

<b>DRAWINGS</b>	<b>TITLE</b>	<b>SCALE</b>
SH11739/007	Extended Phase 1 Habitat Survey Results	1:3,000@A3
SH11739/008	Waterbody Location Plan	1:5,000@A3
SH11739/016	Location of Statutory and Non-Statutory Conservation Sites	1:40,000@A3

---

## **EXECUTIVE SUMMARY**

Wardell Armstrong LLP (WA) was commissioned by Extra MSA Group to undertake a Preliminary Ecological Appraisal (PEA) of land north of M62 Junction 11. The land is the site of a proposed new Motorway Services Area.

The development will require the removal of mainly arable land with limited ecological value, a small area of scrub and unmanaged grassland and a ditch may also be directly impacted depending on final site design.

Survey recommendations have been provided given the likely/potential presence of breeding, nesting and wintering birds, badger, water vole, great crested newts, reptiles, and foraging/roosting bats, alongside ecological enhancement measures. Mitigation and enhancement measures are not proposed in this report, but provisional opportunities are considered in the associated Scoping chapter.

## **1 INTRODUCTION**

### **1.1 Terms of Reference**

1.1.1 Wardell Armstrong LLP (WA) was commissioned by Extra MSA Group to undertake a Preliminary Ecological Appraisal (PEA) of a proposed Motorway Services Area development (hereafter referred to as the 'development'), located on the northern side of the M62 at Junction 11, central Ordnance Survey (OS) grid reference: SJ 67053 93630.

1.1.2 This report has been produced with reference to current guidelines for Preliminary Ecological Appraisal (Chartered Institute of Ecology and Environmental Management (CIEEM 2017)) and British Standard BS 42020:2013 (BSI 2013) which involves the evaluation of the potential presence of ecological receptors and adverse effects thereon, based on Extended Phase I (Joint Nature Conservation Committee (JNCC 2010)) survey data and background desk study.

1.1.3 The following ecological features have been considered:

- Statutory and non-statutory designated conservation areas;
- Local Biodiversity Action Plan (LBAP) habitats;
- Areas of Ancient Woodland;
- Legally protected species;
- Species listed within section 41 (s.41) of the NERC Act; and
- Invasive species.

1.1.4 Mitigation and enhancement measures are not proposed in this report but provisional opportunities are considered in the associated Scoping chapter.

1.1.5 Specific habitat features are mapped on Drawing No. SH11739/001. Waterbody locations are mapped on Drawing No. SH11739/002 with appropriate reference numbers provided and Drawing No. SH11739/016 showing the Location of Statutory and Non-Statutory Conservation Sites.

### **1.2 Site Context**

1.2.1 The proposed development is to be located immediately adjacent to Junction 11 of the M62. The survey area (Site) covers the application area plus adjacent habitats where these are relevant to the assessment of potential adverse effects.

- 
- 1.2.2 The wider landscape comprises arable farmland/pasture to the east, south east and north, a capped landfill directly west of the site and Birchwood Business and Technology Park to the south west.
- 1.2.3 Holcroft Moss Site of Special Scientific Interest is located approximately 1,080m east and Manchester Mosses Special Area of Conservation, Risley Moss Site of Special Scientific Interest and Risley Moss Local Nature Reserve are located approximately 1.4km south of the site.

## **2 METHODOLOGY**

### **2.1 Desk Study**

2.1.1 The desktop study was informed by review of existing available information provided by RECORD (Local Records Centre) and from available internet-based resources for a 2km search radius. OS and satellite mapping was also used to gain contextual habitat information. In addition, a 5km search radius was used for Special Protected Area's (SPA's), Special Areas of Conservation (SAC's) and Ramsar sites due to their ecological sensitivity. The search was also extended to 5Km for statutory sites which are notified for their bat interest. OS and satellite mapping was also used to gain contextual habitat information.

2.1.2 Specific information was sought for:

- Statutory designated sites;
- Locally designated sites;
- Ancient woodland;
- Protected and/or notable species;
- NERCs.41 Priority Habitats and Species; and
- Local Biodiversity Action Plan (LBAP) priority habitats and species.

### **2.2 Extended Phase I Habitat Survey**

2.2.1 Wardell Armstrong LLP carried out an Extended Phase I Habitat Survey of the site on 31<sup>st</sup> October 2018. The survey followed the 'Extended Phase I Habitat Survey' methodology (Institute of Environmental Assessment (IEA), 1995 and JNCC 2010). Each of the main habitats were classified according to the relevant criteria including vegetation composition expressed according to the DAFOR<sup>1</sup> system.

2.2.2 In addition to the mapping and description of habitats, incidental observations of protected and/or notable species and the potential for such species to occur on site (and in the surrounding landscape where relevant) were also recorded for mapping and data collection purposes.

2.2.3 Specific habitat features are mapped on Drawing No. SH11739/001.

---

<sup>1</sup> D – Dominant, A – Abundant, F – Frequent, O – Occasional, R-Rare.



## 2.3 Habitat Suitability Index Assessment for Great Crested Newt

2.3.1 In addition to the Extended Phase I Habitat Survey a great crested newt (GCN) *Triturus cristatus* Habitat Suitability Index (HSI) assessment was undertaken of accessible ponds within, and up to ~500m from, the site boundary.

2.3.2 This HSI assessment was conducted in accordance with good practice guidelines (Langton, Beckett and Foster 2001). This HSI scoring system assesses a waterbodies' suitability as an aquatic habitat for GCN following ARG UK (2010) methodology which is based on Oldham *et al* (2000).

2.3.3 The HSI is a simple model to provide an informed view of the value of a waterbody to support breeding populations of GCN, which involves assessing waterbodies based on ten habitat parameters that are known to influence breeding populations of GCN. A score between 0 and 1 is assigned to each parameter, based on field observations. The tenth root of the product of these parameters is then calculated, giving a figure for habitat suitability.

2.3.4 The parameters to which a quantitative figure is assigned are:

- Location;
- Pond area;
- Pond drying;
- Water quality;
- Shade;
- Wildfowl presence;
- Fish presence;
- No. of ponds within 1km;
- Quality of terrestrial habitat; and
- Presence of macrophytes.

2.3.5 The calculated HSI score is used to define the suitability of the pond on a categorical scale, as shown in Table 1 below. It should be noted, however, that the system is not sufficiently robust to reliably infer presence/absence of great crested newt.

<b>Table 1: Great Crested Newt HSI Scoring System</b>	
<b>HSI Score</b>	<b>Pond Suitability for GCN</b>
<b>&lt;0.5</b>	<b>Poor</b>
<b>0.5-0.59</b>	<b>Below average</b>
<b>0.6-0.69</b>	<b>Average</b>
<b>0.7-0.79</b>	<b>Good</b>
<b>&gt;0.8</b>	<b>Excellent</b>

2.3.6 Typically, ponds which return an HSI score of 0.5 (below average) or higher are considered be suitable for GCN and therefore require further surveys to determine GCN population class size.

2.3.7 GCN are also known to use ditches and culverts as commuting corridors, therefore any connective linear waterbodies within 500m of the study area boundary were also visually assessed for their suitability to support GCN.

## **2.4 Caveat & Assessment Limitations**

2.4.1 Ecological surveys are limited by factors that affect the presence of plants and animals such as time of year, weather, migration patterns and behaviour. The survey was undertaken in October and therefore represents a valid sample of ecological evidence present on that date/season. The report is not designed, nor is it required to present a complete inventory of flora/fauna.

2.4.2 The absence of desk study records is not relied upon to determine absence of a particular species/habitat. Often, the absence of records is a result of under-recording within the given search area and as such the experience of the ecologist concerned together with a range of additional factors, in particular the presence/absence of potentially supporting habitat; is used to infer likely presence/absence of ecological receptors.

## **2.5 Nomenclature**

2.5.1 Vascular plant names follow '*New Flora of the British Isles*' (Stace 2010) with vernacular names as provided in the Botanical Society of the British Isles website (BSBI, 2013). All other flora and fauna names following the National Biodiversity Network (NBN) Atlas (NBN, 2017). The common and scientific name of species/taxa is provided (if available) when first mentioned in the text, with only the vernacular name referred to thereafter.

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## **2.6 Quality Assurance & Environmental Management**

2.6.1 The surveys, assessments and the report have been checked and verified by a member of CIEEM, whom is bound by its code of professional conduct. All surveys and assessments have been undertaken with reference to the recommendations given in British Standard BS 42020, and as stated within specialist guidance, as appropriate and referenced separately.

### 3 RESULTS AND EVALUATION

#### 3.1 Desk Study

##### Statutory and Non-Statutory Designated Sites

- 3.1.1 The desk study results for designated sites within a 2km search radius are evaluated in Table 2, below. Sites are also mapped on Drawing No. SH11739/016.
- 3.1.2 Sites which are considered potentially sensitive to the development proposals by virtue of their supported species or habitat assemblages, the distance/ecological connectivity to the application site and the nature of the perceived impacts, are highlighted in bold text and are discussed in detail in the final sections of the report.
- 3.1.3 Sites for which potential adverse effects are not anticipated are excluded from further assessment.

Table 2: Designated Sites Evaluation		
Conservation Site Name, Status <sup>2</sup> and distance from development site	Reason for Designation	Potential Adverse Effects?
Manchester Mosses (SAC) and Astley & Bedford Mosses (SSSI)  3,881m north east	Presence of degraded raised bog which is capable of natural restoration.	Effects to off-site peatlands due to hydrological connectivity with subsurface peat on site and impacts thorough N deposition resulting from changes to traffic volumes/location. Further investigation required and likelihood of effect dependant on site/construction design.
Manchester Mosses (SAC) Risley Moss (SSSI), LNR.  1,410m south	The breeding bird assemblage of this unit remains in favourable condition and the site is critical to the hydrological integrity of the adjacent lowland raised bog habitat, supporting areas W4a lagg fen woodland. Habitats of mossland, mixed woodland and grass meadow supporting notable species. Three distinctly different ponds lie within the woodland, supporting an important and diverse range of aquatic life.	As above. Limited ecological connectivity, due to presence of M62 so impacts to SSSI supported bird assemblages are likely negligible.

<sup>2</sup> SPA – Specially Protected Area, SAC – Special Area for Conservation, SSSI – Site of Special Scientific Interest, NNR – National Nature Reserve, LNR – Local Nature Reserve, CWS – County Wildlife Site.

<b>Table 2: Designated Sites Evaluation</b>		
<b>Conservation Site Name, Status<sup>2</sup> and distance from development site</b>	<b>Reason for Designation</b>	<b>Potential Adverse Effects?</b>
Rixton Clay Pits (SAC), Rixton Clay Pits (SSSI) and LNR  3,250m south	Former clay pits with a rich mosaic of wet grassland, woodland and open water, scattered ponds and associated swamp habitats.  Of national importance for its calcareous grassland communities and of international importance because the site supports the county's largest known breeding population of great crested newts.	No potential adverse effects due to separation distance and lack of connectivity.
<b>Holcroft Moss (SSSI)</b>  890m west	<b>The moss occupies several small depressions in the Upper Terrace of the Mersey Valley and is an isolated remnant of the once extensive area of mossland formerly associated with this valley.</b>	<b>Effects to off-site habitats from N deposition resulting from changes to traffic volumes/location. Further investigation required and likelihood of effect dependant on site/construction design. As above.</b>
Woolston Eyes (SSSI)  4,565m south	Woolston Eyes SSSI is a nationally important site for its breeding bird assemblage of lowland open waters and their margins, and for wintering wildfowl.	No potential adverse effects due to separation distance and lack of connectivity.
Gorse Covert Mounds (LWS)  87m south	A mosaic of mixed woodland, meadows and ponds, located between Risley and the M62, connected to Risley Moss SSSI/LWS via a green corridor.	No potential adverse effects due to lack of connectivity (presence of M62).
<b>Pestfurlong Moss (LWS)</b>  230m south	<b>A lowland raised bog habitat with scrub and woodland. Pestfurlong Moss connects the larger Risley and Holdcroft mosses.</b>	<b>Effects to off-site peatlands due to hydrological connectivity with subsurface peat on site and impacts thorough N deposition resulting from changes to traffic volumes/location. Further investigation required and likelihood of effect dependant on site/construction design.</b>
<b>Silver Lane Risley (LWS)</b>  618m west	<b>Public bridleway with open pools and a mosaic of hedgerow, scrub and grassland habitats.</b>	<b>Potential adverse effects to associated species due to close proximity to the site and has ecological connectivity.</b>

3.1.4 The search area is extended to allow for the inclusion of Impact Risk Zones (IRZ) for SSSIs. IRZs define areas around designated nature conservation sites which could be impacted by development schemes. The zones vary depending on the particular sensitivities of the features for which the SSSI is notified and indicate the types of development proposal which could potentially have adverse impacts. Due to the presence of SSSI's mentioned in Table 2, the application site falls within several IRZ bands.

## **3.2 Extended Phase I Habitat Survey**

### **Habitats**

- 3.2.1 All habitats within the study area are described in Table 3 below, together with an indication of their suitability to support NERC s41<sup>3</sup> 'priority' and Cheshire region Local BAP<sup>4</sup> habitats. The table also provides an evaluation of the sensitivity of the habitats relative to the proposed development.
- 3.2.2 Habitats which are could be subject to adverse effects are indicated with bold text and are discussed in the latter sections of the report. Habitats for which potential adverse effects are not anticipated are excluded from further assessment.
- 3.2.3 The location and extent of habitats is shown on Drawing No. SH11739/001, Extended Phase I Habitat Survey Results.

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<sup>3</sup> Habitats listed under section 41 of the Natural Environment and Rural Communities (NERC) Act as habitats of Principal Importance

<sup>4</sup><https://www.cheshirewildlifetrust.org.uk/sites/default/files/2018-06/BAP%20list%20-%20updated%20April%202011.pdf>



Table 3: Habitat Description and Evaluation		NERC s.41	LBAP	Adverse Effects?
<b>Phase I Habitats</b>				
<p><u>Arable Land</u></p> <p>Arable farmland dominates the survey area. This habitat is actively disturbed by agricultural operations and at the time of survey appeared to have been seeded with autumn sown cereals. Arable margins are scant, but where present, are dominated by cock's-foot <i>Dactylis glomerata</i>, Yorkshire-fog <i>Holcus lanatus</i>, creeping bent <i>Agrostis stolonifera</i> with occasional cleavers <i>Gallium aparine</i>, rosebay willowherb <i>Chamerion angustifolium</i>, bramble <i>Rubus fruticosus</i> and nettle <i>Urtica dioica</i>.</p>		*	*	This habitat is of little intrinsic ecological value.
<p><u>Neutral Grassland, Tall Ruderal and scrub</u></p> <p>A mosaic of habitats is present along the southern and western boundaries of the site. Unmanaged neutral grassland being the dominant type with variable areas of continuous/scattered scrub and tall ruderals also present.</p> <p>Species present include great willowherb <i>Epilobium hirsutum</i> (D), broadleaved dock <i>Rumex obtusifolius</i> (D), creeping thistle <i>Cirsium arvense</i> (D), common reed <i>Phragmites australis</i> (A), perennial rye grass <i>Lolium perenne</i> (A), cock's foot (A), bramble (F), common nettle (F), vetch spp. (O), alder <i>Alnus glutinosa</i> (O), elder <i>Sambucus nigra</i> (R), common ragwort <i>Senecio jacobaea</i> (R) and pedunculate oak <i>Quercus robur</i> (R).</p>		*	*	The habitat is of negligible intrinsic ecological value.


Table 3: Habitat Description and Evaluation		NERC s.41	LBAP	Adverse Effects?
<b>Phase I Habitats</b>				
<p><u>Marshy Grassland</u></p> <p>There is a small area of wet/marshy grassland within the larger area of tall ruderal habitat located along the western boundary. The species composition includes common reed (D), cocksfoot (F), perennial rye grass (O), great willowherb (O) and marsh thistle <i>Cirsium pallustre</i>. (R).</p>		*	*	This habitat is of negligible intrinsic ecological value.




Table 3: Habitat Description and Evaluation		NERC s.41	LBAP	Adverse Effects?
<b>Phase I Habitats</b>				
<p><u>Broadleaved scattered trees</u></p> <p>Bordering the western boundary of the site is a discontinuous line of silver birch <i>Betula pendula</i> (D) trees. Species also present in the tree line are elder (F) and grey willow <i>Salix cinerea</i> (R). The ground flora is comprised of common nettle (D), fern sp. (A), mosses (A), bramble (F), cock's-foot (F) and perennial rye grass (F).</p> <p>Individual silver birch trees are also present along the northern boundary of the site.</p>		×	✓	This habitat will be retained.


Table 3: Habitat Description and Evaluation		NERC s.41	LBAP	Adverse Effects?
<b>Phase I Habitats</b>				
<p><u>Dry Ditch</u>                      Running along the eastern boundary under the birch treeline is a dry ditch. The banks were partly bare, with eroding and exposed peat along the majority of the banks. Species present include Himalayan balsam <i>Impatiens glandulifera</i> (A), mosses (F), bramble (O), fern sp. (O), mosses and common nettle (O).</p>		*	*	This habitat will be retained.


Table 3: Habitat Description and Evaluation		NERC s.41	LBAP	Adverse Effects?
<b>Phase I Habitats</b>				
<p><u>Mesotrophic Running Water</u></p> <p>Along the western boundary is a wet ditch with running water from the southern boundary to beyond the northern boundary. At the time of the survey, water levels were low with the ditch approx. 1m wide. The banks are vegetated with perennial rye grass (A), cock's-foot (A), common reed (A), great willowherb (A), common nettle (F), and vetch spp. (R).</p>		*	*	<p>This habitat may be impacted as a result of modifications to the drainage design, however it is of limited ecological value.</p>



Table 3: Habitat Description and Evaluation		NERC s.41	LBAP	Adverse Effects?
<b>Phase I Habitats</b>				
<p><u>Semi-natural Broadleaved Woodland</u></p> <p>Within with north western and south western boundary are small areas of semi-natural broadleaved woodland with high coverage of leaf litter and dead wood. Tree species present include lombardy poplar <i>Populus nigra</i> (D), goat willow <i>Salix caprea</i> (F), hawthorn <i>Crataegus monogyna</i> (O) and alder (R). The ground layer is dominated with bramble (D) with stinging nettle (F), great willowherb (O), cleaver (O), yorkshire fog (F) and broad-leaved dock (O).</p>		✓	✓	This habitat will be retained.

Table 3: Habitat Description and Evaluation		NERC s.41	LBAP	Adverse Effects?
<b>Phase I Habitats</b>				
<p><u>Hard Standing</u></p> <p>From within south western boundary of the site, running north along the western site boundary is an area of hard standing used as parking and as an access track.</p>		×	×	This habitat is of no intrinsic ecological value.

## Species

3.2.4 Sightings and/or evidence of protected and/or invasive species from the field survey are described below.

### Birds

3.2.5 All birds recorded during the survey are summarised in Table 4, below together with a preliminary assessment of potential adverse effects arising from the development.

3.2.6 All nesting birds are discussed in the final section given the general legislative provisions relating to the protection of active nests.

Table 4: Bird Species Recorded				
Common name	Latin name	Status <sup>5</sup>	Supporting Habitat	Adverse Effects?
Blackbird	<i>Turdus merula</i>		Yes – woodland for nesting habitat with grassland and shrubs for foraging.	None – supporting habitat will be retained and is locally abundant.
Chaffinch	<i>Fringilla coelebs</i>		Yes – woodland for nesting habitat with grassland and shrubs for foraging.	None – supporting habitat will be retained and is locally abundant.
Great tit	<i>Parus major</i>		Yes – grassland and shrubs with nearby waterbodies.	None – supporting habitat will be retained and is locally abundant.
Grey heron	<i>Ardea cinerea</i>		Yes – grassland and shrub habitat for nesting and foraging	None – supporting habitat will be retained and is locally abundant.
Kestrel	<i>Falco tinnunculus</i>	AL	Yes – woodland nesting habitat and scrub, grassland foraging habitat	None – supporting habitat will be retained and is locally abundant.
Stock dove	<i>Columba oenas</i>	AL	Yes - woodland for nesting habitat with grassland and shrubs for foraging.	None – supporting habitat will be retained and is locally abundant.

<sup>5</sup> S1 – Schedule 1 Wildlife and Countryside Act, A1 – Annex 1 EU Birds Directive, RL - Birds of Conservation Concern ‘red list’, AL - Birds of Conservation Concern ‘amber list’, s.41- species listed under section 41 of the NERC Act as species of principal importance

<b>Table 4: Bird Species Recorded</b>				
<b>Common name</b>	<b>Latin name</b>	<b>Status<sup>5</sup></b>	<b>Supporting Habitat</b>	<b>Adverse Effects?</b>
Skylark	<i>Alauda arvensis</i>	RL, s.41	Yes - grassland and shrub habitat for nesting and foraging	None – supporting habitat will be retained and is locally abundant.
Wren	<i>Troglodytes troglodytes</i>		Yes – woodland, scrub nesting habitat and grassland and farmland foraging habitat	None – supporting habitat will be retained and is locally abundant.

*Invasive Species*

3.2.7 Stands of Himalayan balsam *Impatiens glandulifera* were present along the eastern boundary of the site.

**3.3 Ecological Evaluation**

3.3.1 Protected and LBAP species are evaluated in order to identify potential adverse effects in Table 5 below, based on the desk study records, presence, extent and viability of supporting habitat, and ecological connectivity.

3.3.2 Species for which adverse effects are predicted are indicated in bold text and are discussed in more detail in the Discussion section. Species/taxa for which potential adverse effects are not anticipated are excluded from further assessment.

Table 5: Species Evaluation				
Receptor (Species/taxa)	Desk Study records?	Status <sup>6</sup>	Supporting Habitat Present?	Adverse Effects?
Bats <i>Chiroptera</i>	✓	EPS, WCA, s.41, LBAP	Tree line commuting habitat and tree line, scrub and wet grassland foraging habitat.	Adverse impacts are limited to minor disturbance to foraging bats and loss of commuting habitat, in the absence of mitigation. Impacts to roosting bats are unlikely although additional inspections will be required to establish presence of roost features within trees.
Badger <i>Meles meles</i>	✓	BA	Suitable sett creation habitat was located within the dry ditch and broadleaved scattered trees.	Species is likely to be absent due to high water table/wet soil conditions. However, possible sett creation habitat will be lost associated with the tree line along the eastern site boundary. Incidental harm and loss of habitat may result in the absence of mitigation.
Brown Hare <i>Lepus europaeus</i>	✓	s.41	Open expanses of farmland and scrub habitat.	Minor loss of arable farmland habitat to development platform and minor disturbance of surrounding land. Habitat losses are not anticipated to negatively impact local populations, given the wide availability of similar habitat

<sup>6</sup> EPS – European Protected Species, WCA – Wildlife and Countryside Act, A1 – Annex 1 (Birds Directive), BA – Protection of Badgers Act, s.41- species listed under section 41 of the NERC Act as species of principal importance



<b>Table 5: Species Evaluation</b>				
<b>Receptor (Species/taxa)</b>	<b>Desk Study records?</b>	<b>Status<sup>6</sup></b>	<b>Supporting Habitat Present?</b>	<b>Adverse Effects?</b>
European Hedgehog <i>Erinaceus europaeus</i>	No records.	s.41	Negligible suitable habitat restricted to tree line along eastern site boundary only.	As above.
Dormouse <i>Muscardinus avellanarius</i>	No records.	EPS, WCA, s.41	No suitable habitat.	N/a
Otter <i>Lutra lutra</i>	No records.	EPS, WCA, s.41	Running water habitat present on site is sub-optimal as it is shallow and unlikely to support prey species.	Presence is considered very unlikely given unsuitability of habitat and lack of historical records for area.
Water Vole <i>Arvicola amphibia</i>	Recorded at 59m west.	WCA, s.41	The running water habitat on site is sub-optimal for water vole given the shallow water and narrow profile.	Minor area of sub-optimal foraging and burrowing habitat may be lost or impacted in the absence of mitigation.
Reptiles	✓	WCA, s.41	The neutral grassland and scrub habitats present on site are sub-optimal, given that they appear to be relatively recent in origin – however the ditch margins which are linked to ponds off site may support grass snake <i>Natrix natrix</i> .	Species are likely to be absent, other than grass snake which may utilise the ditch banks as commuting/dispersal habitat between ponds and areas of established grassland. Modification of ditches may result in incidental harm in the absence of mitigation.
Great Crested Newt <i>Triturus cristatus</i>	Closest record at 870m east.	EPS, WCA, s.41, LBAP	Moderate terrestrial habitat for foraging and hibernating associated with neutral grassland along western site boundary.	Minor loss of moderate terrestrial habitat potentially resulting incidental harm in the absence of mitigation.
Common Toad <i>Bufo bufo</i>	✓	s.41	The scrub and running water habitats on site are sub-optimal.	Species is likely to be absent, minor losses of sub optimal terrestrial habitat would not significantly impact local populations.

<b>Table 5: Species Evaluation</b>				
<b>Receptor (Species/taxa)</b>	<b>Desk Study records?</b>	<b>Status<sup>6</sup></b>	<b>Supporting Habitat Present?</b>	<b>Adverse Effects?</b>
White-clawed Crayfish <i>Austropotamobius pallipes</i>	No records.	EPS, WCA, s.41	No suitable habitat.	No adverse effects.
<b>Birds</b>	<b>Barn owl were recorded 351m from site. Amber listed species include kingfisher, kestrel, bullfinch and greenshank. Red listed species include marsh tit, corn bunting, mistle thrush and house sparrow.</b>	<b>s.41, WCA BoCC, LBAP</b>	<b>Foraging and breeding habitat is present across the site and surrounding landscape.</b>	<b>Nesting and foraging habitat will be lost or disturbed in the absence of mitigation. The open fields could support notable assemblages of waterbirds which may be displaced by the development.</b>
Protected/notable Plant Species	No records.	s.41, LBAP	The site is considered unsuitable to support protected plant species.	No adverse effects.
Protected/notable Invertebrate Species	No records.	s.41	As the site is dominated by arable land suitable habitats are restricted to the site margins.	Given that the majority of the development platform will be located within the intensively farmed, arable land area no adverse effects are anticipated.

## 4 DISCUSSION AND RECOMMENDATIONS

### 4.1 Sensitive Receptors

4.1.1 The following designated sites, habitats and species (receptors) have been evaluated as being potentially subject to adverse effects in the absence of mitigation:

- Statutory and non-statutory conservation sites;
- Protected species (Great Crested Newt, Bats, Badger, Water Vole, Reptiles);
- Barn Owl;
- Breeding and Wintering birds; and
- Nesting birds.

4.1.2 The nature of potential effects and any additional survey requirements are discussed below for each of the identified receptors in turn. Mitigation requirements are discussed in the separate Scoping report where appropriate to be further considered once the relevant surveys are completed.

*Statutory and Non-statutory conservation sites including Manchester Mosses (SAC) and Astley & Bedford Mosses (SSSI), Risley Moss (SSSI), LNR, Rixton Clay Pits (SSSI) and LNR, Holcroft Moss (SSSI), Pestfurlong Moss (LWS) and Silver Lane Risley (LWS)*

4.1.3 The development area lies wholly outwith all of the conservation sites considered within the 2km and 5km search radii. The closest statutory site is Holcroft Moss which is in excess of 1km from the application site to the west and separated from it by the M62. Holcroft Moss, Astley and Bedford Mosses, Risley Moss are components of the internationally designated Manchester Mosses SAC. The selection criteria are as follows:

*7120 Degraded raised bogs still capable of natural regeneration*

*Mossland formerly covered a very large part of low-lying Greater Manchester, Merseyside and southern Lancashire, and provided a severe obstacle to industrial and agricultural expansion. While most has been converted to agriculture or lost to development, several examples have survived as degraded raised bog, such as Risley Moss, Astley & Bedford Mosses and Holcroft Moss on the Mersey floodplain. Their surfaces are now elevated above surrounding land due to shrinkage of the surrounding tilled land, and all except Holcroft Moss have been cut for peat at some time in the past. While past drainage has produced dominant purple moor grass *Molinia caerulea*, bracken *Pteridium aquilinum* and birch *Betula spp.* scrub*

*or woodland, wetter pockets have enabled the peat-forming species to survive. Recent rehabilitation management on all three sites has caused these to spread.*

- 4.1.4 As the application site lies outside the SAC suite, there will be no direct loss of EU Annex 1 protected habitat however the potential for the removal and/or stabilisation of sub surface peat within the application site may result in localised hydrological changes. It is unlikely that such effects will have any impact on the integrity of the SAC suite or result in any compromise to their conservation objectives; however, the proposals will be considered in detail in this regard and a (shadow) Stage 1 Habitats Regulations 'screening assessment' will be undertaken. This document will also consider any adverse effects to the SSSI sites which are also associated with the peatland habitats.
- 4.1.5 Local Wildlife Site Pestfurlong Moss is within close proximity to the site but separated by the motorway, however the non-statutory site contains peatland habitats and is subject to the same impacts as mentioned above.
- 4.1.6 Given the locality and ecological connectivity of Silver Lane Risley (LWS) a likelihood of negative impact is predicted in the absence of mitigation. There is limited hydrological connectivity via a ditch along the western boundary of site. It is recommended that all due care be taken to ensure that any arisings from the development including pollutants are prevented from entering the watercourses in line with CIRIA guidelines for Environmental Good Practice on site (2015).
- 4.1.7 Due to physical separation and distance between the application site and other Local conservation sites, no adverse effects are predicted although this will be further considered through the development of the scheme design and the completion of protected species surveys.

#### *Bats*

- 4.1.8 The habitats adjacent to the survey area to the east and west have the potential to support foraging and commuting bats (tree lines, hedgerows, grassland, waterbodies). There is a paucity of viable roosting habitat, although this will be further investigated via a ground-based inspection of all trees to search for suitable roost features.
- 4.1.9 In terms of foraging and commuting habitats, the habitats within the survey area are considered to be of 'Low' habitat quality, given their predominantly arable nature; however, the mosaic of adjacent habitats which lie adjacent necessitate a 'Moderate' Habitat quality valuation. Activity surveys in line with national standard guidelines

(Collins 2015) have therefore been devised on that basis. Detailed survey results will be reported separately.

- 4.1.10 Any trees with bat roost features and/or commuting habitats may be subject to light spill during construction and post-development. Therefore, a sensitive lighting scheme will be devised to minimise potential adverse effects.

#### *Badger*

- 4.1.11 No badger setts have been recorded within the survey area (including a 50 m 'buffer' of adjacent land). Nonetheless, the survey area contains suitable habitats for foraging and sett creation (i.e. scrub and grassland), including the linear woodland along the eastern site boundary and plantation woodland, and may be utilised by badgers occupying setts located further afield. In terms of loss of potential foraging habitat, given the wide availability of habitat within the locality, a small reduction in grassland and woodland is not expected to result in the loss of favourable conservation status if indeed badgers are present within the wider area.

- 4.1.12 A detailed badger survey will be undertaken to inform the environmental statement and in addition, in order to ensure compliance with the relevant legislation, it is recommended that a check for the presence of mammal burrows with an entrance diameter exceeding 100 mm should be undertaken prior to the onset of works. In the event that such mammal burrows are recorded clearance operations should cease until advice has been sought from a suitably qualified ecologist.

#### *Water Vole*

- 4.1.13 The habitats on site provide sub-optimal habitat for foraging and burrowing, with no evidence seen during the Extended Phase I Habitat Survey. However, the species may periodically use the habitats on site due to the close location of desk study records. It is recommended that a water vole survey is undertaken in accordance with standard guidelines (Strachan & Moorhouse 2006) and mitigation is considered following any confirmation of presence.

#### *Reptiles*

- 4.1.14 The survey area has suitable grass snake habitat in the form of grassland associated with linear waterbodies. In addition, suitable basking habitat is present on the open shorter areas of grassland along the western site boundary.

4.1.15 Given the presence of suitable habitat, further detailed surveys will be considered. However, in the event that suitable habitats can be avoided, or effects adequately mitigated, presence will be assumed, and surveys may not be undertaken.

*Great Crested Newt*

4.1.16 Five ponds (as shown on Drawing No. SH11739/002) and two ditches are present within 500m of the site boundary. There are two further ponds outside of the 500m included due to close proximity and connectivity to two of the ponds within the boundary. Where access was available, the waterbodies were assessed for their suitability to support amphibians, using HSI assessment methods.

4.1.17 One pond was not subject to the survey due to access restrictions (WB5). WB 4 and 6 were assessed as being of 'Good' suitability and WB 1,2 and 3 were assessed as 'Poor'. WB7 is considered to be 'Average'.

4.1.18 The terrestrial habitat on site which will be lost to the development is mainly unsuitable for great crested newt, being regularly tilled arable land. There are stands of unmanaged neutral grassland associated with the western boundary of the site which are a viable habitat. The loss of such habitats would potentially result in incidental harm to individual newts as well as a (likely minor) impact to local populations in the absence of mitigation.

4.1.19 It is therefore recommended that great crested newt presence/absence surveys are undertaken. It is considered that the M62 motorway acts as a sufficient barrier to land and ponds to the south of the site, thus only ponds located north of the motorway will require surveys. This includes the seven ponds identified on Drawing No. SH11739/002.

4.1.20 eDNA surveys for great crested newt entail water sampling of each pond for analysis to determine the presence of genetic material deposited by great crested newts. A sampling kit will be required for each pond, and samples will be taken in accordance with Natural England guidance. The samples are then sent for analysis to a Natural England approved laboratory. Should the results confirm absence of great crested newts prior to completion of the conventional surveys, then no further surveys would be required. Should the results confirm presence then it will be necessary to undertake detailed population assessment surveys via a further 6 survey visits.

### *Barn Owl*

4.1.21 The site does not support suitable breeding habitat for barn owl. However, the scrub habitat on site, field margins and bordering scrub habitat are considered to be viable foraging habitat for hunting barn owl. The arable land on and surrounding the site is not considered optimum habitat due to the likely low numbers of small mammals it supports. It is recommended a barn owl desk study is carried out to ascertain the importance of the site for barn owl, via consultation with the Barn Owl Conservation Trust.

### *Wintering Birds*

4.1.22 The open arable habitats on site and within the wider landscape are potentially attractive to waterbirds which aggregate into flocks during winter. Birds such as Lapwing *Vanellus vanellus*, Golden plover *Pluvialis apricaria* and certain grey geese *Anser spp* could potentially utilise the fields on site as part of a wider network of wintering habitat for daytime roosting and foraging. Wintering bird surveys are therefore being undertaken and will be reported separately.

### *Nesting Birds*

4.1.23 Due to the potential presence of nesting bird species within the scattered trees and scrub habitat it is recommended that initial development works are undertaken outside of the usual bird breeding season (i.e. between September-February). If such timescales cannot be accommodated and works are required during the nesting bird season (March-August inclusive), it is recommended that a check for the presence of active nests and nesting birds is undertaken by a suitably qualified ecologist prior to the commencement of works. Any active nests should be identified and protected subject to the relevant legal provisions until the nesting attempt is complete.

## 5 REFERENCES

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**Appendix 1**  
**Legislation and Policy Summary**

## Appendix 1 – Legislation and Policy Summary

### Legislation for Habitats/Sites

Designated Site/Habitat	Status
Ramsar Sites	Ramsar Sites are wetlands of international importance designated following The Ramsar Convention. RAMSAR sites have the same level of protection as SSSIs under the Wildlife and Countryside Act 1981 (as amended).
SPA (Special Protection Areas)	SPAs are classified in accordance with Article 4 of the EC Directive on the Conservation of Wild Birds (79/409/EEC), the Birds Directive. They are they seek to protect the habitats of rare and vulnerable birds, listed in Annex I of the Birds Directive, and for regularly occurring migratory species. The Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 implement the Birds Directive in the UK.
SAC (Special Areas for Conservation)	SACs are strictly protected areas which represent typical European Union of habitats and (non-bird) species listed in Annexes I and II of the EC Habitats Directive. The Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 implement the Habitats Directive in the UK.
SSSI (Sites of Special Scientific Interest)	SSSIs protect the best examples of the UK's flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were re-notified under the Wildlife and Countryside Act 1981 (as amended). Modified provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000.
NNR (National Nature Reserves)	NNRs are examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. NNRs are declared by the statutory country conservation agencies under the National Parks and Access to the Countryside Act 1949 and the Wildlife and Countryside Act 1981 (as amended). Legal protection of NNRs is provided under The Wildlife and Countryside Act 1981 (as amended).
Hedgerows	All hedgerows are protected by the Hedgerows Regulations 1997, under which it is an offence to remove or destroy certain hedgerows without planning consent or permission from the Local Planning Authority. These regulations do not apply to any hedgerow within the curtilage of, or marking the boundary of the curtilage of, a dwelling house.
LNR (Local Nature Reserves)	Designated by the National Parks and Access to the Countryside Act 1949, LNRs may be declared for nature conservation by local authorities after consultation with the relevant statutory nature conservation agency. Legal protection of LNRs is provided under The Wildlife and Countryside Act 1981 (as amended).

### Legislation for Species

Species	Legal Status
<i>European Legislation</i>	
Creeping Marshwort, Early Gentian, Fen Orchid, Floating-leaved Water Plantain, Killarney Fern, Lady's Slipper, Shore Dock, Slender Naiad, Yellow Marsh Saxifrage	Under the Conservation of Habitats and Species Regulations 2017 (and as amended), it is illegal to deliberately pick, collect, uproot or destroy any such species.
Bats, Dormouse, Otter, Wild Cat, Great Crested Newt, Natterjack Toad, Sand Lizard, Smooth Snake, Large Blue Butterfly	<p>These animals and their breeding sites or resting places are protected under Regulation 41 of the Conservation of Habitats and Species Regulations 2017 (and as amended), which makes it illegal to:</p> <ul style="list-style-type: none"> <li>• Deliberately capture, injure or kill any such animal or to deliberately take or destroy their eggs;</li> <li>• Deliberately disturb<sup>7</sup> such an animal; and</li> <li>• Damage or destroy a breeding site or resting place of such an animal.</li> </ul> <p>European Protected Species (EPS) licenses can be granted by Natural England in respect of development to permit activities that would otherwise be unlawful under the Conservation Regulations, providing that the following 3 tests (set out in the EC Habitats Directive) are passed, namely:</p> <ul style="list-style-type: none"> <li>• The development is for reasons of overriding public interest;</li> <li>• There is no satisfactory alternative; and</li> <li>• The favourable conservation status of the species concerned will be maintained and/or enhanced.</li> </ul> <p>Under Regulation 9(5) of the Conservation Regulations, Planning Authorities have a duty to 'have regard to the requirements of the EC Habitats Directive' i.e. LPA's must consider the above 3 'tests' when determining whether Planning Permission should be granted for developments likely to cause an offence under the Conservation Regulations.</p>

<sup>7</sup> Under the Conservation Regulations, disturbance of protected animals includes in particular any disturbance which is likely to: (i) impair their ability to survive, breed or reproduce, or to rear or nurture their young or to hibernate or migrate; (ii) significantly affect the local distribution or abundance of the species in question.

Species	Legal Status
<i>Domestic (UK) Legislations</i>	
Bats, Dormouse, Great Crested Newt, Heath Fritillary, High Brown Fritillary, Large Blue, Marsh Fritillary, Natterjack Toad, Pine Martin, Otter, Red Squirrel, Sand Lizard, Smooth Snake, Swallowtail, Water Vole, Wildcat	These animals receive full protection under the Wildlife and Countryside Act 1981 (and as amended), which makes it illegal (subject to certain exceptions) to: <ul style="list-style-type: none"> <li>• Intentionally kill, injure or take any such animal;</li> <li>• Intentionally or recklessly damage, destroy or obstruct any place used for shelter or protection by any such animal; and</li> <li>• Intentionally or recklessly disturb such animals while they occupy a place used for shelter or protection.</li> </ul>
Adder, Common Lizard, Grass Snake, Slow Worm, White-clawed Crayfish	These animals receive partial protection under The Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000), which provide protection against intentional killing or injury of any such animal.
Nesting Birds	All wild birds (as defined by the act) are protected under the Wildlife and Countryside Act 1981 (and as amended), which makes it illegal (subject to exceptions) to: <ul style="list-style-type: none"> <li>• Intentionally kill, injure or take any wild bird;</li> <li>• Take, damage or destroy the nest (whilst being built or in use) or eggs of any wild bird.</li> </ul>
WCA Schedule 1 listed Birds	Additional protection is provided to birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 (and as amended). In addition to the offences detailed above relating to all wild birds, it is illegal to: <ul style="list-style-type: none"> <li>• Intentionally or recklessly disturb any bird listed on Schedule 1, or their dependent young while nesting.</li> </ul>
Badgers	The Protection of Badgers Act 1992 makes it illegal to wilfully kill or injure a Badger, or attempt to do so and to intentionally or recklessly interfere with a Badger sett. This includes: <ul style="list-style-type: none"> <li>• damaging or destroying an active sett;</li> <li>• obstructing access to a sett; and</li> <li>• disturbing a Badger while it is occupying a sett.</li> </ul> Licences can be granted to permit sett closure and/or disturbance between July and November inclusive (i.e. outside the sow pregnancy/birth period).
Wild Mammals	The Wild Mammals (Protection) Act 1996 provides legal protection to all wild mammals (as defined by the act) against the following actions: mutilate, kick, beat, nail, or otherwise impale, stab, burn, stone, drown, crush, drag or asphyxiate any wild mammal with intent to inflict unnecessary suffering.

Species	Legal Status
<i>Invasive Species</i>	
WCA Schedule 9 listed animals (Part 1) and plants (part 2)	Certain species of plants and animals that do not naturally occur in Great Britain have become established in the wild and represent a threat to the natural fauna and flora. Section 14 of the Wildlife & Countryside Act prohibits the release of any animal species that are: <p style="text-align: center;"><i>“not ordinarily resident in and is not a regular visitor to Great Britain in a wild state”</i></p>

### *Policy Summary*

Section 40 of the Natural Environment and Rural Communities (NERC) Act imposes a legal duty on Planning Authorities to ‘have regard’ to the conservation of biodiversity when considering planning applications.

Section 41 of the NERC Act requires the Secretary of State to publish a list of species and habitats of principal importance for conserving biodiversity in the UK. Such Biodiversity Action Plan (BAP) Habitats and Species (2007) do not offer the species any specific protection but help to highlight the species importance at a national level. This list is used by Local Planning Authorities to identify the species and habitats that should be afforded priority when applying the requirements of the National Planning Policy Framework (NPPF).

The NPPF underpins the Government’s planning policies for England and how these are to be applied. The central theme of the NPPF is a presumption in favour of sustainable development. This presumption does not apply where development requiring Appropriate Assessment because of its potential impact on a habitats site is being planned or determined.

The NPPF states:

*‘When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:*

- if significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- proposed development on land within or outside a Site of Special Scientific Interest (SSSI) likely to have an adverse effect on a SSSI (either individually or in combination with other developments) should not normally be permitted. Where an adverse effect on the site’s notified special interest features is likely, an exception should only be made where the benefits of the development, at this site, clearly outweigh both the*



*impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of SSSIs;*

- *development proposals where the primary objective is to conserve or enhance biodiversity should be permitted;*
- *opportunities to incorporate biodiversity in and around developments should be encouraged;*
- *planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and*
- *the following wildlife sites should be given the same protection as habitats sites: potential Special Protection Areas (SPA) and possible Special Areas of Conservation (SAC); listed or proposed Ramsar sites; and sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential SPAs, possible SACs, and listed or proposed Ramsar sites.'*


The NPPF requires the Planning Authority to have a responsibility to promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets, and identify suitable indicators for monitoring biodiversity in the plan. In addition, the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.

**Appendix 2**  
**Habitat Suitability Survey**

**Appendix 2 – Habitat Suitability Survey**

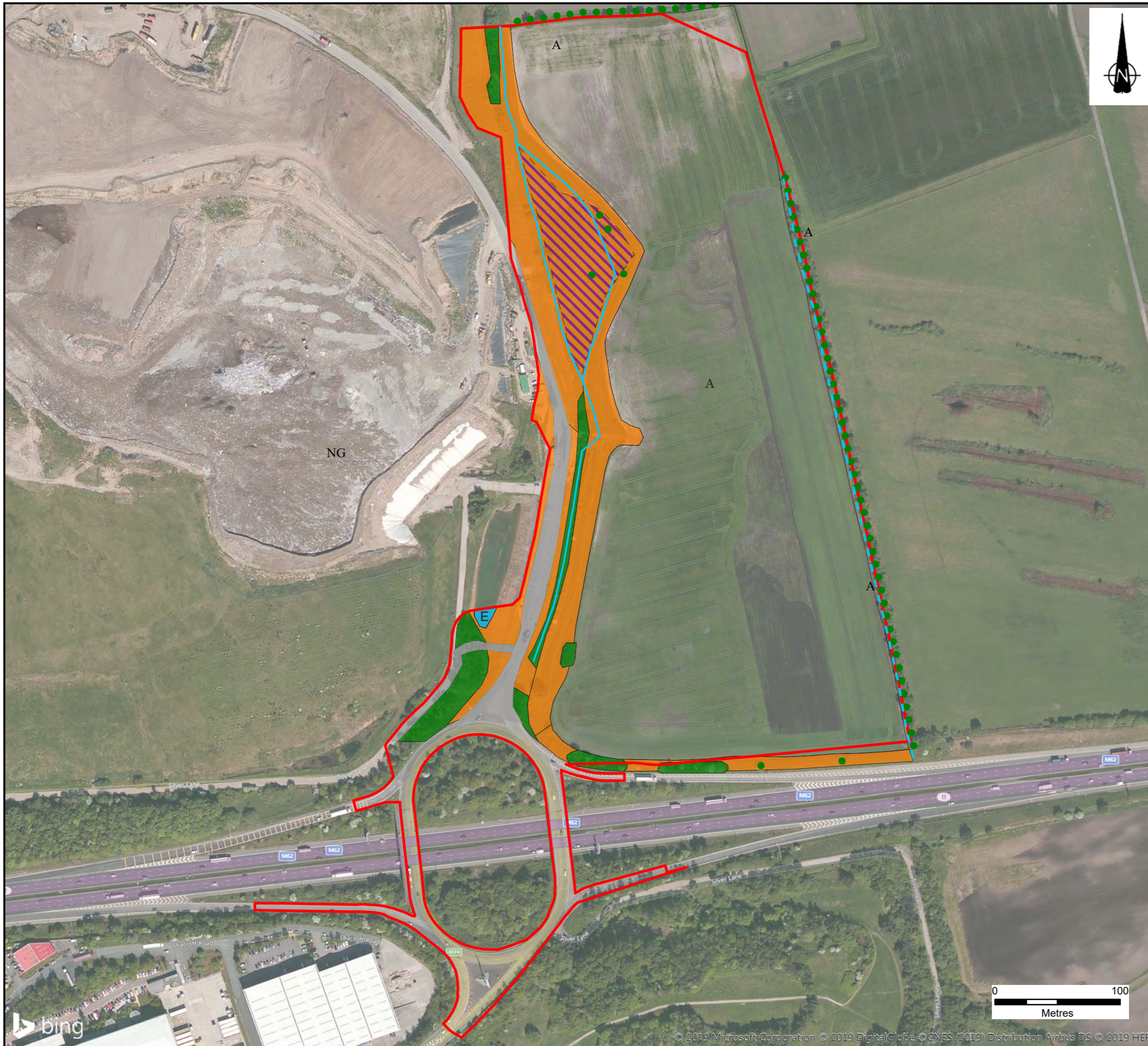
<b>HSI Assessment Results</b>				
<b>Waterbody Reference</b>	<b>Grid Reference</b>	<b>Photograph</b>	<b>HSI Score</b>	<b>HSI Classification</b>
<b>WB1</b>	SJ 65980 94037		0.49	<b>Poor</b>
<b>WB2</b>	SJ 66248 94152		0.49	<b>Poor</b>
<b>WB3</b>	SJ 66696 94174	Image not available	0.48	<b>Poor</b>



<b>HSI Assessment Results</b>				
<b>Waterbody Reference</b>	<b>Grid Reference</b>	<b>Photograph</b>	<b>HSI Score</b>	<b>HSI Classification</b>
<b>WB4</b>	SJ 66793 94066	Image not available	0.76	<b>Good</b>
<b>WB5</b>	SJ 67337 94339	N/A – Access Restricted	N/A	<b>N/A</b>
<b>WB6</b>	SJ 66893 93531		0.72	<b>Good</b>

<b>HSI Assessment Results</b>					
<b>Waterbody Reference</b>	<b>Grid Reference</b>	<b>Photograph</b>		<b>HSI Score</b>	<b>HSI Classification</b>
<b>WB7</b>	<b>SJ 67252 93599</b>			<b>0.63</b>	<b>Average</b>

## **DRAWINGS**



**KEY**

- Site Boundary
- Broadleaved woodland - semi-natural
- Neutral grassland
- Marsh/marshy grassland
- Standing water - eutrophic
- Cultivated/disturbed land - arable
- Hardstanding
- Broadleaved Parkland/scattered trees
- Wet ditch
- - - Dry ditch

**Notes:**

Boundaries are indicative. Aerial imagery shown for context purposes only.

Classifications in accordance with Handbook for Phase 1 Habitat Survey - A technique for Environmental Audit (JNCC 2010).

S A	SITE BOUNDARY AMENDMENTS AND HABITAT UPDATES FIRST ISSUE	JULY 2019 APRIL 2019	SW SW	JS JS	TP TP
REVISION	DETAILS	DATE	DRAWN	CHKD	APPD

CLIENT	EXTRA MSA GROUP
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PROJECT	MOTORWAY SERVICES, WARRINGTON
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DRAWING TITLE	EXTENDED PHASE 1 HABITAT SURVEY RESULTS
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DRG No.	SH11739/007	REV	B
DRG SIZE	A3	SCALE	1:3,000
DRAWN BY	SW	CHECKED BY	TP
		APPROVED BY	TP

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<input type="checkbox"/> CARDIFF	<input type="checkbox"/> MANCHESTER
<input type="checkbox"/> CARLISLE	<input type="checkbox"/> SHEFFIELD
<input type="checkbox"/> EDINBURGH	<input type="checkbox"/> STOKE ON TRENT



**KEY**

- Site Boundary
- Waterbodies
- Running water

**Notes:**

Boundaries are indicative.

Aerial imagery shown for context purposes only.

S A	SITE BOUNDARY AMENDMENTS FIRST ISSUE	JULY 2019 APRIL 2019	SW SW	TP JI	TP TP
REVISION	DETAILS	DATE	DRAWN	CHKD	APPD

CLIENT	EXTRA MSA GROUP
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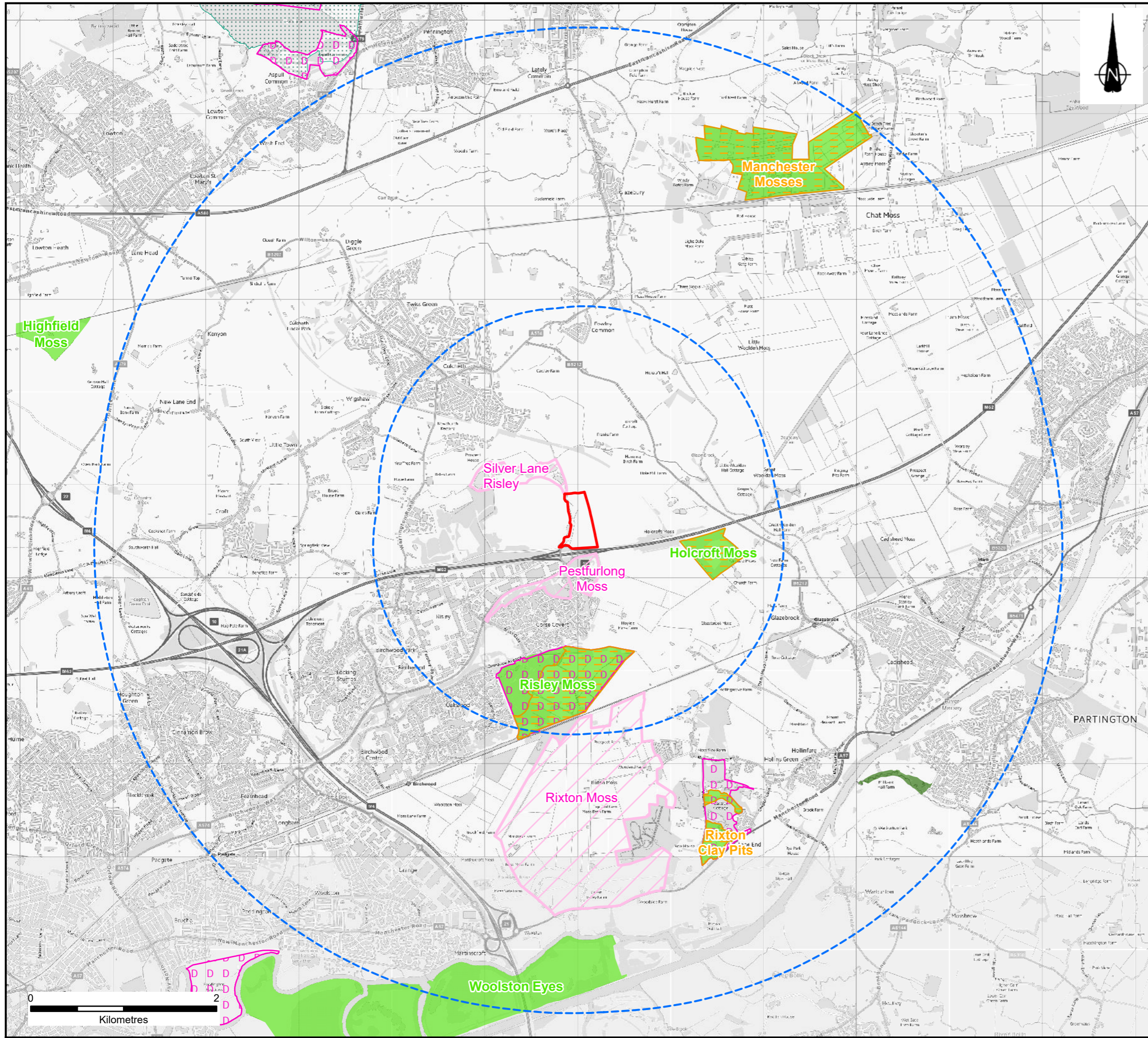
PROJECT	MOTORWAY SERVICES, WARRINGTON
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DRAWING TITLE	WATERBODY LOCATION PLAN
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DRG SIZE	A3	SCALE	1:5,000
		DATE	22/07/2019
DRAWN BY	SW	CHECKED BY	JJ
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**KEY**

- Site Boundary
- 2km and 5km Distance Buffer
- Special Areas of Conservation
- Local Nature Reserves
- Country Parks
- Sites of Special Scientific Interest
- Ancient Woodland
- Local Wildlife Sites

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REVISION	DETAILS	DATE	DRAWN	CHKD	APPD

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PROJECT  
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DRAWING TITLE  
**LOCATION OF STATUTORY AND NON-STATUTORY CONSERVATION SITES**

DRG No.	SH11739/016	REV	A
DRG SIZE	A3	SCALE	1:40,000
DRAWN BY	SW	DATE	December 2018
		CHECKED BY	TP
		APPROVED BY	MB

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## **Appendix 5.5 – Bat Survey Report**



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MINERAL ESTATES  
WASTE RESOURCE MANAGEMENT



**EXTRA MSA GROUP**

**MOTORWAY SERVICES, WARRINGTON**

**BAT SURVEY REPORT**

**JULY 2019**

**DATE ISSUED:** JULY 2019  
**JOB NUMBER:** SH11739  
**REPORT NUMBER:** 005  
**VERSION:** V1.0  
**STATUS:** FINAL

**EXTRA MSA GROUP**

**MOTORWAY SERVICES, WARRINGTON**

**BAT SURVEY REPORT**

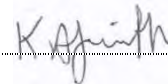
**JULY 2019**

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MINERAL ESTATES  
WASTE RESOURCE MANAGEMENT

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Appendix 3	Bat Tree Roost Potential Descriptions
Appendix 4	Bat Evaluation System
Appendix 5	Automated Detector Weather Conditions

DRAWINGS	TITLE	SCALE
SH11739/037	Static Bat Detector Locations	1:3,500@A3
SH11739/038	Bat Activity Transect Route	1:3,500@A3
SH11739/039	Bat Activity Transect Survey Results Autumn 2018	1:3,500@A3

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SH11739/045	Bat Activity Transect Survey Results Spring 2019	1:3,500@A3
SH11739/047	Bat Tree Roost Potential Plan	1:3,500@A3
SH11739/050	Bat Activity Transect Survey Results Summer 2019	1:3,500@A3

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## EXECUTIVE SUMMARY

Wardell Armstrong LLP (WA) was commissioned by Extra MSA Group to undertake bat surveys to inform a proposed motorway service area development scheme of land north of M62 Junction 11. The following surveys were undertaken, based on a 'Low' suitability site (Collins, 2016):

- Bat activity survey
- Bat transect survey
- Preliminary Bat Tree Assessment
- Bat Tree Inspection survey

The site is used mostly by commuting and foraging common pipistrelles, with noctule and brown long-eared bats also recorded. The site has very low bat activity levels in general. There are five trees with suitable bat roost features however none of the trees with suitable roost features contained any evidence of bat presence.

## **1 INTRODUCTION**

1.1.1 Wardell Armstrong LLP (WA) was commissioned by Extra MSA Group to undertake a Bat Report of a proposed Motorway Services Area development (hereafter referred to as the 'development'), located on the northern side of the M62 at Junction 11, central Ordnance Survey (OS) grid reference: SJ 67053 93630.

1.1.2 The aim of the assessment was to determine the assemblage of bat species using the site and the levels of activity, in order that an assessment of impacts arising from the scheme can be made. The baseline information is presented in this report. The evaluation of the recorded activity will be detailed within the Ecology Chapter of the Environmental Statement.

### **1.2 Preliminary Ecological Appraisal**

1.2.1 This report follows a Preliminary Ecological Appraisal (Wardell Armstrong 2018), which identified the presence of bat foraging and commuting habitat on site and the presence trees with potential to support roosting bats, on site and within the wider area.

### **1.3 Scoping Consultation**

1.3.1 A scoping report was issued to Tameside Metropolitan Borough Council (TMBRC) during December 2018. Comments were returned during February 2019. The scoping response from TMBRC agreed that direct habitat loss and indirect lighting impacts to bats foraging, roosting and commuting habitats need to be considered in the Environmental Statement (ES). A recommendation of biodiversity net gain was made in line with the NPPF.

### **1.4 Site Context**

1.4.1 The proposed development is to be located immediately adjacent to Junction 11 of the M62. The survey area (Site) covers the application area plus adjacent habitats where these are relevant to the assessment of potential bat activity.

1.4.2 The wider landscape comprises arable farmland/pasture to the east, south east and north, a capped landfill directly west of the site and Birchwood Business and Technology Park to the south west.

1.4.3 Holcroft Moss Site of Special Scientific Interest is located approximately 1,080m east and Manchester Mosses Special Area of Conservation, Risley Moss Site of Special Scientific Interest and Risley Moss Local Nature Reserve are located approximately 1.4km south of the site.

## 2 METHODOLOGY

### 2.1 Desk Study

2.1.1 The desktop study was informed by review of existing available information provided by RECORD (Local Records Centre) and from available internet-based resources for a 2km search radius. In addition, a 5km search radius was used for statutory sites which are notified for their bat interest. Ordnance Survey (OS) and satellite mapping was also used to gain contextual habitat information.

### 2.2 Survey Scope

2.2.1 In accordance with the Bat Survey Good Practice Guidelines (BCT Guidelines) (Collins, 2016), the appropriate level of survey effort should be based on:

- Likelihood of bats being present;
- Likely species concerned<sup>1</sup>;
- Numbers of individuals;
- Type of habitat affected;
- Predicted impacts of the proposed development on bats; and
- Type and scale of proposed development.

2.2.2 In addition, Table 4.1 of the BCT Guidelines (Collins, 2016), was utilised to identify the suitability of the site for bats. The table lists example site descriptions in order of suitability from Low to High. Given this information, the following factors were used to define the appropriate level of survey work:

- The habitats on site are dominated by intensively farmed arable land;
- Disturbance effects from the motorway which lies to the south of site; and
- Lack of a diverse mosaic of habitats with features suitable for bats.

2.2.3 The foraging and commuting habitats on site are considered to be of 'Low' habitat suitability (Collins, 2016). Bat activity surveys in line with national standard guidelines (Collins, 2016) have, therefore, been devised on the basis of '**Low habitat suitability**'.

---

<sup>1</sup> Including the presence or likely presence of any EU Annex II bat species, which includes lesser horseshoe *Rhinolophus hipposideros*, greater horseshoe *Rhinolophus ferrumequinum*, barbastelle *Barbastellus barbastella*, and Bechstein's bat *Myotis bechsteinii*

## 2.3 Activity Survey

### *Transect Survey*

- 2.3.1 The transect route was selected in order to cover representative habitats throughout the survey area.
- 2.3.2 The extent and number of habitats present on site<sup>2</sup> was utilised to identify the number of transects required. A single transect route, measuring approximately 1.75 km, was planned during daylight hours in order to locate any potential risk to the surveyors and to identify the location of likely good foraging bat habitats. The transect route was selected in order to cover representative habitats throughout the survey area. The transect route was walked by 2 surveyors (see Drawing Number SH11739/038).
- 2.3.3 Transect visits were undertaken seasonally during Autumn 2018, Spring 2019 and Summer 2019. Survey dates, times and weather conditions are detailed within the Table 1 below:

Date	Weather Conditions	Local Sunset	Start Time	End Time
25/10/2018	11°C, 8/8 cloud cover, F2 breeze, dry	17:52	17:52	19:36
15/04/2019	10°C, 4/8 cloud cover, F3 breeze, dry	20:10	19:50	22:15
04/06/2019	12°C, 8/8 cloud cover, F2 breeze, dry	21:31	21:16	23:27

- 2.3.4 The transect was split into sections with twelve 'point counts' positioned along the route from which bat data was sampled for a 5-minute period. The initial survey was walked in order from point count 1-12, visit 2 amended the route by lapping the site twice with a total of fourteen point count locations due to the small size of the site.
- 2.3.5 The transect surveys commenced approximately at sunset and continued for a minimum of 1.5 hours beyond local sunset.
- 2.3.6 All bat activity was recorded including both at and between point counts, and all passes tallied. This enabled a Bat Activity Index (BAI – bat passes per point count and per hour) to be calculated for each bat species recorded for each point count and for the site overall. Observations of bat behaviour, bat species, and number of bats and the direction of the flight path were also noted where possible. Additional notes were made on the time the first bat of each species was recorded and direction of flight lines, if possible.

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<sup>2</sup> Which was identified during the Preliminary Ecological Appraisal



2.3.7 Echo Meter Touch (Wildlife Acoustics, Inc., Massachusetts) bat detectors and iPads (Apple Inc., California) were used to detect bats and the built-in Kaleidoscope classifiers were used to assist species identification. If required, the results were later analysed using BatSound sonogram analysis software (Version 3.31, Petterson Elektrik).

2.3.8 All surveys were orchestrated and led by a WA ecologist with extensive experience of undertaking bat surveys.

*Automated Surveys*

2.3.9 Two Song Meter SM2BAT+ Ultrasonic Recorder (Wildlife Acoustics, Inc.) automated bat detector units were deployed for at least five consecutive nights during Autumn (October) 2018, Spring (April) 2019 and Summer (June) 2019 (see Drawing SH11739/037 for Automated Detector Locations). Table 2 below shows the associated habitat at each automated detector location.

Table 2: Habitat type at each detector location	
Location 1	Habitat associated with ditch/scrub
Location 2	Habitat associated with open arable land

2.3.10 A stratified approach to placing the bat detectors was utilised. The calibrated detectors were paired to sample bat activity associated with the detector sampling volume within habitats to be lost/removed to enable development and an area predicted to have a higher level of bat activity.

2.3.11 The devices were positioned on the ground with the microphone pointing upwards at an angle of approximately 45 degrees and were programmed to record ultrasound from 30 minutes before local sunset to 30 minutes after local sunrise.

2.3.12 After retrieval of the recording devices the data files were downloaded as Waveform Audio File Format Files (WAV) and the species were analysed using Kaleidoscope.Ink auto-identification software (Version 1.1.19, Wildlife Acoustics, Inc.). If call parameters could not be accurately determined by this method, the files were then analysed using BatSound (Version 3.31, Petterson Elektrik) analysis programme. This software retains and displays amplitude information and can facilitate more accurate identification of calls with overlapping characteristics.

2.3.13 For the circumstances of this report, a bat pass is defined as a single sound file recorded via the basic set up of the SM2BAT+ unit. The unit will measure background noises between 16 kHz and 384 kHz. A sound file will be recorded if the noise detected

reaches a threshold of  $\geq 18$  dB, between these frequencies, a recording is made until no trigger is detected for a 2 second period.

2.3.14 The number of sound files recorded were utilised to calculate a Bat Activity Index Value (BAIV- Bat passes per night), for each bat species recorded for each detector location, month surveyed and for the site overall.

## 2.4 Preliminary Tree Roost Assessment

2.4.1 Preliminary tree inspections were undertaken on 19<sup>th</sup> March and reassessed on 4<sup>th</sup> April 2019 by a Natural England Bat Licensed (Natural England Class Licence CL18 (Bat Survey Level 2): Ecologists, from Wardell Armstrong LLP. The purpose of the preliminary tree roost assessment was to identify any trees containing potential roost features (PRF) and assess their suitability for bats. The tree assessments were based on the updated criteria given in best practice guidelines (Collins 2016).

2.4.2 The external examination of the trees were undertaken using binoculars and high powered torches to check for entry points such as cracks or holes, evidence of bat activity such as staining, droppings and feeding remains.

2.4.3 Based on the location, age and type of the tree, the potential features present and the indicating signs recorded, each tree was placed into one of the following categories (Collins, 2016):

- Confirmed roost: Bat or signs of bats discovered during the survey;
- High: A tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat;
- Moderate: A tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status;
- Low: A tree of sufficient size and age to contain PRF's but with none seen from the ground or features seen with only very limited roosting potential; and
- Negligible: Negligible habitat features on site likely to be used by bats.

2.4.4 Trees were re-assessed in terms of whether they had features capable of supporting roosting bats or not, information obtained from this survey was used to inform the inspection survey.

## 2.5 Tree Roost Inspection

2.5.1 A total of 5 trees on site have been identified as having bat roost potential, and are likely to be impacted directly or indirectly by the proposed works. Therefore, these five trees were inspected by a suitably qualified ecologist on 4th April 2019 and subject to a bat inspection to determine bat roost presence/likely absence. Drawing number SH11937-047 highlights the locations of these trees.

2.5.2 During the inspection, any suitable bat roosting features present on the tree were extensively examined with an endoscope to determine any evidence of roosting bats; such as the physical presence of a bat(s), bat droppings, urine stains and scratch marks.

2.5.3 Any suitable features, and if present, evidence of roosting bats was documented accordingly. See Appendix 3 for details.

## 2.6 Analysis

2.6.1 Transect Bat Activity Index Values (BAIV) are calculated for each recorded species by averaging the number of passes recorded during the transect survey period to give the mean number of passes per hour.

2.6.2 Bat Activity Index Values (BAIV) are calculated to allow comparisons of activity recorded over the active bat season and between sample locations/habitats. Automated detector BAIVs are calculated using the automated survey data, taking mean nightly pass rates for all survey sessions and each survey location.

## 2.7 Calibration

2.7.1 To ensure compliance with the current Good Practice Guidelines (Collin, 2016); each detector and microphone is subject to a yearly service, calibration and sensitivity check. In addition, each unit is subject to a system check prior to being utilised on site. Calibration and system checks are undertaken, to ensure that results are comparable, as far as reasonably possible.

## 2.8 Limitations

2.8.1 Standard methodologies have been used, which are accepted by Natural England and other statutory conservation bodies. No responsibility will be accepted where these methodologies fail to identify all species on site. Wardell Armstrong cannot take

responsibility where Government, national bodies or industry subsequently modify standards.

- 2.8.2 The absence of desk study records has not been relied upon to infer absence of a species/habitat. Often, the absence of records is a result of under-recording within the given search area.
- 2.8.3 It should be noted that Long-eared bats *Plecotus* spp. and barbastelle *Barbastella barbastellus* in particular echolocate more quietly than other bat species and so can sometimes be more difficult to detect.
- 2.8.4 Specific species are notoriously difficult to identify precisely in the field and from recorded sonograms, as there is considerable overlap in their echolocation characteristics. Where the bat species cannot be accurately determined from sampled calls, only the genus is stated i.e. *Nyctalus* or *Myotis* spp.

## 2.9 Quality

- 2.9.1 All Ecologists employed by WA are members of CIEEM and are bound by its code of professional conduct. All surveys and assessments have been undertaken with reference to the recommendations given in British Standard BS 42020: 2015.

### 3 RESULTS AND EVALUATION

#### 3.1 Desk Study

- 3.1.1 There are no statutory sites designated for bats within 5 km. There are three Local Wildlife Sites none of which are designated specifically for bats.
- 3.1.2 There are existing records for at least three species of bat occurring within the desk study search area; namely: common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), and noctule (*Nyctalus noctula*). A single common pipistrelle roost was recorded 1.87 km south west of the site boundary. See Table 3, below for details.
- 3.1.3 The remaining records were either sightings or auditory, none of which were recorded on site.

**Table 3: Desk Study Evaluation**

Species	Date Recorded	Number of Bats	Location	Distance to Site	Suitable Roost Features Present On/Near Site	Recorded on site?	
						Transect	Automated
Common Pipistrelle	24/082017	1	SJ651929	1.87km southwest	Few trees suitable to support common pipistrelle on site. Suitable commuting and foraging in the form of tree lines and marshy grassland.	Yes	Yes
	10/08/2017	1					
	19/08/2017	1	SJ67119238	925m south			
	18/09/2011	n/a	SJ668921	1.24km south			
Soprano Pipistrelle	29/07/2011	n/a	SJ667918	1.5 km south	Few trees suitable to support common pipistrelle on site. Suitable commuting and foraging in the form of tree lines and marshy grassland.	Yes	Yes
Noctule	29/07/2011	n/a	SJ667918	1.5 km south	No suitable supporting roost features onsite, Suitable foraging in the form of marshy grassland and open arable land.	Yes	Yes

## 3.2 Bat Activity Summary

3.2.1 During the surveys, overall activity levels were highest for common pipistrelle, which was recorded far more frequently than all the other species; accounting for 35.29 % of all activity, for the total automated survey (Table 3 and Appendix 2) and 70 % of the total recorded activity during the transect survey (Table 3 and Appendix 2). The remaining 30% of activity recorded during the transect survey was soprano pipistrelle.

### Transect Survey

3.2.2 A summary of the activity levels recorded during the transect surveys, are described within in Table 4 below. A full break down of the transect surveys results is provided within Appendix 2.

#### *Common Pipistrelle (PIPI)*

3.2.3 Common pipistrelle activity equates to 0.97 passes per hour. The highest levels of activity were associated with the treeline on the western and eastern boundary of the site.

3.2.4 The proportion of common pipistrelle activity was recorded more over the Spring 2.07 BAIV (55.56 % of all common pipistrelle activity) than the Summer 0.92 BAIV and Autumn 1.16 BAIV (22.22 % of all common pipistrelle activity per Summer and Autumn surveys). See Table 4 for Total Passes and BAIV per season.

#### *Soprano Pipistrelle (PIPY)*

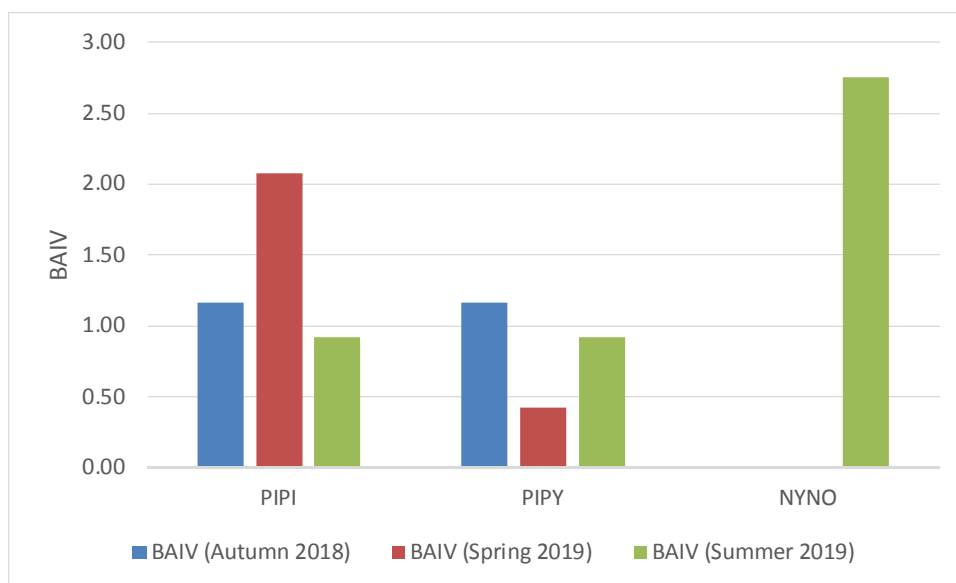
3.2.5 Soprano pipistrelle accounted for 25 % of activity levels recorded during the transect surveys and was more prominent during the autumn transect. Soprano pipistrelle activity equates to 0.79 passes per hour and recorded at the north west corner, within the open arable land north of the site and along the southwest boundary. (See Appendix 2).

#### *Noctule (NYNO)*

3.2.6 Noctule was only recorded during the Summer transect survey, and activity equates to 0.95 passes per hour during the transect surveys. This accounts for 30 % of activity levels across all survey visits (as described in Appendix 2). Single noctule passes were recorded in central locations of the site, associated with open habitat.

<b>Table 4: Transect Survey Summary Results</b>					
<b>Season</b>	<b>Species Recorded</b>	<b>Species Location Summary</b>	<b>Total Passes Recorded</b>	<b>% of Activity Recorded</b>	<b>BAIV (passes per hour)</b>
Autumn 2018	Common Pipistrelle	Recorded commuting over open arable fields.	2	50%	1.16
	Soprano Pipistrelle	Recorded commuting over open fields and along treelines in the northwest.	2	50%	1.16
Spring 2019	Common Pipistrelle	Dominant species recorded during Spring. Recorded along much of south eastern treeline both foraging and commuting as well as north western treeline.	5	83.33%	2.07
	Soprano Pipistrelle	Recorded in only one location, treeline in north western corner	1	16.67%	0.41
Summer 2019	Common pipistrelle	Recorded in the southeast and along the western boundary along treelines adjacent to open fields.	2	20%	0.92
	Soprano pipistrelle	Recorded in two locations along the southern boundary of the site.	2	20%	0.92
	Noctule	Dominant species recorded during Summer. Recorded in multiple locations across the site, predominantly in central, open habitat locations.	6	60%	2.75





**Figure 1: Bar Graph of Common pipistrelle, Soprano Pipistrelle and Noctule Transect Activity Across Site**

3.2.7 Figure 1 details the bat activity for common pipistrelle, soprano pipistrelle, and noctule recorded during the transect surveys. Similar levels of common and soprano pipistrelle activity were recorded during autumn and summer. In spring, the highest common pipistrelle activity was recorded, and the lowest soprano pipistrelle activity was recorded. Noctule activity was only recorded during the summer transect survey.

#### Automated Survey

3.2.8 The automated survey results are summarised within in Table 5, below. A full breakdown of the automated surveys results is provided within Appendix 4.

Species <sup>3</sup>	BAIV at Location 1 (Passes per night)	BAIV at Location 2 (Passes per night)
MYsp	1.39	0.06
NYNO	3.28	0.33
NYsp	0.44	0
NYLE	0.06	0
PIPI	5.28	1.56
PIPY	3.89	0.33
PLAUR	1.39	0.11
<b>Total</b>	<b>15.72</b>	<b>2.39</b>

<sup>3</sup> MYsp – Myotis spp.; NYsp – Nyctalus spp.; NYLE – Leisler’s Bat; NYNO- Noctule; PIPI- Common Pipistrelle; PIPY – Soprano Pipistrelle; PLAUR- Brown Long-eared Bat;

*Myotis Species (MYsp)*

3.2.9 The automated surveys recorded *Myotis* spp. equating to 7.98% of all activity on site. Activity levels were recorded at both locations, with higher activity levels recorded in scrub habitat at Location 1, 1.39 passes per night compared to 0.06 passes per night at Location 2 in open arable habitat. See Figure 2 and Appendix 4 for results and Drawing SH11739/037 for Automated Detector Locations.

3.2.10 The highest *Myotis* spp. activity levels were recorded during the summer survey, with 1.5 passes per night, and low activity also recorded during the spring survey (0.8 passes per night). Figure 3 and Appendix 4 highlight this information. No activity was recorded during the autumn survey period.

*Noctule (NYNO), Leisler's bat (NYLE) and Nyctalus spp. (NYsp)*

3.2.11 Noctule, Leisler's bat and *Nyctalus* spp. represent 22.7% of the total bat activity on site over all surveys carried out. 19.9% of this activity was of noctule, 0.31% was of Leisler's bat and 2.45% of this activity was of *Nyctalus* spp. activity.

3.2.12 Leisler's bat and *Nyctalus* spp. were only recorded within scrub habitat at Location 1 (0.06 passes per night and 0.44 passes per night). Noctule was recorded at both locations, with higher activity levels associated with scrub habitat (3.28 passes per night at this location). No activity for the genus was recorded during the autumn survey period, and the highest levels of activity were recorded by the automated detectors during the summer survey (4, 0.08 and 0.58 passes per night for noctule, Leisler's bat and *Nyctalus* spp. respectively). Figures 2 and 3 and Appendix 4 highlight this information.

*Common Pipistrelle (PIPI)*

3.2.13 Common pipistrelle was recorded more frequently than any other species and accounts for 37.7% of activity surveys, with a total BAIV of 3.42 passes per night.

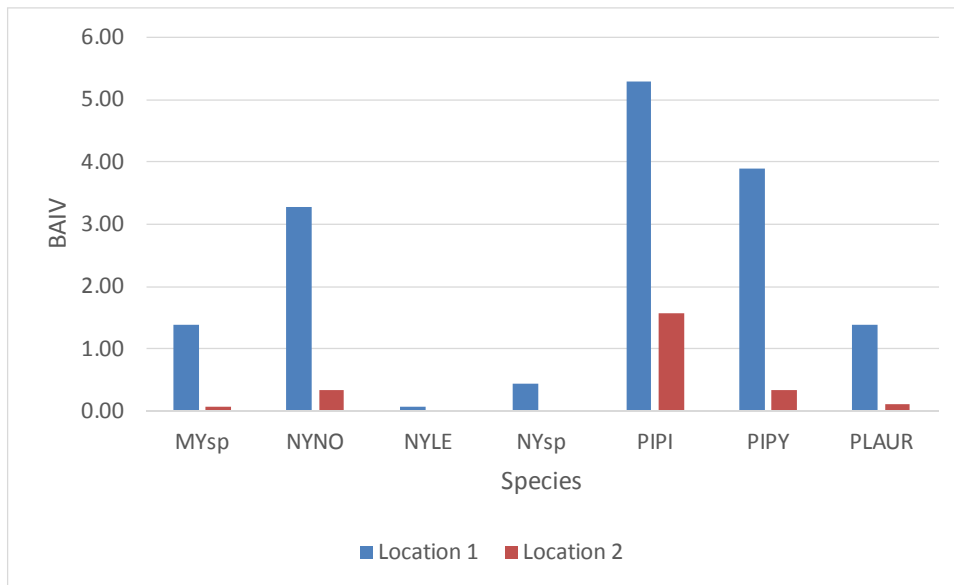
3.2.14 Common pipistrelle activity was recorded at both automated detector locations with higher activity levels recorded in scrub habitat at Location 1 (5.28 passes per night) compared with open habitat at Location 2 (1.56 passes per night). Common pipistrelle activity levels were recorded much higher during spring and summer than autumn automated surveys (4.7, 6.25 and 0.7 passes per night, respectively). Figures 2 and 3 and Appendix 4 highlight this information.

*Soprano Pipistrelle (PIPY)*

3.2.15 Soprano pipistrelle activity was recorded at both automated detector locations with 3.89 passes per night within scrub habitat and 0.33 passes per night in open arable habitat. Soprano pipistrelle activity was highest during spring (4.3 passes per night) and overall accounted for 23.3% of bat activity. See Figures 2 and 3 and Appendix 4 for details.

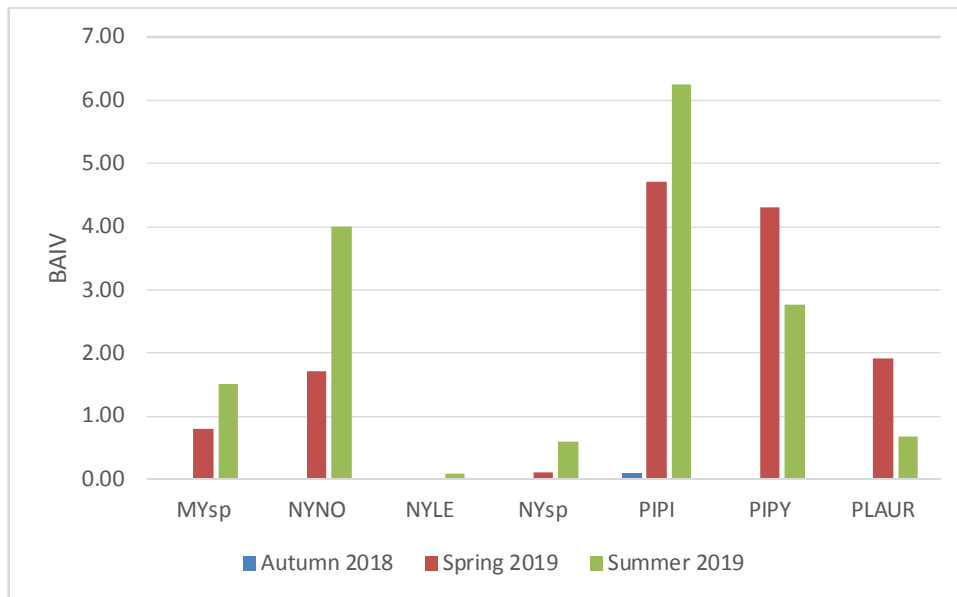
*Brown Long-eared Bat (PLAUR)*

3.2.16 Brown long-eared bat activity levels were recorded at both automated detector locations, with higher activity recorded in scrub habitat at Location 1 compared with open habitat at Location 2 (1.39 and 0.11 passes per night, respectively). No activity was recorded for this species during the autumn automated survey and highest activity levels were recorded during spring with 1.9 passes per night. Brown long eared bat activity accounted for 8.9% of overall activity recorded during the surveys. See Figures 2 and 3 and Appendix 4 for details.



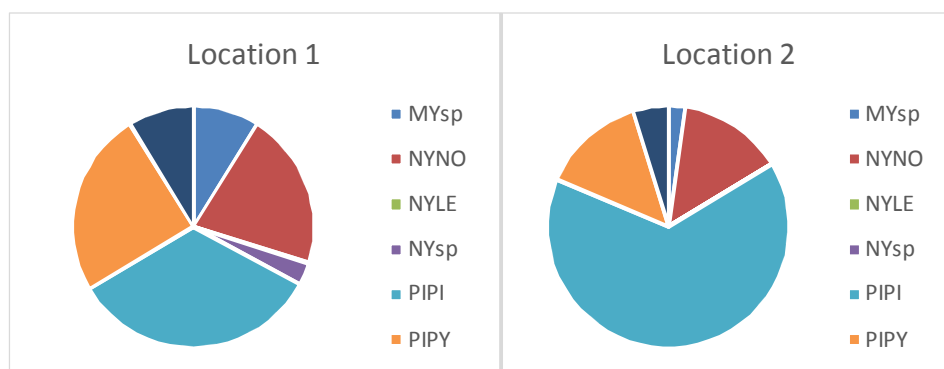
**Figure 2: Bar Graph of all Species at Automated Survey Locations 1 and 2**

3.2.17 Figure 2 details the activity levels for each species recorded at each of the automated detector locations. across all species, higher activity levels were recorded at Location 1 (scrub habitat) compared with open arable habitat at Location 2.



**Figure 3: Bar Graph of Automated Surveys for Each Survey Season**

3.2.18 Figure 3 shows the species activity recorded during each survey season, for all detector locations. Activity levels were more abundant for all species during spring and summer with only low activity for common pipistrelle recorded during autumn 2018.



**Figure 4: Pie charts to show Breakdown of each Species recorded per Automated Detector**

3.2.19 Figure 4 above shows the breakdown of species recorded at each location across all surveys. Common pipistrelle were recorded most frequently at both locations, followed by soprano pipistrelle and noctule (37.7%, 23.3% and 20% of activity respectively).

### 3.3 Preliminary Tree Roost Assessment and Bat Tree Inspection Survey

3.3.1 A total of five trees were considered to have suitable roost features present categorised between ‘low-moderate’ suitability for roosting bats. See Table 6 below and Appendix 4 for details.

3.3.2 No evidence of roosting bats was documented within the five trees subject to a bat inspection. Following the inspection, the bat roost suitability categories assigned to each tree has been updated<sup>4</sup>, as shown below in Table 6. The full details from the climbed inspection survey are provided in Appendix 4, and highlighted in Drawing number SH11739-047.

<b>Tree Reference</b>	<b>Bat Roost Classification identified during PEA survey (WA, 2017)</b>	<b>Bat Roost Potential Classification following climbed bat inspection</b>	<b>All Features Fully Inspected</b>	<b>Evidence of Bats recorded</b>
T1	Moderate	Moderate	✓	✗
T2	Moderate	Low	✓	✗
T3	Moderate	Low	✓	✗
T4	Low	Negligible	✓	✗
T5	Low	Negligible	✓	✗

### 3.4 Site Evaluation

3.4.1 Table 7 (below) provides the site evaluation value according to categories which broadly follow the Wray *et al* (2010) evaluation system, including:

- Activity Type Recorded;
- National Rarity;
- Activity;
- Site/Nearby Roost Potential; and
- Type & Complexity of Linear Features/ Foraging habitat.

3.4.2 The national rarity of the *Myotis* species included within Table 5 is species dependent. *Myotis* spp. within the UK can range from one of Britain's rarest species to common and widespread. Given the location of the site, the limited distribution of the species (BCT, 2016<sup>5</sup>) and habitat selection of the species, it is considered unlikely that the *Myotis* species recorded onsite is a rarer *Myotis* species, such as Bechstein's bat *Myotis bechsteinii* or Alcathe bat *Myotis alcathoe*. It is considered that the species present on site could be, one or a combination of the following

<sup>4</sup> From those stated in the earlier ground based assessments.

<sup>5</sup> Bat Conservation Trust Bechstein's bat survey final report September 2007- September 2011- [http://www.bats.org.uk/data/files/publications/Bechsteins\\_bat\\_survey\\_final\\_report.pdf](http://www.bats.org.uk/data/files/publications/Bechsteins_bat_survey_final_report.pdf)

species: Daubenton's bat *Myotis Daubentonii*, Natterer's bat, whiskered bat or Brandt's bat.

- 3.4.3 Overall, the Site is of local value to common pipistrelle; however, given lower bat activity levels, for all other species the relative paucity of supporting habitats and reduced species composition; it is considered that the site is of Local value to bats overall.

**Table 7: Site and Species Evaluations**

Species	Activity Type Recorded	National Rarity	Activity	Site/Nearby Roost Potential	Type & Complexity of Linear Features/ Foraging Habitat	Value
<i>Myotis</i> species	Foraging	Ranging between widespread and common/widespread.	Lowest levels of activity recorded onsite.	Multiple suitable trees (c.5) are located on site. With the additional of suitable trees and buildings in the wider area.	Suitable foraging and commuting habitat present on site, including ditch and scrub edge, tree lines and waterbodies onsite and adjacent.	County
Noctule and <i>Nyctalus spp.</i>	Commuting	Relatively widespread in England, Wales and to south-west Scotland.	On average, less than one pass per night recorded	Multiple suitable trees (c.5) are located on site, with the additional of suitable trees immediately adjacent to site.	Optimal linear routes present across site, however, this is less likely to influence the <i>Nyctalus</i> species.	Local
Common Pipistrelle	Foraging	Common and widespread	Highest levels of activity recorded onsite, within each of the surveys.	Multiple suitable trees (c.5) are located on site. With the additional of suitable trees and buildings immediately adjacent to site.	Optimal habitat present on and immediately adjacent to site, including ditch and scrub edge, tree lines and waterbodies onsite and adjacent. including burn/woodland edge, hedgerows with sheltered grassland, waterbodies.	County
Soprano Pipistrelle	Foraging	Common and widespread	Joint second highest levels of activity recorded onsite, within each of the surveys.			County
Brown Long-eared bat	Foraging	Common and widespread	Joint second highest levels of activity recorded onsite, within each of the surveys.			Local

## **4 IMPACT ASSESSMENT**

### **4.1 Short Term Impacts**

4.1.1 Optimal habitats onsite e.g. ditch, scrub, waterbody, marshy grassland and tree line will either be lost to the development or indirectly impacted by the increase in noise, lighting, dust and vibration during the site clearance and operational phases, which could result in a functional loss of the foraging habitat.

### **4.2 Long Term Impacts**

4.2.1 In the absence of mitigation, direct loss of foraging habitat will result in a reduction of the carrying capacity of the wider area. Habitats on site are largely sub-optimal habitats, including large areas of arable habitat and unsheltered grazed pasture.

4.2.2 Some optimal habitat will be lost to the proposed development. The optimal habitats due to be lost include ditch, scrub, waterbody, marshy grassland and tree line, which provide commuting routes as well as shelter for foraging, and which provide a prey source.



## 5 REFERENCES

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Wray, S. Wells, D. Long, E. and Mitchell-Jones, T. (2010) Valuing Bats in Ecological Impact Assessment. In Practice: No. 70, December 2010, Pg. 23- 25. Bulletin of the Institute of Ecology and Environmental Management: Hampshire.

**Appendix 1**  
**Legislation and Policy Summary**

## Appendix 1: Legislation and Policy Summary

All UK bat species are listed under Schedule 2 of the Conservation of Habitats and Species Regulations 2012 and as such receive protection under Regulation 41, which makes it an offence to:

- Deliberately capture or kill a bat;
- Deliberately disturb a bat; and
- Damage or destroy a breeding site or resting place of a bat.

Under the 2012 Regulations, disturbance of bats includes in particular any disturbance which is likely to:

- Impair their ability to survive, breed or reproduce, or to rear or nurture their young or to hibernate or migrate; and
- Significantly affect the local distribution or abundance of the species in question.

European Protected Species (EPS) licenses can be granted by Natural England in respect of development to permit activities that would otherwise be unlawful, providing that 'favourable conservation status' is maintained.

All UK bat species are also listed under Schedule 5 of the Wildlife and Countryside Act 1981 and therefore receive protection under Section 9 of this Act (as amended). Among other things, this legislation makes it an offence to.

- Intentionally kill, injure or take a bat;
- Intentionally or recklessly damage, destroy or obstruct access to any place that a bat uses for shelter or protection; and
- Intentionally or recklessly disturb any bat whilst it is occupying a structure or place that it uses for shelter or protection.

### *Protection Afforded by the Planning System*

The National Planning Policy Framework (NPPF) (Department for Communities and Local Government (DCLG), 2012) sets out national policy towards biodiversity in planning decisions. Under the NPPF the presence of a protected species is a material consideration where a development proposal that, if carried out, would be likely to result in harm to the species or its habitat.

The NPPF states that:

- *'When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:*
- *if significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- *proposed development on land within or outside a Site of Special Scientific Interest (SSSI) likely to have an adverse effect on a SSSI (either individually or in combination with other developments) should not normally be permitted. Where an adverse effect on the site's notified special interest features is likely, an exception should only be made where the benefits of the development, at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of SSSIs;*
- *development proposals where the primary objective is to conserve or enhance biodiversity should be permitted;*
- *opportunities to incorporate biodiversity in and around developments should be encouraged;*
- *the following wildlife sites should be given the same protection as European sites: potential Special Protection Areas (SPA) and possible Special Areas of Conservation (SAC); listed or proposed Ramsar sites; and sites identified, or required, as compensatory measures for adverse effects on European sites, potential SPAs, possible SACs, and listed or proposed Ramsar sites.'*

Under Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006 public bodies, including Local and Regional Planning Authorities have a duty to 'have regard' to the conservation of biodiversity in England when carrying out their normal functions, which includes consideration of planning applications. In compliance with Section 41 of the Act, the Secretary of State has published a list of species considered to be of principal importance for conserving biodiversity in England. This is The England Biodiversity List, of which there are 941 'priority' species. Regional Planning Bodies and Local Planning Authorities use the list to identify the species that should be afforded priority when applying the requirements of the NPPF to promote the protection and recovery of species populations, via national and local targets.

Seven bat species are NERC s.41 Priority Species. These are:

- Barbastelle *Barbastelle barbastellus*;

- Bechstein's bat *Myotis bechsteinii*;
- Noctule;
- Soprano Pipistrelle *Pipistrellus pygmaeus*;
- Brown Long-eared bat;
- Greater horseshoe bat *Rhinolophus ferrumequinum*; and
- Lesser horseshoe bat *Rhinolophus hipposideros*.

### **Foraging Areas & Commuting Routes**

Bat foraging areas and commuting routes are not directly protected under the legislation described above. However, loss of important foraging areas and/or commuting routes could potentially constitute a disturbance offence, as defined by the 2012 Regulations<sup>6</sup>, in addition, the loss of a commuting route providing the only access to a roost could also potentially constitute indirect damage/destruction of a breeding site/resting place and damage/destruction/obstruction of a places used for shelter/protection under the Wildlife and Countryside Act 1981.

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<sup>6</sup> Where such actions result in a loss of the ecological functionality of the roost.

**Appendix 2**  
**Transect and Automated Detector Survey Results**

## Appendix 2: Transect and Automated Detector Survey Results

### Transect Results

Bat Activity Index Values (BAIV) (Bat Passes per five Minutes) were calculated for each point count and each species. All bat passes at each point count were tallied for each species. This total was then divided by the number of survey visits. Total passes and BAIV's recorded are provided within the tables below.

Summary of all activity (raw data) recorded at and between point counts:

Visit	Point count	PIPI	PIPY	NYNO
Autumn 2018	4	0	1	0
	5	1	0	0
	5-6	0	1	0
	7-8	1	0	0
Spring 2019	6-7	4	0	0
	10	1	1	0
Summer 2019	7-8	0	0	1
	9	0	0	1
	10	1	0	0
	11	0	1	0
	1	0	0	1
	1-2	0	1	1
	2-3	1	0	2
<b>Total</b>		9	5	6
<b>%</b>		45	25	30
<b>BAIV - SITE</b>		0.97	0.79	0.95

### Automated Survey

Bat Activity Index Values (BAIV) (Bat Passes per Night) were calculated for automated detector location and each species. All bat passes at each location were tallied for each species. This total was then divided by the number of night's surveys. Total passes recorded and BAIVs are provided within the tables below for locations and months.

### Overall Summary

	MYsp	NYNO	NYLE	NYsp	PIPI	PIPY	PLAUR	Grand Total
Total passes	26	65	1	8	123	76	27	326
BAIV	1.44	3.61	0.06	0.44	6.83	4.22	1.50	18.11
%	7.98	19.94	0.31	2.45	37.73	23.31	8.28	100.00

**Total Passes per Species per Season**

Season	MYsp	NYNO	NYLE	NYsp	PIPI	PIPY	PLAUR	Grand Total
Autumn 2018	0	0	0	0	1	0	0	1
Spring 2019	8	17	0	1	47	43	19	135
Summer 2019	18	48	1	7	75	33	8	190
Grand Total	26	65	1	8	123	76	27	326

**BAIV per Species per Season**

Season	MYsp	NYNO	NYLE	NYsp	PIPI	PIPY	PLAUR	Grand Total
Autumn 2018	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.07
Spring 2019	0.8	1.7	0	0.1	4.7	4.3	1.9	13.5
Summer 2019	1.5	4	0.08	0.58	6.25	2.75	0.67	15.83
Grand Total	0.72	1.81	0.03	0.22	3.42	2.11	0.75	9.06

**Total Passes per Species per Location**

Location	MYsp	NYNO	NYLE	NYsp	PIPI	PIPY	PLAUR	Grand Total
Location 1	25	59	1	8	95	70	25	283
Location 2	1	6	0	0	28	6	2	43
Grand Total	26	65	1	8	123	76	27	326



**BAIV per Species per Location**



Location	MYsp	NYNO	NYLE	NYsp	PIPI	PIPY	PLAUR	Grand Total
Location 1	1.39	3.28	0.06	0.44	5.28	3.89	1.39	15.72
Location 2	0.06	0.33	0	0	1.56	0.33	0.11	2.39
Grand Total	1.44	3.61	0.06	0.44	6.83	4.22	1.50	18.11




**Appendix 3**  
**Bat Tree Roost Potential Descriptions**

### Appendix 3: Bat Tree Roost Potential Descriptions

Tree or Tree Group Number	Description	Photograph	Bat Features Present	Preliminary Tree Category	Roost Inspection Category	Evidence of Bat found
T1	Downy Birch – semi-mature on northern boundary		Several decayed cavities from old wounds vertical along stems.	Moderate	Moderate	None
T2	Downy Birch semi-mature on northern boundary		Cavity at base of the stem	Low	Negligible	None

Tree or Tree Group Number	Description	Photograph	Bat Features Present	Preliminary Tree Category	Roost Inspection Category	Evidence of Bat found
T3	Downy Birch - semi-mature on northern boundary		Ivy growth and decayed cavity on wound - exposed	Moderate	Low	None
T4	Oak spp. - mature on western boundary		Large branch/trunk broken, scars	Low	Negligible	None

Tree or Tree Group Number	Description	Photograph	Bat Features Present	Preliminary Tree Category	Roost Inspection Category	Evidence of Bat found
T5	Crack Willow		Snapped limbs and peeling bark- all exposed to elements	Low	Negligible	None

**Appendix 4**  
**Bat Evaluation System**

## Appendix 4: Bat Evaluation System

The valuation system used in this report is modified from Wray *et al.* (2010). Values are assigned using a geographic frame of reference as shown in *Table A*. The scores used to assign these values are calculated using *Table B*. 'National Rarity' values used in *Table B* are based on the categorisation system shown in *Table C*.

TABLE A: SITE/SPECIES VALUATION SYSTEM	
Geographic Frame of Reference	Score
Site	1 – 10
Local	11 – 20
County	21 – 30
Regional	31 – 40
National/UK	41 – 50
International	>50

TABLE B: CALCULATION OF FORAGING HABITAT SCORES (SHOWN IN BRACKETS)			
National Rarity	Activity	Site/Nearby Roost Potential	Habitat Characteristics
Common (2)	Low (5)	None (1)	Industrial or other site without established vegetation (1)
-	-	Small number (3)	Suburban areas or intensive arable land (2)
Rarer (5)	Moderate (10)	Moderate number / not known (4)	Isolated woodland patches, less intensive arable and/or small towns and villages (3)
-	-	Large no. of roosts, or close to a SSSI for the species (5)	Larger or connected woodland blocks, mixed agriculture (small field sizes with well-grown and small villages/hamlets (4)
Rarest (20)	High (20)	Close to or within a SAC for the species (20)	Mosaic of pasture (small fields), woodlands and wetland areas (5)

TABLE C: CALCULATION OF COMMUTING HABITAT SCORES (SHOWN IN BRACKETS)			
National Rarity	Activity	Site/Nearby Roost Potential	Type and complexity of linear features
Common (2)	Low (5)	None (1)	Absence of (other) linear features (1)
-	-	Small number (3)	Unvegetated fences and large field sizes (2)
Rarer (5)	Moderate (10)	Moderate number / not known (4)	Walls, gappy or failed hedgerows, isolated well-grown hedgerows, and moderate sized fields (3)
-	-	Large no. of roosts, or close to a SSSI for the species (5)	Well- grown and well-connected hedgerows, small field sizes (4)
Rarest (20)	High (20)	Close to or within a SAC for the species (20)	Complex network of mature well-established hedgerows, small fields and rivers/streams (5)

<b>TABLE D: CATEGORISATION OF BATS BY NATIONAL RARITY</b>				
<b>Rarity within Range</b>	<b>England</b>	<b>Wales</b>	<b>Scotland</b>	<b>Northern Ireland</b>
Common (population. over 100,000)	Common Pipistrelle Soprano Pipistrelle Brown Long-eared	Common Pipistrelle Soprano Pipistrelle	Common Pipistrelle Soprano Pipistrelle	Common Pipistrelle Soprano Pipistrelle
Rarer (population. 10,000 – 100,000)	Lesser Horseshoe Whiskered Brandt's Daubenton's Natterer's Leisler's Noctule Nathusius' Pipistrelle Serotine	Lesser Horseshoe Daubenton's Natterer's Brown Long-eared	Daubenton's Natterer's Brown Long-eared	Daubenton's Natterer's Leisler's Nathusius' Pipistrelle Brown Long-eared
Rarest (population. under 10,000)	Greater Horseshoe Bechstein's Alcathoe Greater Mouse-eared Barbastelle Grey Long-eared	Greater Horse-shoe Whiskered Brandt's Bechstein's Alcathoe Noctule Nathusius' Pipistrelle Serotine Barbastelle	Whiskered Brandt's Alcathoe Noctule Nathusius' Pipistrelle Leisler's	Whiskered

**Appendix 5**  
**Automated Detector Weather Conditions**



## Appendix 5: Automated Detector Weather Conditions

Season Surveyed	Date	Weather Conditions
Autumn 2018	25/10/2018	11-8°C, 16mph wind speed, passing clouds and dry
	26/10/2018	6-3°C, 7mph wind speed, clear and dry
	27/10/2018	5-4°C 12mph wind speed, passing clouds and dry
	28/10/2018	2-0°C, 5mph wind speed, clear and dry
	29/10/2018	4-1°C, 8mph wind speed, clear and dry
	30/10/2018	4-2°C, 6mph wind speed, passing clouds and dry
	31/10/2018	9-7°C, 7mph wind speed, scattered clouds and dry
Spring 2019	18/04/2019	11-8°C, 7mph wind speed, passing clouds and dry
	19/04/2019	13-9°C, 6mph wind speed, clear and dry
	20/04/2019	13-9 °C, 4mph wind speed, clear and dry
	21/04/2019	12-8 °C, 6mph wind speed, clear and dry
	22/04/2019	16-11 °C, 8mph wind speed, clear and dry
	23/04/2019	11-7°C, 7mph wind speed, clear and dry
Summer 2019	04/06/2019	12-10°C, 9mph wind speed, passing clouds, very light rain
	05/06/2019	10-7°C, 4mph wind speed, clear and dry
	06/06/2019	11-9°C, 4mph wind speed, clear and dry
	07/06/2019	12-11°C, 9mph wind speed, partly cloudy and light rain
	08/06/2019	12-10°C, 7mph wind speed, clear and dry
	09/06/2019	10-7°C, 2mph wind speed, clear and dry
	10/06/2019	11-10°C, 11mph wind speed, passing clouds and light rain

## DRAWINGS



**KEY**

- Site Boundary
- Static Bat Detector Locations

**Notes:**

Aerial imagery shown for context purposes only.

Boundaries are indicative.

REVISION	DETAILS	DATE	DRAWN	CHKD	APPD

CLIENT  
**EXTRA MOTORWAY SERVICE AREA GROUP**

PROJECT  
**WARRINGTON MOTORWAY SERVICE AREA, J11 M62**

DRAWING TITLE  
**STATIC BAT DETECTOR LOCATIONS**

DRG No.	SH11739/037	REV	A
DRG SIZE	A3	SCALE	1:3,500
DRAWN BY	SW	CHECKED BY	KS
		APPROVED BY	TP



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- CARLISLE
- SHEFFIELD
- EDINBURGH
- STOKE ON TRENT



**KEY**

- Site Boundary
- Transect Route
- 1 Point Count Location

**Notes:**

Aerial imagery shown for context purposes only.

Boundaries are indicative.

REVISION	DETAILS	DATE	DRAWN	CHKD	APPD

CLIENT  
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PROJECT  
**WARRINGTON MOTORWAY SERVICE AREA, J11 M62**

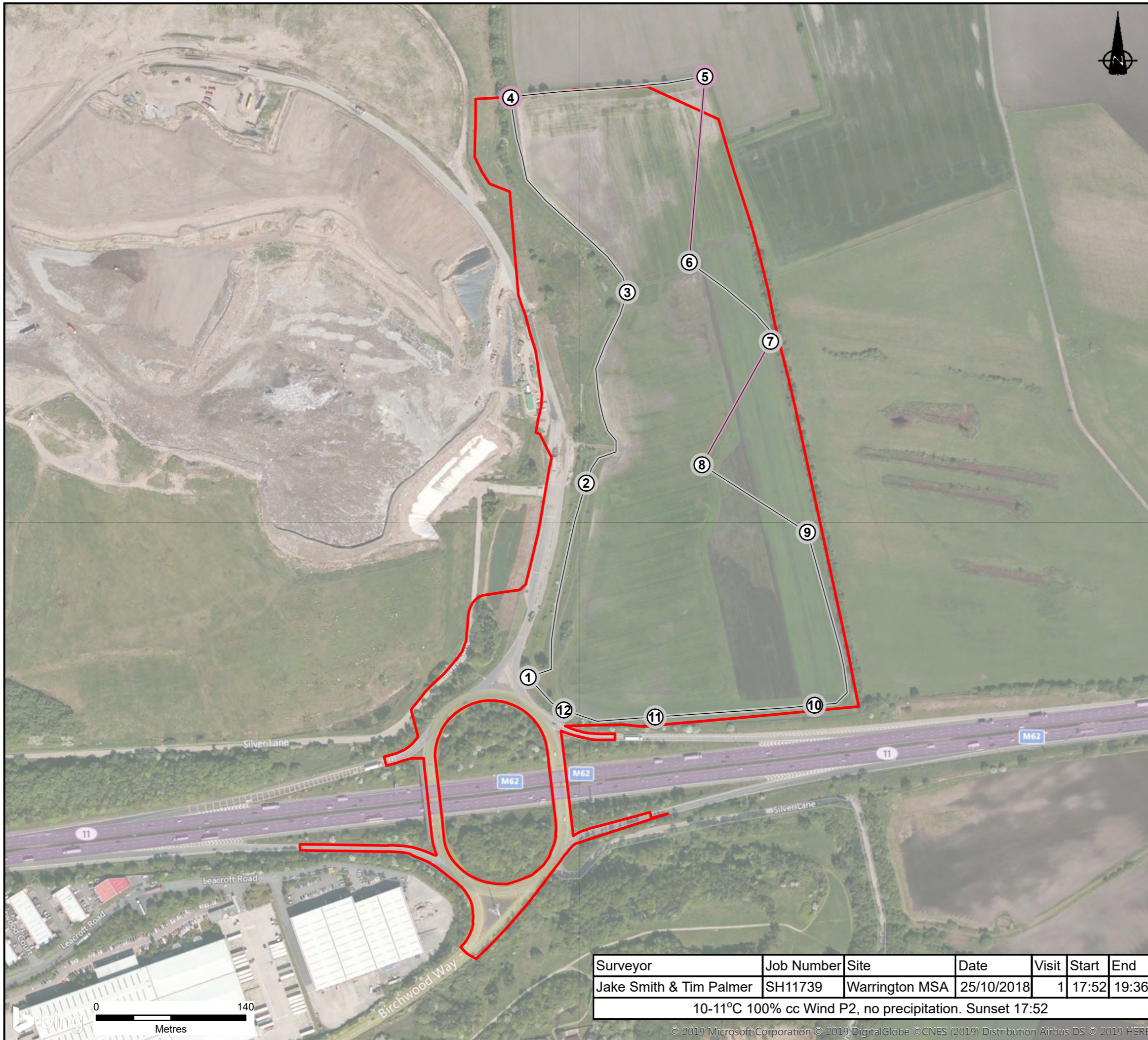
DRAWING TITLE  
**BAT ACTIVITY TRANSECT ROUTE  
AUTUMN 2018**

DRG No.	SH11739/038	REV	A
DRG SIZE	A3	SCALE	1:3,500
DRAWN BY	SW	CHECKED BY	KS
		APPROVED BY	TP



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- SHEFFIELD
- STOKE ON TRENT





**KEY**

- Transect Route
- Point Count Location
- Number of Passes in the Transect Route
- 0 Passes
- 1-5 Passes
- Number of Passes at Point Count Locations
- 0 Passes
- 1-5 Passes
- Site Boundary

Notes:  
 Aerial imagery shown for context purposes only.  
 Boundaries are indicative.

REVISION	DETAILS	DATE	DRAWN	CHKD	APPD

CLIENT  
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PROJECT  
 WARRINGTON MOTORWAY SERVICE AREA,  
 J11 M62

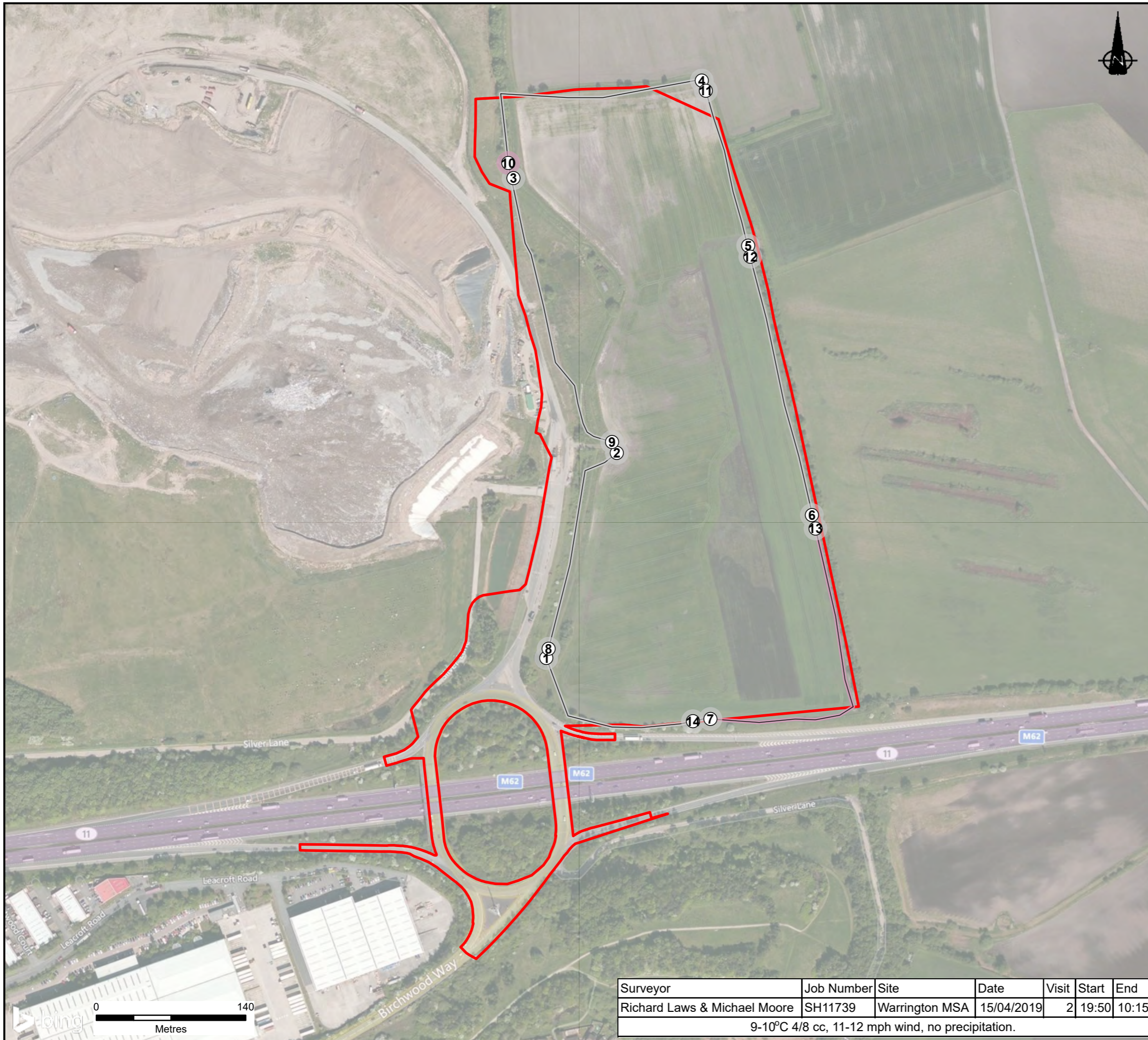
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 BAT ACTIVITY TRANSECT SURVEY RESULTS  
 AUTUMN 2018

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DRG SIZE	A3	SCALE	1:3,500
DRAWN BY	SW	CHECKED BY	KS
		APPROVED BY	TP

Surveyor	Job Number	Site	Date	Visit	Start	End
Jake Smith & Tim Palmer	SH11739	Warrington MSA	25/10/2018	1	17:52	19:36
10-11°C 100% cc Wind P2, no precipitation. Sunset 17:52						

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- MANCHESTER
- CARLISLE
- SHEFFIELD
- EDINBURGH
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**KEY**

- Site Boundary
- Transect Route
- ① Point Count Location
- Number of Passes in the Transect Route
- 0 Passes
- 1-5 Passes
- Number of Passes at Point Count Locations
- 0 Passes
- 1-5 Passes

**Notes:**

Aerial imagery shown for context purposes only.

Boundaries are indicative.

REVISION	DETAILS	DATE	DRAWN	CHKD	APPD

CLIENT  
**EXTRA MOTORWAY SERVICE AREA GROUP**

PROJECT  
**WARRINGTON MOTORWAY SERVICE AREA, J11 M62**

DRAWING TITLE  
**BAT ACTIVITY TRANSECT SURVEY RESULTS SPRING 2019**

DRG No.	SH11739/045	REV	A
DRG SIZE	A3	SCALE	1:3,500
DRAWN BY	SW	CHECKED BY	KS
		APPROVED BY	TP

Surveyor	Job Number	Site	Date	Visit	Start	End
Richard Laws & Michael Moore	SH11739	Warrington MSA	15/04/2019	2	19:50	10:15
9-10°C 4/8 cc, 11-12 mph wind, no precipitation.						

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**KEY**

- Site Boundary
- Bat Roost Potential**
- Moderate Potential
- Low Potential
- Negligible Potential

**Notes:**

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Boundaries are indicative.

REVISION	DETAILS	DATE	DRAWN	CHKD	APPD

CLIENT  
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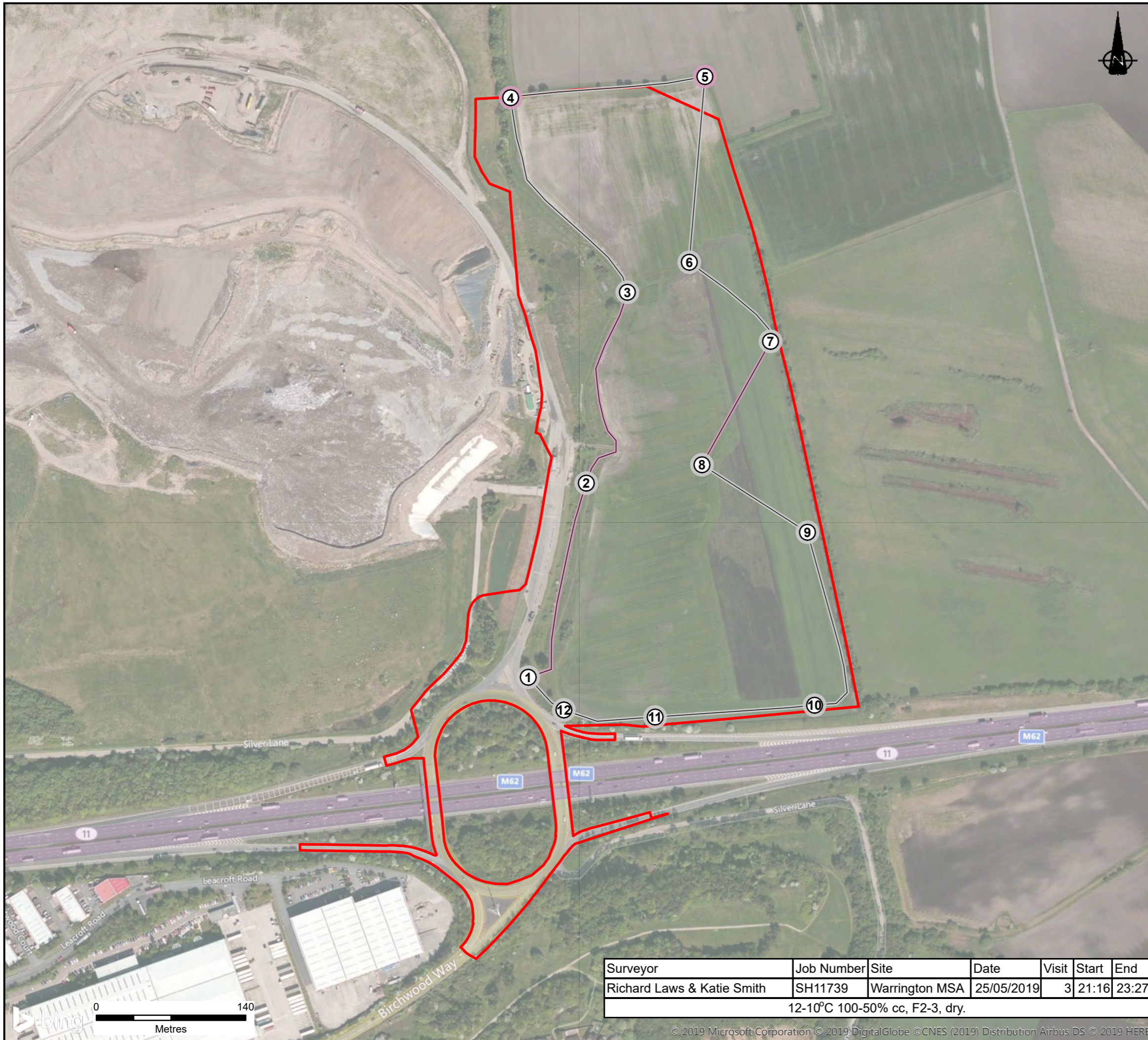
PROJECT  
**WARRINGTON MOTORWAY SERVICE AREA, J11 M62**

DRAWING TITLE  
**BAT TREE ROOST POTENTIAL PLAN**

DRG No.	SH11739/047	REV	A
DRG SIZE	A3	SCALE	1:3,500
DRAWN BY	SW	CHECKED BY	KS
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<input type="checkbox"/> CARLISLE	<input type="checkbox"/> SHEFFIELD
<input type="checkbox"/> EDINBURGH	<input type="checkbox"/> STOKE ON TRENT



**KEY**

- Site Boundary
- Transect Route
- ① Point Count Location
- Number of Passes at Point Count Locations
- 0 Passes
- 1-5 Passes
- Number of Passes in the Transect Route
- 0 Passes
- 1-5 Passes

Notes:  
 Aerial imagery shown for context purposes only.  
 Boundaries are indicative.

REVISION	DETAILS	DATE	DRAWN	CHKD	APPD
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CLIENT  
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PROJECT  
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 J11 M62

DRAWING TITLE  
 BAT ACTIVITY TRANSECT SURVEY RESULTS  
 SUMMER 2019

DRG No.	SH11739/050	REV	A
DRG SIZE	A3	SCALE	1:3,500
DRAWN BY	SW	CHECKED BY	KS
		APPROVED BY	TP

Surveyor	Job Number	Site	Date	Visit	Start	End
Richard Laws & Katie Smith	SH11739	Warrington MSA	25/05/2019	3	21:16	23:27
12-10°C 100-50% cc, F2-3, dry.						

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## **Appendix 5.6 – Badger Survey Report**



**EXTRA MSA GROUP**

**MOTORWAY SERVICES, WARRINGTON**

**BADGER SURVEY REPORT**

**JULY 2019**

CONFIDENTIAL

**DATE ISSUED:** JULY 2019  
**JOB NUMBER:** SH11739  
**REPORT NUMBER:** 006  
**VERSION:** V1.0  
**STATUS:** FINAL

**EXTRA MSA GROUP**

**MOTORWAY SERVICES, WARRINGTON**

**BADGER SURVEY REPORT**

**JULY 2019**

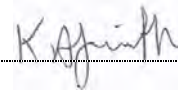
**PREPARED BY:**

Jake Smith Graduate Ecologist



**REVIEWED BY:**

Katie Smith Ecologist



Richard Laws Principal Environmental  
Scientist/Ecologist



**APPROVED BY:**

Tim Palmer Technical Director (Ecology)



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## **1 INTRODUCTION**

1.1.1 Wardell Armstrong LLP (WA) were commissioned by Extra MSA Group to undertake a badger survey of a proposed Motorway Services Area development (hereafter after referred to as the 'development'), located on the northern side of the M62 at Junction 11, central Ordnance Survey (OS) grid reference: SJ 6705393630.

1.1.2 This report should remain confidential and be circulated to bona fide individuals and organisations only.

### **1.2 Background**

1.2.1 It is proposed that the development will include a main services area with food and retail facilities and a hotel, car, coach and HGV parking, a fuel station and associated road infrastructure.

1.2.2 A full Ecological Assessment has been undertaken for the development by WA in December 2018.

1.2.3 WA undertook the badger survey on the 15<sup>th</sup> January 2019. The aim of the badger survey was to identify and assess the current level of badger activity within the site, to inform any changes in their status since the PEA and detail any potential constraints for future development stages.

### **1.3 Scoping Consultation**

1.3.1 A scoping report was issued to Tameside Metropolitan Borough Council (TMBRC) during December 2018. Comments were returned during February 2019. The scoping response from TMBRC agreed that loss of habitats of use to badgers needs to be considered in the Environmental Statement (ES). A recommendation of biodiversity net gain was made in line with the NPPF.

### **1.4 Proposed Development**

1.4.1 The proposed development area covers approximately 15.8 hectares (ha). The majority of the development is cultivated land with a broadleaved treeline along the eastern boundary. Along the western and southern boundaries were areas of neutral grassland with small areas of broadleaved woodland along the south western boundary and marshy grassland within the western boundary.

1.4.2 The site bound by cultivated land and grazing pasture to the east, cultivated land to the north and a capped landfill to the west. Directly south of the southern boundary

is the M62 motorway with cultivated land to the south east and Birchwood Business and Technology Park to the south west.

## **1.5 Legislation**

- 1.5.1 The Protection of Badgers Act 1992 consolidates the previous Badger Acts of 1973 and 1991. The legislation aims to protect the species from persecution, rather than being a response to an unfavourable conservation status, as the species is in fact common within Britain.
- 1.5.2 As well as protecting the animal itself, the 1992 Act also makes the intentional or reckless destruction, damage or obstruction of a badger sett an offence. A sett is defined as “any structure or place, which displays signs indicating current use by badgers”.
- 1.5.3 In addition, the intentional elimination of sufficient foraging area to support a known social group of badgers may, in certain circumstances, be construed as an offence by constituting the ‘cruel ill treatment’ of a badger.

## **1.6 Licensing Requirements**

- 1.6.1 Works that may lead to the disturbance of badgers is illegal without a licence. Natural England (NE) firstly developed guidelines on the types of activity that should be licensed within certain distances of sett entrances in its publication “*Badgers and Development (2002)*”. These activities include the use of heavy machinery within 30m of any entrance to an active sett, and lighter machinery within 20m, or light work such as hand digging within 10m, all of which may require a licence. This guideline has been updated in the publication “*Badgers and Development: A Guide to Best Practice and Licensing (2009)*” which includes a more flexible approach to zoning depending on the activities to be undertaken.

## **1.7 Badger Ecology**

- 1.7.1 Badgers are a member of the weasel family (*Mustelidae*) and as mentioned previously are widespread throughout Britain. It has been estimated that Britain supports in the region of 250,000 badgers. However, they are not uniformly distributed and are less common in upland areas.
- 1.7.2 Badgers are very social animals and, in most instances, live in social groups. The national average social group size is approximately six adults, although Roper (2010) found that group sizes have increased overtime, to such an extent that groups of a dozen or so individuals are now common and groups of thirty or more are not

unknown. Badger setts are normally excavated into suitably firm and free draining substrate and as a result are often located in steep banks and mounds,

- 1.7.3 In lowland Britain earthworms are a staple food item, although cereals and fruit may figure significantly in their seasonal diet. They will also feed on a range of other invertebrates and animals such as frogs, young rabbits and wasp grubs.
- 1.7.4 Badgers normally have a number of setts in their territory of which the main sett is occupied year-round and is the most important for the social group. In addition, a social group will also occasionally maintain annex, subsidiary and outlier setts each of which is of decreasing importance to the group as a whole (see 2.3.4 for definitions).



## **2 SURVEY METHODOLOGY**

### **2.1 Desk Study**

2.1.1 A desk study was informed by the full Ecological Assessment carried out by WA and data provided by RECORD (Local Records Centre).

### **2.2 Field Survey**

2.2.1 The specific aim of the survey was to:

- map the distribution of badger setts, latrines, paths and, where possible, territorial boundaries;
- describe the status of setts;
- assess the quality of badger foraging habitat;
- identify road crossing points;
- relate data on sett location and status to future development proposals;
- identify areas where more detailed surveys may be required; and
- identify general principles for integrating development and badger conservation.

2.2.2 Within the search area all fence lines, grassland, woodland and scrub habitats were systematically surveyed for evidence of badgers in the form of:

- faeces: badgers usually deposit faeces in characteristic excavated pits, concentrations of which (latrine sites) are typically found at home-range boundaries;
- setts: comprising either single isolated holes or a series of holes likely to be interconnected underground;
- paths between setts or leading to feeding areas;
- scratching posts at the base of tree trunks;
- hair traces;
- snuffle holes: formed during foraging and comprising characteristically disturbed ground vegetation; and
- footprints.

2.2.3 Where setts were found, levels of use were assessed using the following criteria:

- number of sett entrances with features suggesting current use (i.e. well-worn entrance; freshly excavated soil);
- number of partially used holes (leaves or twigs in entrance and/or mosses and other plants growing in or around entrance);
- number of disused holes (partially or completely blocked, with considerable amount of excavation required for reoccupation);
- presence of bedding material;
- any additional signs from para 2.3.2.

2.2.4 Setts were classified using the conventions shown in Table 1.

Table 1: Conventions used in classifying badger setts	
Sett Type	Definition
Main	Can comprise of one or several holes often with large spoil heaps and obvious paths emanating from and between sett entrances. A number of activity features suggesting continuous presence and use.  A breeding site.
Annex	Normally less than 150m from main sett, comprising several holes.  May not be in use all the time, even if main sett is very active.
Subsidiary	Usually at least 50m from main sett with no obvious paths connecting to other setts.  May be used regularly/intermittently often relating to clan/territory size, and changes in foraging regimes i.e. crop growing times.
Outlier	Little spoil outside holes. No obvious paths connecting to other setts and only used sporadically.  May be used by foxes and rabbits.

2.2.5 The field survey methods described above are consistent with those advocated by Harris et al. (1989). Evidence recorded is then used to demine whether a sett is in “current use” (as per Natural England Guidance on ‘Current Use’ in the Determining of a Badger Sett, 2009).

2.2.6 In order to provide a measure of habitat quality, broad habitats within and immediately surrounding the development site boundary were recorded while undertaking the badger survey (i.e. semi-improved grassland, scattered scrub and broadleaved woodland).

### **3 SURVEY RESULTS**

#### **3.1 Desk Study**

3.1.1 The desk study data provided by RECORD (Local Records Centre) identified 1 record of badger within the 2km search radius being approximately 1.3km east of the proposed development.


#### **3.2 Habitat Description**

3.2.1 The habitats on site are suitable for foraging badger, with the majority of the habitat on site, cultivated land, and neutral grassland and broadleaved woodland being secondary foraging habitat. Suitable sett creation habitat lies along the eastern boundary within the broadleaved tree line, however, due to the peaty soil conditions and high-water table, this is not considered optimal sett creation habitat.

3.2.2 The surrounding land in the wider landscape provide both primary and secondary foraging habitat along with suitable sett creation habitats. The path along the western boundary allows connectivity to further areas of woodland, scrub and rough grassland.

#### **3.3 Field Survey**

3.3.1 During the survey, no evidence of badger was identified within the proposed development area or within 50m from the boundary. However, there were two partially collapsed rabbit entrances that have potential to be utilised by badger. Also identified during the survey were a large amount of rabbit entrances with two possible fox dens.

Table 2: Badger signs identified within the site boundary		
Field Sign	Description	Photo
Partially collapsed rabbit entrances	<p>A rabbit warren was recorded along the eastern boundary, within the earth bank of the dry ditch. The warren comprised of three entrances with two of these entrances being partially collapsed, making the entrances larger. The entrances contained leaf litter and debris and old soil material, indicating no recent activity. There was also a high number of rabbit field signs including partial prints, droppings and a large number of other rabbit holes within close vicinity. The pathways still visible narrowed and not considered to be wide enough for badger. There were no field signs of badger present within the entrance or surrounding area.</p> <p>From the evidence gathered, it is considered that these entrances are used by rabbit and not used by badger. However, they provide suitable opportunity for badger sett creation.</p>	

---

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## **Appendix 5.7 – Breeding Birds Survey Report**



**EXTRA MSA GROUP**

**MOTORWAY SERVICES, WARRINGTON**

**BREEDING BIRD SURVEY REPORT**

**JULY 2019**



**DATE ISSUED:** JULY 2019  
**JOB NUMBER:** SH11739  
**REPORT NUMBER:** 007  
**VERSION:** V1.0  
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**EXTRA MSA GROUP**

**MOTORWAY SERVICES, WARRINGTON**

**BREEDING BIRD SURVEY REPORT REPORT**

**JULY 2019**

**PREPARED BY:**

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ENERGY AND CLIMATE CHANGE  
ENVIRONMENT AND SUSTAINABILITY  
INFRASTRUCTURE AND UTILITIES  
LAND AND PROPERTY  
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MINERAL ESTATES  
WASTE RESOURCE MANAGEMENT

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## APPENDICES

Appendix 1 Warrington MSA Breeding Bird Survey Table (2019)

<b>DRAWINGS</b>	<b>TITLE</b>	<b>SCALE</b>
SH11739-035	Breeding Bird Survey Results (Visit 1)	1:3,500@A3
SH11739-036	Breeding Bird Survey Results (Visit 2)	1:3,500@A3
SH11739-040	Dunnock Territory Plan	1:3,500@A3
SH11739-041	Lapwing Territory Plan	1:3,500@A3
SH11739-042	Skylark Territory Plan	1:3,500@A3
SH11739-043	Song Thrush Territory Plan	1:3,500@A3
SH11739-046	Breeding Bird Survey Results (Visit 3)	1:3,500@A3
SH11739-049	Breeding Bird Survey Results (Visit 4)	1:3,500@A3
SH11739-051	Breeding Bird Survey Results (Visit 5)	1:3,500@A3
SH11739-053	Reed Bunting Territory Plan	1:3,500@A3
SH11739-054	Willow Warbler Territory Plan	1:3,500@A3

## **1 METHODOLOGY**

### **1.1 Scoping Consultation**

1.1.1 A scoping report was issued to Tameside Metropolitan Borough Council (TMBRC) during December 2018. Comments were returned during February 2019. The scoping response from TMBRC agreed that impacts on bird assemblages and barn owl foraging habitat need to be considered in the Environmental Statement (ES). A recommendation of biodiversity net gain was made in line with the NPPF.

### **1.2 Desk Study**

1.2.1 The desktop study was informed by review of existing available information provided by RECORD (Local Records Centre), Cheshire and Wirral Ornithological Society (CAWOS), Barn Owl Conservation Trust and from available internet-based resources for a 2km search radius from the site boundaries. OS and satellite mapping were also used to gain contextual habitat information. Other organisations and recorders approached included:

- Greater Manchester Local Record Centre (GMLRC).

### **1.3 Field Surveys**

#### *Breeding Bird Survey*

1.3.1 Following identification of optimal habitat types and the presence of Birds of Conservation Concern (BoCC) species from the initial surveys (as described in Preliminary Ecological Appraisal report Wardell Armstrong 2018), breeding bird surveys were undertaken on site. The methodology used was based on techniques devised by British Trust of Ornithology (BTO)/ Joint Nature Conservation committee (JNCC) / Royal Society for the Protection of Birds (RSPB) Common Bird Census (CBC) survey technique (Gilbert *et al* 1998).

1.3.2 During the breeding bird season (March - September), many birds, especially passerines, mark their territories by singing conspicuously, displaying or periodically disputing with rival neighbours (Bibby *et al* 2000). An amended and indicative territory mapping survey (Bibby *et al* 2000) was undertaken in which all displaying birds associated with the site were recorded. Following the BTO survey guidelines, a singing bird is classed as a territorial male and thus indicative of the presence of a breeding pair.

- 1.3.3 The common bird census (CBC) methodology has adopted ten visits as standard. Ideally spread uniformly between mid-March and mid-July. For any one species all ten visits are rarely needed to identify breeding presence.
- 1.3.4 The survey approach recommended for this site consisted of an amended CBC methodology, involving five visits between the months March to June.
- 1.3.5 A transect route was mapped out prior to the surveys being undertaken, paying particular attention to linear features (such as hedgerows and tree lines) and natural landscape features (such as watercourses and areas of scrub).
- 1.3.6 Utilising standard BTO notation<sup>1</sup> the locations of the singing birds were marked on site maps to indicate territory locations. Care was taken to ensure each individual was marked only once. However, all behaviour was marked, including, movements using standard symbols, as detailed in Bibby et al. (1992). The estimated centre of the territories can then be plotted using the results from each visit (based on mean positions of the data sets).
- 1.3.7 For species which do not sing e.g. *corvids*, breeding is considered confirmed only if one or more of the following is recorded:
- Presence of a nest;
  - Mating;
  - Breeding display;
  - Territorial behaviour; and
  - Presence of young.
- 1.3.8 The surveys commenced early morning, around an hour after sunrise to encapsulate peak periods of displaying bird activity and consisted of a plotted transect circuit to limit the effects of double counting.
- 1.3.9 To provide an indication of the total bird species diversity in the local area, all species observed on site, and within the 100 m zone of influence, were recorded as part of the survey (See Appendix 1).
- 1.3.10 An evaluation of the site assemblage has been undertaken according to Fuller, R.J (1980) *A Method for Assessing the Ornithological Interest of Sites for Conservation*.

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<sup>1</sup> A full list of species occurring in Britain and their BTO species code can be found here:  
<http://www.bto.org/about-birds/birdfacts/british-list>

Biological Conservation 17 P-229-239. The Fuller method uses the total number of all species (including non-notable species) recorded within a surveyed area to provide an indication of species richness. The criteria according to Fuller (1980) are provided in Table 1.

<b>Table 1: Breeding Bird Species Richness Criteria (Fuller 1980)</b>			
<b>Local</b>	<b>County</b>	<b>Regional</b>	<b>National</b>
25-49	50-69	70-84	85+

1.3.11 Dates and weather conditions of the surveys are provided in Table 2:

<b>Table 2: Breeding Bird Survey Weather</b>				
<b>Visit</b>	<b>Date</b>	<b>Weather</b>	<b>Survey time</b>	<b>Sunrise time</b>
BBS 1	20/03/2019	9°C, 4/8 Cloud Cover, F2 wind and sunny	08:30 -10:00	06:14
BBS 2	04/04/2019	4°C, 7/8 Cloud Cover, F3 wind and dry	08:30 – 10:46	06:38
BBS 3	23/04/2019	11-12°C, 7/8 to 8/8 Cloud Cover, F2/3 wind and dry	07:30-09:25	05:53
BBS 4	14/05/2019	11-12°C, 2/8 to 4/8 light Cloud Cover, F1 wind and dry	07:00-08:30	05:12
BBS 5	06/06/2019	12-15°C, 0 Cloud Cover, F1 wind and dry	06:00-07:45	04:45

1.3.12 Drawings showing the sightings and indicative territory locations of NERC s.41 and BoCC species identified on site are provided as Drawings numbered SH11739-035/036/040/041/042/043/046/049/051/053 and 054.

## 1.4 Limitations

1.4.1 Ornithological surveys are affected by a variety of factors which affect the presence of birds such as season, weather, food availability, species behaviour and disturbance. The absence of any particular species within the survey area should not be taken as conclusive evidence that the species is not present or that it will not be present in the future.

## 2 RESULTS

### 2.1 Desk Study

2.1.1 Data from RECORD, CAWOS and BOCT highlighted the presence of a wide range of notable breeding bird species with the potential to breed on site during the breeding season, suggesting that the site offers both potential foraging and nesting opportunities throughout the breeding period March - September. Notable records include barn owl *Tyto alba*, bullfinch *Pyrrhula pyrrhula*, cuckoo *Cuculus canorus*, dunnock *Prunella modularis*, grasshopper warbler *Locustella naevia*, grey partridge *Perdix perdix*, lapwing *Vanellus vanellus*, linnet *Carduelis cannabina*, mistle thrush *Turdus viscivorus*, Quail *Coturnix coturnix*, reed bunting *Emberiza schoeniclus*, skylark *Alauda arvensis*, song thrush *Turdus philomelos*, starling *Sturnus vulgaris*, stock dove *Columba oenas*, tawny owl *Strix aluco*, tree sparrow *Passer montanus*, willow warbler *Phylloscopus trochilus*, yellow wagtail *Motacilla flava*, and yellowhammer *Emberiza citrinella*.

2.1.2 Data provided by the BOCT shows a single barn owl sighting recorded 2.5km from the site during 2019.

2.1.3 Data provided by CAWOS shows an average of 8.8 barn owl sightings per year in the last 5 years, the closest being within 100m of the survey site.

2.1.4 No data was provided by the following organisations or recorders, due to the organisation or recorder not covering that area fully and contains no additional records or due to the group not responding:

- Greater Manchester Local Record Centre (GMLRC).

### 2.2 Field Surveys

#### *Breeding Bird Survey (BBS)*

2.2.1 During the BBS, a total of forty-two species were recorded on site across all survey visits. A complete table of species recorded on site during the BBS can be seen in Appendix 1 and is also displayed in Drawings numbered SH11739-035/036/046/049 and 051. Territory plans have been created for six species (dunnock, lapwing, skylark, song thrush, reed bunting and willow warbler) and are presented in Drawings numbered SH11739-040/041/042/043/053 and 054.

2.2.2 No barn owl were recorded on site or in the surrounding area during the breeding or wintering bird surveys, or anecdotally during other surveys such as the bat activity surveys. The site is not considered to support optimal barn owl foraging habitat.

### Species Accounts

2.2.3 Species accounts for all Annex 1, Schedule 1, Red/Amber-listed BoCC and s.41 species are provided, below. These accounts provide a brief description of species use of the site and activity, a summary table is included of the species for each group of protected species. The BBS results plans, including territory plans (Drawing No. SH11739-035/036/040/041/042/043/046/049 and 051), also highlight the locations of sightings and accompanies the text below.

#### Annex 1 birds

2.2.4 The desk study revealed the presence of 18 Annex 1 species within 2km of the site, none of which have the potential to breed on site.

2.2.5 During the BBS no EU Annex 1 listed bird species were recorded.

2.2.6 All Annex 1 species desk study records are shown in Table 3, below.

Table 3: Annex 1 species data					
Species	Desk Study	Supporting Breeding Habitat Onsite	BBS (total <sup>2</sup> /peak count <sup>3</sup> )	Likely Breeding Pairs	Potentially significant Effects
Artic Tern	✓	x	N/a	N/a	x
Barnacle Goose	✓	x	N/a	N/a	x
Bittern	✓	x	N/a	N/a	x
Common Tern	✓	x	N/a	N/a	x
Crane	✓	x	N/a	N/a	x
Golden Plover	✓	x	N/a	N/a	x
Hen Harrier	✓	x	N/a	N/a	x
Kingfisher	✓	x	N/a	N/a	x
Marsh Harrier	✓	x	N/a	N/a	x
Mediterranean Gull	✓	x	N/a	N/a	x
Osprey	✓	x	N/a	N/a	x
Peregrine	✓	x	N/a	N/a	x
Red Kite	✓	x	N/a	N/a	x
Red-Backed Shrike	✓	x	N/a	N/a	x
Ruff	✓	x	N/a	N/a	x
Short-eared Owl	✓	x	N/a	N/a	x
Whooper Swan	✓	x	N/a	N/a	x
Wood Sandpiper	✓	x	N/a	N/a	x

<sup>2</sup> Total number of registrations on or through study area.

<sup>3</sup> Peak count – i.e. maximum flock size at any point during survey, or total count if no risk of double counting.

## Schedule 1 birds

2.2.7 The desk study revealed the presence of twenty-eight Schedule 1 species within 2 km of the site, barn owl and quail have potential to occur within the survey area during the breeding survey period.

2.2.8 During the BBS one Schedule 1 species was recorded, namely fieldfare. The species account is written below.

### Fieldfare

2.2.9 Fieldfare species are Schedule 1 listed birds due to having very small breeding populations in the far north of Scotland. Up to 680,000 fieldfare overwinter in the UK from Scandinavia, Russia and Iceland, roving through the countryside feeding on berries, fruit and invertebrates (Robinson 2005). RECORD records (2014 and 2015) shows small wintering and passage flock numbers are consistently present in the area during winter. A flock of seven were recorded to east of site during 23<sup>rd</sup> April 2019, likely to be migrating back to their summer grounds and not to be breeding.

2.2.10 Both desk study data and BBS results for Schedule 1 species are summarised in Table 4, below.

Table 4: Schedule 1 species data					
Species	Desk Study	Supporting Breeding Habitat Onsite	BBS (total <sup>4</sup> /peak count <sup>5</sup> )	Likely Breeding Pairs	Potentially significant Effects
Barn Owl	✓	✓	N/a	N/a	✓
Bittern	✓	x	N/a	N/a	x
Black-necked Grebe	✓	x	N/a	N/a	x
Black-tailed Godwit	✓	x	N/a	N/a	x
Brambling	✓	x	N/a	N/a	x
Cetti's warbler	✓	x	N/a	N/a	x
Common crossbill	✓	x	N/a	N/a	x
Fieldfare	✓	x	7/7	N/a	x
Firecrest	✓	x	N/a	N/a	x
Garganey	✓	x	N/a	N/a	x
Green sandpiper	✓	x	N/a	N/a	x
Greenshank	✓	x	N/a	N/a	x
Hen Harrier	✓	x	N/a	N/a	x
Hobby	✓	x	N/a	N/a	x

<sup>4</sup> Total number of registrations on or through study area.

<sup>5</sup> Peak count – i.e. maximum flock size at any point during survey, or total count if no risk of double counting.



Table 4: Schedule 1 species data					
Species	Desk Study	Supporting Breeding Habitat Onsite	BBS (total <sup>4</sup> /peak count <sup>5</sup> )	Likely Breeding Pairs	Potentially significant Effects
Kingfisher	✓	x	N/a	N/a	x
Little ringed plover	✓	x	N/a	N/a	x
Long tailed Duck	✓	x	N/a	N/a	x
Marsh Harrier	✓	x	N/a	N/a	x
Mediterranean Gull	✓	x	N/a	N/a	x
Merlin	✓	x	N/a	N/a	x
Osprey	✓	x	N/a	N/a	x
Peregrine	✓	x	N/a	N/a	x
Quail	✓	✓	N/a	N/a	x
Red Kite	✓	x	N/a	N/a	x
Red-Backed Shrike	✓	x	N/a	N/a	x
Redwing	✓	x	12/6	N/a	x
Ruff	✓	x	N/a	N/a	x
Whimbrel	✓	x	N/a	N/a	x
Whooper Swan	✓	x	N/a	N/a	x
Wood Sandpiper	✓	x	N/a	N/a	x

#### NERC s.41 Species

2.2.11 The desk study revealed the presence of 28 s.41 species within 2 km of the site, with 13 species having the potential to breed on site during the survey period.

2.2.12 During the BBS, nine s.41 species were recorded on site. These consisted of bullfinch, dunnock, herring gull, lapwing, linnet, reed bunting, skylark, song thrush and starling.

#### *Bullfinch*

2.2.13 Bullfinch is a common, widespread but declining resident that primarily associates with thick woodland undergrowth, thickets, scrub and hedgerow habitats (Snow et al. 1998). It is both Amber-listed and a s.41 species due to moderate population decline in recent decades (Eaton et al. 2015). Bullfinch was recorded in association with hedgerow and scrub in the south site and is considered to be resident throughout the year.

#### *Dunnock*

2.2.14 This species is both a BoCC Amber Listed and s.41 listed species as it is still recovering from population declines during the 1970s and 1980s. Dunnock is primarily insectivorous, although small seeds are an important food source over winter (Snow et al. 1998). This species was recorded occasionally within the site boundary during

the survey period in association with scrub and tree lined habitats on the boundaries of the site. It is considered that there are four territories of likely breeding pairs.

#### *Herring gull*

- 2.2.15 Herring gull is both Red and s.41 listed due to recent sharp declines in its breeding population (Eaton et al. 2015). This species was recorded once during visit 3 flying over the site with a maximum count of three recorded. There is no potential for this species to breed onsite.

#### *Lapwing*

- 2.2.16 Lapwing is both Red and s.41 listed due to rapid, long-term population decline associated with changes in farming practice and the reduction in suitable breeding habitat (Baillie *et al.* 2014). In the desk study a single individual was recorded onsite and a larger flock in fields adjacent north east of site. The rest of the records were observed some distance from site. This species was recorded adjacent to site outwith the northern site boundary, flying over the northern part of the site, and during visit 2 and 3 lapwing were recorded displaying aggressive behaviour to a carrion crow.

#### *Linnet*

- 2.2.17 This species is Red and s.41 listed due to undergoing severe population declines in recent decades (Eaton et al. 2015). Two individuals were recorded flying over the site near the linear scrub on the west of the development site. No observations of breeding were recorded.

#### *Reed bunting*

- 2.2.18 This species is s.41 listed due to steep population declines in the 1970s (Baillie *et al.* 2015). The species most commonly associates with wetland and reedbed habitats, although it is often found in arable farmland, especially in winter. A singing male and pair were recorded during different visits within a reedbed on the western boundary. A total of one territory of likely breeding pairs was recorded across all visits.

#### *Skylark*

- 2.2.19 Skylark is Red and s.41 listed due to sharp population declines in recent decades (Eaton *et al.* 2015). Displaying males and individuals were recorded across the site and to the west of the site on adjacent land across all survey visits. A total of seven territories of likely breeding pairs were recorded over all visits.

### *Song thrush*

2.2.20 Song thrush is Red and s.41 listed due to nationally sharp population declines in recent decades (Eaton *et al.* 2015). This species occurs in any habitat where trees and hedgerows are found in association with grassland and/or leaf litter that support large numbers of invertebrates (Snow *et al.* 1998). Individuals were recorded singing during several survey visits in association with tree lined habitats displaying presence of at least four likely breeding pairs.

### *Starling*

2.2.21 This species is Red and s.41 listed due to an ongoing population decline (Eaton *et al.* 2015). Starling associate with areas of short vegetation (e.g. arable stubble) and grassland on which they forage for invertebrate prey (Snow *et al.* 1998). Starlings were recorded as flyovers (two individuals) over the arable field in small numbers on site during visit 3.

2.2.22 Both desk study data and BBS results are summarised in Table 5, below.

Table 5: NERC s.41 species data					
Species	Desk Study	Supporting Breeding Habitat Onsite	BBS (total <sup>6</sup> /peak count <sup>7</sup> )	Likely Breeding Pairs	Potentially significant Effects
Bittern	✓	x	N/a	N/a	x
Black-tailed Godwit	✓	x	N/a	N/a	x
Bullfinch	✓	✓	1/1	0	x
Corn bunting	✓	x	N/a	N/a	x
Cuckoo	✓	✓	N/a	N/a	x
Curlew	✓	x	N/a	N/a	x
Dunnock	x	✓	20/2	4	x
Grasshopper warbler	✓	✓	N/a	N/a	x
Grey partridge	✓	✓	N/a	N/a	x
Herring gull	✓	x	3/3	0	x
House sparrow	✓	x	N/a	N/a	x
Lapwing	✓	✓	11/2	2	x
Lesser redpoll	✓	x	N/a	N/a	x
Linnet	✓	✓	4/2	0	x
Marsh Tit	✓	x	N/a	N/a	x
Red-backed Shrike	✓	x	N/a	N/a	x
Reed bunting	✓	✓	5/2	2	x

<sup>6</sup> Total number of registrations on or through study area.

<sup>7</sup> Peak count – i.e. maximum flock size at any point during survey, or total count if no risk of double counting.

Species	Desk Study	Supporting Breeding Habitat Onsite	BBS (total <sup>6</sup> /peak count <sup>7</sup> )	Likely Breeding Pairs	Potentially significant Effects
Ring Ouzel	✓	x	N/a	N/a	x
Skylark	✓	✓	44/2	16	x
Song thrush	✓	✓	14/2	3	x
Spotted Flycatcher	✓	x	N/a	N/a	x
Starling	✓	✓	2/2	0	x
Tree pipit	✓	x	N/a	N/a	x
Tree Sparrow	✓	x	N/a	N/a	x
Willow tit	✓	x	N/a	N/a	x
Yellow wagtail	✓	✓	N/a	N/a	x
Yellowhammer	✓	✓	N/a	N/a	x

Birds of Conservation Concern (BoCC)

2.2.23 A total of 36 Red listed BoCC were recorded within 2km of survey area, 12 of which have the potential to breed onsite. A total of 49 Amber listed BoCC were within 2km of survey area, eight of which have potential to breed onsite.

2.2.24 During the BBS, seven BoCC Red list species were recorded on site. These consisted of fieldfare, herring gull, lapwing, lapwing, linnet, skylark, song thrush and starling. Only three of which were observed showing breeding behaviour. A total of eleven BoCC Amber list species were recorded onsite, these consisted of black-headed gull, dunnock, kestrel, mallard, oystercatcher, reed bunting, shelduck, teal and willow warbler. Only three of these species were considered to be breeding onsite.

2.2.25 Species including dunnock, herring gull, lapwing, linnet, reed bunting, skylark, song thrush and starling have BBS accounts which are already mentioned above and so are not included below.

Black-headed gull

2.2.26 Black-headed gull is a BoCC amber list species due to moderate declines in non-breeding populations (Eaton et al. 2015). This species is typically associated with coastal and inland wetlands, using both natural and manmade waterbodies (BTO no date). Few individuals were recorded flying over site during three of the survey visits. This species is not considered to be breeding onsite.

### Kestrel

- 2.2.27 Kestrel is a BoCC amber list species due to declines since the 1970's (Baillie et al. 2015). The kestrel breeds at high density in mixed farmland across much of England (Baillie et al. 2015). This species was observed hunting onsite and adjacent to the western boundary. No breeding behaviour has been observed during the surveys.

### Mallard

- 2.2.28 Mallard species has recently been moved from the green to the amber list on the strength of decline in parts of the UK wintering populations (Baillie et al. 2015). This species is typically associated with waterbodies. This species was recorded in association with the pond onsite in the south west. No breeding behaviour has been observed during the surveys.

### Meadow Pipit

- 2.2.29 Meadow pipit is a BoCC amber list species due to a downward population trend since the mid 1970's (Baillie et al. 2015). This species is typically associated with grassland. This species was recorded in an adjacent field of the eastern boundary which is unmanaged grassland. A single breeding pair is likely due to territorial behaviour being recorded from an individual during visit 5.

### Oystercatcher

- 2.2.30 Oystercatcher is a BoCC amber list species due to significant declines in Scotland (Baillie et al. 2015). This species is typically associated with estuaries, gravel banks and soft soil for foraging. This species was recorded in an adjacent field of the northern boundary which had an ephemeral pond from waterlogged ground, and was also recorded flying along the western boundary. No breeding behaviour has been observed during the surveys.

### Shelduck

- 2.2.31 Shelduck is a BoCC amber list species due to declines since the 1980's and has been falling again since the mid 1990's (Baillie et al. 2015). This species is typically associated with waterbodies, estuaries and soft soil for foraging. This species was recorded in an adjacent field of the northern boundary which had an ephemeral pond from waterlogged ground. No breeding behaviour has been observed during the surveys.

## Teal

2.2.32 Teal is a BoCC amber list species due to declines since the 1970's (Eaton et al. 2015). This species is typically associated with waterbodies. This species was recorded in association with the pond onsite in the south west. No breeding behaviour has been observed during the surveys.

## Willow warbler

2.2.33 Willow warbler is a BoCC amber list species due to rapid decline during the 1980s and early 1990s (Baillie et al. 2015). This species is typically associated with woodlands and scrub habitats. This species was recorded across the site mainly in association with the tree line and scrub on the western boundary. At least three breeding pairs are considered to have been recorded on site.

2.2.34 Both desk study data and BBS results are summarised in Table 6 and 7, below.

Table 6: BoCC Red list species data					
Species	Desk Study	Supporting Breeding Habitat Onsite	BBS (total <sup>8</sup> /peak count <sup>9</sup> )	Likely Breeding Pairs	Potentially significant Effects
Black-tailed Godwit	✓	x	N/a	N/a	x
Corn Bunting	✓	x	N/a	N/a	x
Cuckoo	✓	✓	N/a	N/a	x
Curlew	✓	x	N/a	N/a	x
Fieldfare	✓	x	7/7	0	x
Grasshopper Warbler	✓	✓	N/a	N/a	x
Grey Partridge	x	✓	N/a	N/a	x
Grey Wagtail	✓	x	N/a	N/a	x
Hen Harrier	✓	x	N/a	N/a	x
Herring Gull	✓	x	3/3	0	x
House Sparrow	✓	x	N/a	N/a	x
Lapwing	✓	✓	11/2	2	x
Lesser Redpoll	✓	x	N/a	N/a	x
Linnet	✓	x	4/2	0	x
Long-tailed Duck	✓	x	N/a	N/a	x
Marsh Tit	✓	x	N/a	N/a	x
Merlin	✓	x	N/a	N/a	x
Mistle Thrush	✓	x	N/a	N/a	x
Nightingale	✓	x	N/a	N/a	x

<sup>8</sup> Total number of registrations on or through study area.

<sup>9</sup> Peak count – i.e. maximum flock size at any point during survey, or total count if no risk of double counting.

**Table 6: BoCC Red list species data**

Species	Desk Study	Supporting Breeding Habitat Onsite	BBS (total <sup>8</sup> /peak count <sup>9</sup> )	Likely Breeding Pairs	Potentially significant Effects
Pochard	✓	x	N/a	N/a	x
Redwing	✓	x	N/a	N/a	x
Ring Ouzel	✓	x	N/a	N/a	x
Ringed Plover	✓	x	N/a	N/a	x
Ruff	✓	x	N/a	N/a	x
Skylark	✓	✓	44/2	16	x
Song Thrush	✓	✓	14/2	3	x
Spotted Flycatcher	✓	x	N/a	N/a	x
Starling	✓	✓	2/2	0	x
Tree Pipit	✓	x	N/a	N/a	x
Tree Sparrow	✓	✓	N/a	N/a	x
Whimbrel	✓	x	N/a	N/a	x
Whinchat	✓	x	N/a	N/a	x
Willow Tit	✓	x	N/a	N/a	x
Woodcock	✓	x	N/a	N/a	x
Yellow Wagtail	✓	✓	N/a	N/a	x
Yellowhammer	✓	✓	N/a	N/a	x

**Table 7: BoCC Amber list species data**

Species	Desk Study	Supporting Breeding Habitat Onsite	BBS (total <sup>10</sup> /peak count <sup>11</sup> )	Likely Breeding Pairs	Potentially significant Effects
Arctic Tern	✓	x	N/a	N/a	x
Barnacle Goose	✓	x	N/a	N/a	x
Bittern	✓	x	N/a	N/a	x
Black-headed Gull	✓	x	4/3	0	x
Black-necked Grebe	✓	x	N/a	N/a	x
Bullfinch	✓	✓	1/1	0	x
Common Gull	x	x	N/a	N/a	x
Common Sandpiper	✓	x	N/a	N/a	x
Common Tern	✓	x	N/a	N/a	x
Crane	✓	x	N/a	N/a	x
Dunnock	✓	✓	20/2	4	x
Dunlin	✓	x	N/a	N/a	x
Gadwall	✓	x	N/a	N/a	x

<sup>10</sup> Total number of registrations on or through study area.

<sup>11</sup> Peak count – i.e. maximum flock size at any point during survey, or total count if no risk of double counting.

<b>Table 7: BoCC Amber list species data</b>					
<b>Species</b>	<b>Desk Study</b>	<b>Supporting Breeding Habitat Onsite</b>	<b>BBS (total<sup>10</sup>/peak count<sup>11</sup>)</b>	<b>Likely Breeding Pairs</b>	<b>Potentially significant Effects</b>
Gannet	✓	x	N/a	N/a	x
Garganey	✓	x	N/a	N/a	x
Goldeneye	✓	x	N/a	N/a	x
Great Black-backed Gull	✓	x	N/a	N/a	x
Green Sandpiper	✓	x	N/a	N/a	x
Greenshank	✓	x	N/a	N/a	x
Greylag Goose	✓	x	N/a	N/a	x
House Martin	✓	x	N/a	N/a	x
Iceland Gull	✓	x	N/a	N/a	x
Kestrel	✓	x	4/1	0	x
Kingfisher	✓	x	N/a	N/a	x
Lesser Black-backed Gull	✓	x	N/a	N/a	x
Mallard	✓	✓	2/1	0	x
Marsh Harrier	✓	x	N/a	N/a	x
Meadow Pipit	✓	x	1/1	0	x
Mediterranean Gull	✓	x	N/a	N/a	x
Mute Swan	✓	x	N/a	N/a	x
Northern Shoveler	✓	x	N/a	N/a	x
Osprey	✓	x	N/a	N/a	x
Oystercatcher	✓	x	3/1	0	x
Pink-footed Goose	✓	x	N/a	N/a	x
Pintail	✓	x	N/a	N/a	x
Quail	✓	✓	N/a	N/a	x
Redshank	✓	x	N/a	N/a	x
Reed Bunting	✓	✓	5/2	2	x
Shelduck	✓	x	2/2	0	x
Short-eared Owl	✓	x	N/a	N/a	x
Snipe	✓	x	N/a	N/a	x
Stock Dove	✓	✓	N/a	N/a	x
Swift	✓	x	N/a	N/a	x
Tawny Owl	✓	✓	N/a	N/a	x
Teal	✓	x	1/1	0	x
Whooper Swan	✓	x	N/a	N/a	x
Wigeon	✓	x	N/a	N/a	x



<b>Table 7: BoCC Amber list species data</b>					
<b>Species</b>	<b>Desk Study</b>	<b>Supporting Breeding Habitat Onsite</b>	<b>BBS (total<sup>10</sup>/peak count<sup>11</sup>)</b>	<b>Likely Breeding Pairs</b>	<b>Potentially significant Effects</b>
Willow Warbler	✓	✓	15/2	5 <sup>12</sup>	x
Wood Sandpiper	✓	x	N/a	N/a	x
Yellow-legged Gull	✓	x	N/a	N/a	x

<sup>12</sup> At least three pairs based on indicative territory analysis

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**Appendix 1**  
**Warrington MSA Breeding Bird Survey Table (2019)**

Appendix 1: Warrington MSA Breeding Bird Survey Table (2019)												
Species	A1	S1	s.41	Latin	V1	V2	V3	V4	V5	All visits	Peak Count	Likely Breeding Pairs
Blackbird				<i>Turdus merula</i>	4	4	5	7	5	25	1	4
Blackcap				<i>Sylvia atricapilla</i>	0	0	8	2	5	15	3	5
Black-headed Gull				<i>Chroicocephalus ridibundus</i>	0	3	1	0	0	4	3	0
Blue Tit				<i>Cyanistes caeruleus</i>	10	5	7	5	3	30	3	8
Bullfinch			✓	<i>Pyrrhula pyrrhula</i>	0	0	0	0	1	1	1	0
Buzzard				<i>Buteo buteo</i>	2	2	1	2	0	7	1	0
Canada Goose				<i>Branta canadensis</i>	0	0	2	0	0	2	2	0
Carrion Crow				<i>Corvus corone</i>	3	3	3	0	2	11	3	1
Chaffinch				<i>Fringilla coelebs</i>	0	1	0	0	2	3	1	1
Chiffchaff				<i>Phylloscopus collybita</i>	0	0	3	4	1	8	1	4
Coot				<i>Fulica atra</i>	2	0	1	0	2	5	1	1
Dunnock			✓	<i>Prunella modularis</i>	5	4	3	5	3	20	2	4
Fieldfare		1		<i>Turdus pilaris</i>	0	0	7	0	0	7	7	0
Goldcrest				<i>Regulus regulus</i>	1	0	0	0	0	1	1	1
Goldfinch				<i>Carduelis carduelis</i>	4	21	8	11	7	51	6	7
Great Tit				<i>Parus major</i>	5	1	5	2	4	17	4	5
Herring Gull			✓	<i>Larus argentatus</i>	0	0	3	0	0	3	3	0
Jackdaw				<i>Corvus monedula</i>	0	0	0	1	0	1	1	0
Kestrel				<i>Falco tinnunculus</i>	1	0	2	1	0	4	1	0
Lapwing			✓	<i>Vanellus vanellus</i>	3	1	6	0	1	11	2	2
Linnet			✓	<i>Carduelis cannabina</i>	0	0	0	2	2	4	2	0
Little Grebe				<i>Tachybaptus ruficollis</i>	0	0	0	0	1	1	1	1
Long-tailed Tit				<i>Aegithalos caudatus</i>	9	0	4	0	19	32	6	8

**Appendix 1: Warrington MSA Breeding Bird Survey Table (2019)**

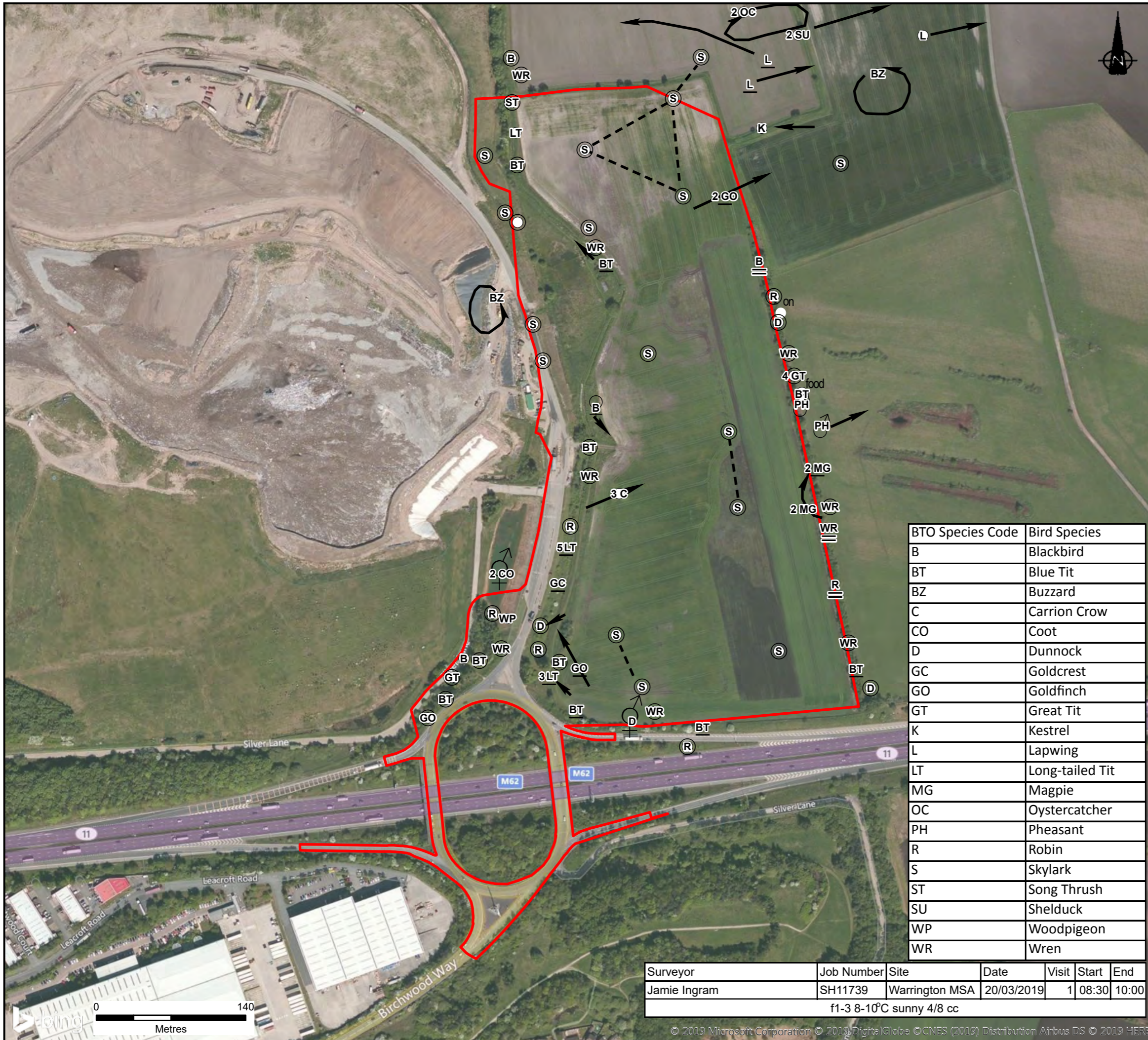
Species	A1	S1	s.41	Latin	V1	V2	V3	V4	V5	All visits	Peak Count	Likely Breeding Pairs
Magpie				<i>Pica pica</i>	2	0	3	0	1	6	3	2
Mallard				<i>Anas platyrhynchos</i>	0	0	2	0	0	2	1	0
Meadow Pipit				<i>Anthus pratensis</i>	0	0	0	0	1	1	1	0
Moorhen				<i>Gallinula chloropus</i>	0	0	1	0	0	1	1	0
Oystercatcher				<i>Haematopus ostralegus</i>	2	0	1	0	0	3	1	0
Pheasant				<i>Phasianus colchicus</i>	2	1	1	1	2	7	1	0
Reed Bunting			✓	<i>Emberiza schoeniclus</i>	0	0	1	2	2	5	2	2
Robin				<i>Erithacus rubecula</i>	6	4	3	5	3	21	1	6
Sedge Warbler				<i>Acrocephalus schoenobaenus</i>	0	0	0	3	3	6	3	3
Shelduck				<i>Tadorna tadorna</i>	0	2	0	0	0	2	2	0
Skylark			✓	<i>Alauda arvensis</i>	16	9	7	6	6	44	2	16
Song Thrush			✓	<i>Turdus philomelos</i>	1	0	7	2	4	14	2	3
Sparrowhawk				<i>Accipiter nisus</i>	0	0	1	0	0	1	1	0
Starling			✓	<i>Sturnus vulgaris</i>	0	0	2	0	0	2	2	0
Teal				<i>Anas crecca</i>	0	1	0	0	0	1	1	0
Whitethroat				<i>Sylvia communis</i>	0	0	5	14	9	28	3	11
Willow Warbler				<i>Phylloscopus trochilus</i>	0	2	5	5	3	15	2	5
Woodpigeon				<i>Columba palumbus</i>	1	2	4	3	6	16	6	0
Wren				<i>Troglodytes troglodytes</i>	11	9	7	6	11	44	2	11

Total Annex 1	0
Total WCA Schedule 1	1
Total BoCC Red List	7

**Appendix 1: Warrington MSA Breeding Bird Survey Table (2019)**

Species	A1	S1	s.41	Latin	V1	V2	V3	V4	V5	All visits	Peak Count	Likely Breeding Pairs
<b>Total BoCC Amber List</b>	11											
<b>Total NERC s.41</b>	9											

## DRAWINGS



### KEY

- Site Boundary
- Pair of birds
- Bird(s) repeatedly calling
- Sighting of Bird(s)
- Calling bird(s)
- Bird carrying food
- A female bird
- A male bird
- Bird nest with adult sitting.
- Singing bird(s)
- Bird(s) in flight
- Two birds in song at the same time

Notes:  
 Aerial imagery shown for context purposes only.  
 Boundaries are indicative.

BTO Species Code	Bird Species
B	Blackbird
BT	Blue Tit
BZ	Buzzard
C	Carrion Crow
CO	Coot
D	Dunnock
GC	Goldcrest
GO	Goldfinch
GT	Great Tit
K	Kestrel
L	Lapwing
LT	Long-tailed Tit
MG	Magpie
OC	Oystercatcher
PH	Pheasant
R	Robin
S	Skylark
ST	Song Thrush
SU	Shelduck
WP	Woodpigeon
WR	Wren

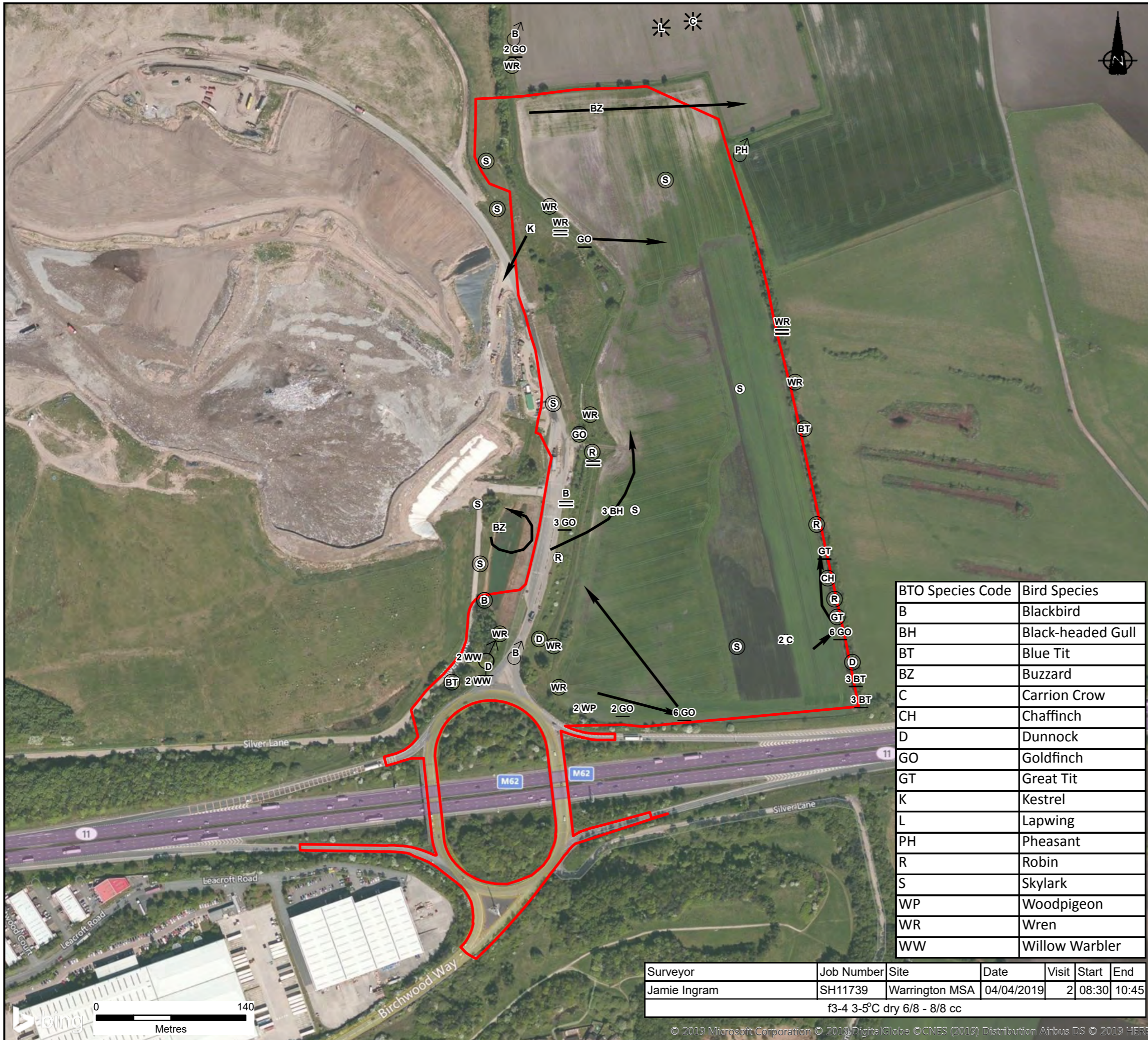
REVISION	DETAILS	DATE	DRAWN	CHKD	APPD
CLIENT					
EXTRA MOTORWAY SERVICE AREA GROUP					
PROJECT					
WARRINGTON MOTORWAY SERVICE AREA, J11 M62					
DRAWING TITLE					
BREEDING BIRD SURVEY RESULTS (VISIT 1)					
DRG No.	SH11739/035			REV	A
DRG SIZE	A3	SCALE	1:3,500	DATE	24/07/2019
DRAWN BY	SW	CHECKED BY	KS	APPROVED BY	TP

Surveyor	Job Number	Site	Date	Visit	Start	End
Jamie Ingram	SH11739	Warrington MSA	20/03/2019	1	08:30	10:00
f1-3 8-10°C sunny 4/8 cc						

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- BIRMINGHAM
- GLASGOW
- BOLTON
- LONDON
- CARDIFF
- MANCHESTER
- CARLISLE
- SHEFFIELD
- EDINBURGH
- STOKE ON TRENT





**KEY**

- Site Boundary
- Pair of birds
- Bird(s) repeatedly calling
- Sighting of Bird(s)
- ✱ An aggressive encounter between two birds
- Calling bird(s)
- A male bird
- Singing bird(s)
- Bird(s) in flight

Notes:  
 Aerial imagery shown for context purposes only.  
 Boundaries are indicative.

BTO Species Code	Bird Species
B	Blackbird
BH	Black-headed Gull
BT	Blue Tit
BZ	Buzzard
C	Carrion Crow
CH	Chaffinch
D	Dunnock
GO	Goldfinch
GT	Great Tit
K	Kestrel
L	Lapwing
PH	Pheasant
R	Robin
S	Skylark
WP	Woodpigeon
WR	Wren
WW	Willow Warbler

Surveyor	Job Number	Site	Date	Visit	Start	End
Jamie Ingram	SH11739	Warrington MSA	04/04/2019	2	08:30	10:45
f3-4 3-5°C dry 6/8 - 8/8 cc						

REVISION	DETAILS	DATE	DRAWN	CHKD	APPD
CLIENT					
EXTRA MOTORWAY SERVICE AREA GROUP					
PROJECT					
WARRINGTON MOTORWAY SERVICE AREA, J11 M62					
DRAWING TITLE					
BREEDING BIRD SURVEY RESULTS (VISIT 2)					
DRG No.	SH11739/036			REV	A
DRG SIZE	A3	SCALE	1:3,500	DATE	25/07/2019
DRAWN BY	SW	CHECKED BY	KS	APPROVED BY	TP



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  - GLASGOW
  - BOLTON
  - LONDON
  - CARDIFF
  - MANCHESTER
  - CARLISLE
  - SHEFFIELD
  - EDINBURGH
  - STOKE ON TRENT



**KEY**

- Site Boundary
- Sighting of Bird(s)
- ♂ Pair of birds
- ♀ Pair of birds
- Singing bird(s)
- Territories

**Notes:**

Aerial imagery shown for context purposes only.

Boundaries are indicative.

Sightings of Dunnock from visit 1 (20/03/2019) are shown in orange, visit 2 (19/04/2019) are shown in blue, visit 3 (23/04/2019) are shown in purple, visit 4 (14/05/2019) are shown in green and visit 5 (06/06/2019) are shown in red.

REVISION	DETAILS	DATE	DRAWN	CHKD	APPD

CLIENT  
**EXTRA MOTORWAY SERVICE AREA GROUP**

PROJECT  
**WARRINGTON MOTORWAY SERVICE AREA, J11 M62**

DRAWING TITLE  
**DUNNOCK TERRITORY PLAN**

DRG No.	SH11739/040	REV	A
DRG SIZE	A3	SCALE	1:3,500
DRAWN BY	SW	CHECKED BY	KS
		APPROVED BY	TP



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- BOLTON
- CARDIFF
- CARLISLE
- EDINBURGH
- GLASGOW
- LONDON
- MANCHESTER
- SHEFFIELD
- STOKE ON TRENT



**KEY**

- Site Boundary
- Sighting of Bird(s)
- Calling bird(s)
- ✱ An aggressive encounter between two birds
- Lapwing Territories

**Notes:**

Aerial imagery shown for context purposes only.

Boundaries are indicative.

Sightings of Lapwing from visit 1 (20/03/2019) are shown in orange, visit 2 (19/04/2019) are shown in blue, visit 3 (23/04/2019) are shown in purple and visit 5 (06/06/2019) are shown in red.

REVISION	DETAILS	DATE	DRAWN	CHKD	APPD

CLIENT  
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PROJECT  
**WARRINGTON MOTORWAY SERVICE AREA, J11 M62**

DRAWING TITLE  
**LAPWING TERRITORY PLAN**

DRG No.	SH11739/041	REV	A
DRG SIZE	A3	SCALE	1:3,500
DRAWN BY	SW	CHECKED BY	KS
		APPROVED BY	TP



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**KEY**

- Site Boundary
- Sighting of Bird(s)
- Singing bird(s)
- Skylark Territories

**Notes:**

Aerial imagery shown for context purposes only.

Boundaries are indicative.

Sightings of Skylark from visit 1 (20/03/2019) are shown in orange, visit 2 (19/04/2019) are shown in blue, visit 3 (23/04/2019) are shown in purple, visit 4 (14/05/2019) are shown in green and visit 5 (06/06/2019) are shown in red.

REVISION	DETAILS	DATE	DRAWN	CHKD	APPD
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CLIENT  
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PROJECT  
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DRAWING TITLE  
**SKYLARK TERRITORY PLAN**

DRG No.	SH11739/042	REV	A
DRG SIZE	A3	SCALE	1:3,500
DRAWN BY	SW	CHECKED BY	KS
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**KEY**

- Site Boundary
- Sighting of Bird(s)
- Bird carrying nest material.
- Singing bird(s)
- Sighting of Bird(s)
- Bird carrying food
- Territories

**Notes:**

Aerial imagery shown for context purposes only.

Boundaries are indicative.

Sightings of Song Thrush from visit 1 (20/03/2019) are shown in orange, visit 2 (19/04/2019) are shown in blue, visit 3 (23/04/2019) are shown in purple, visit 4 (14/05/2019) are shown in green and visit 5 (06/06/2019) are shown in red.

REVISION	DETAILS	DATE	DRAWN	CHKD	APPD

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PROJECT  
**WARRINGTON MOTORWAY SERVICE AREA, J11 M62**

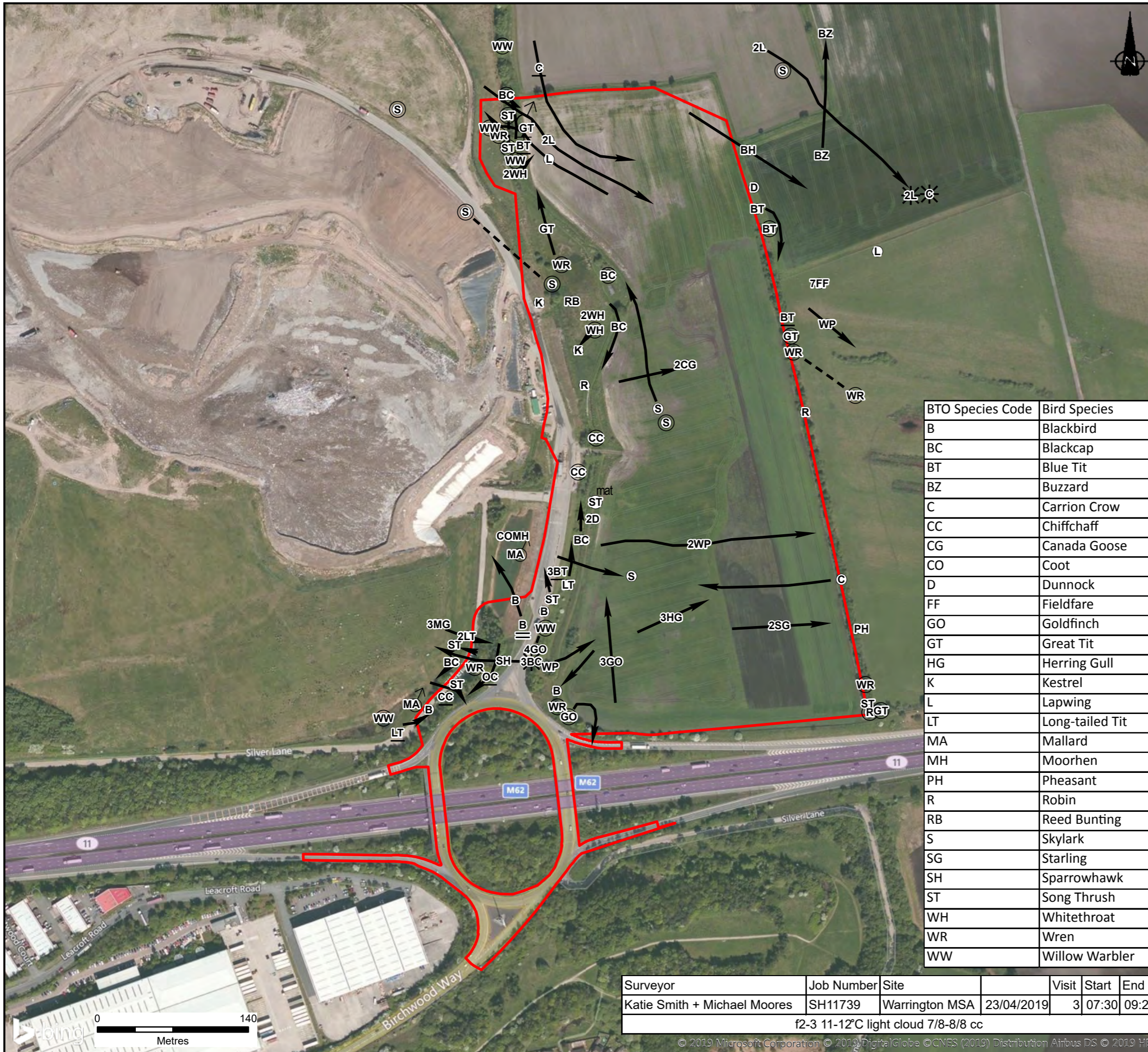
DRAWING TITLE  
**SONG THRUSH TERRITORY PLAN**

DRG No.	SH11739/043	REV	A
DRG SIZE	A3	SCALE	1:3,500
DRAWN BY	SW	DATE	25/07/2019
CHECKED BY	KS	APPROVED BY	TP

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- KEY**
- Site Boundary
  - Pair of birds
  - Bird(s) repeatedly calling
  - Sighting of Bird(s)
  - An aggressive encounter between two birds
  - Calling bird(s)
  - A male bird
  - Bird carrying nest material.
  - Singing bird(s)
  - Bird(s) in flight
  - Two birds in song at the same time

BTO Species Code	Bird Species
B	Blackbird
BC	Blackcap
BT	Blue Tit
BZ	Buzzard
C	Carrion Crow
CC	Chiffchaff
CG	Canada Goose
CO	Coot
D	Dunnock
FF	Fieldfare
GO	Goldfinch
GT	Great Tit
HG	Herring Gull
K	Kestrel
L	Lapwing
LT	Long-tailed Tit
MA	Mallard
MH	Moorhen
PH	Pheasant
R	Robin
RB	Reed Bunting
S	Skylark
SG	Starling
SH	Sparrowhawk
ST	Song Thrush
WH	Whitethroat
WR	Wren
WW	Willow Warbler

Notes:  
 Aerial imagery shown for context purposes only.  
 Boundaries are indicative.

REVISION	DETAILS	DATE	DRAWN	CHKD	APPD

CLIENT  
 EXTRA MOTORWAY SERVICE AREA GROUP

PROJECT  
 WARRINGTON MOTORWAY SERVICE AREA,  
 J11 M62

DRAWING TITLE  
 BREEDING BIRD SURVEY RESULTS (VISIT 3)

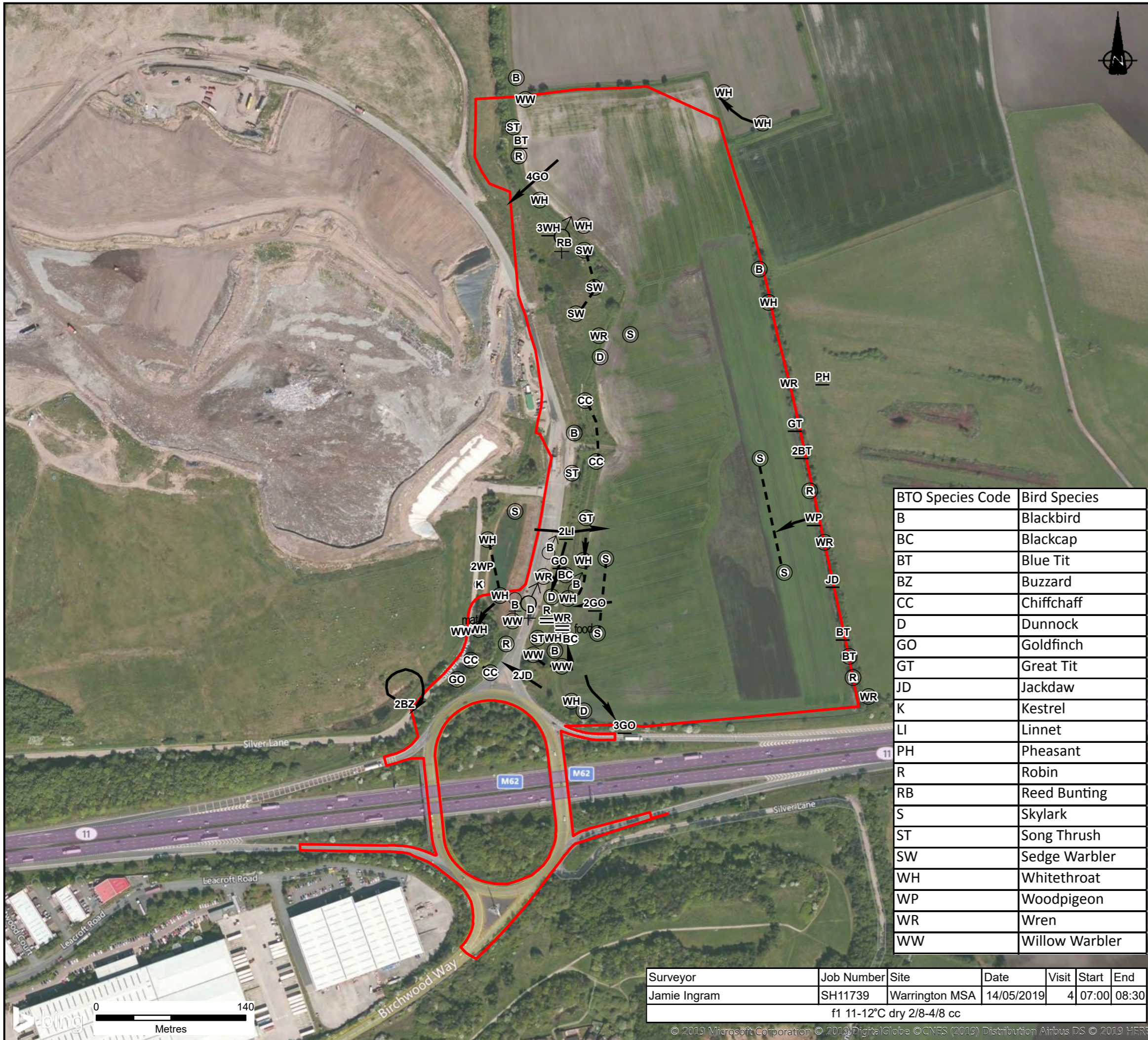
DRG No.	SH11739/046	REV	A
DRG SIZE	A3	SCALE	1:3,500
DRAWN BY	EF	CHECKED BY	KS
		APPROVED BY	TP

Surveyor	Job Number	Site	Visit	Start	End
Katie Smith + Michael Moores	SH11739	Warrington MSA	23/04/2019	3 07:30	09:25
f2-3 11-12°C light cloud 7/8-8/8 cc					

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- STOKE ON TRENT



- KEY**
- Site Boundary
  - Pair of birds
  - Bird(s) repeatedly calling
  - Sighting of Bird(s)
  - Calling bird(s)
  - Bird carrying food
  - A female bird
  - A male bird
  - Bird carrying nest material.
  - Singing bird(s)
  - Bird(s) in flight
  - Two birds in song at the same time

Notes:  
 Aerial imagery shown for context purposes only.  
 Boundaries are indicative.

BTO Species Code	Bird Species
B	Blackbird
BC	Blackcap
BT	Blue Tit
BZ	Buzzard
CC	Chiffchaff
D	Dunnock
GO	Goldfinch
GT	Great Tit
JD	Jackdaw
K	Kestrel
LI	Linnet
PH	Pheasant
R	Robin
RB	Reed Bunting
S	Skylark
ST	Song Thrush
SW	Sedge Warbler
WH	Whitethroat
WP	Woodpigeon
WR	Wren
WW	Willow Warbler

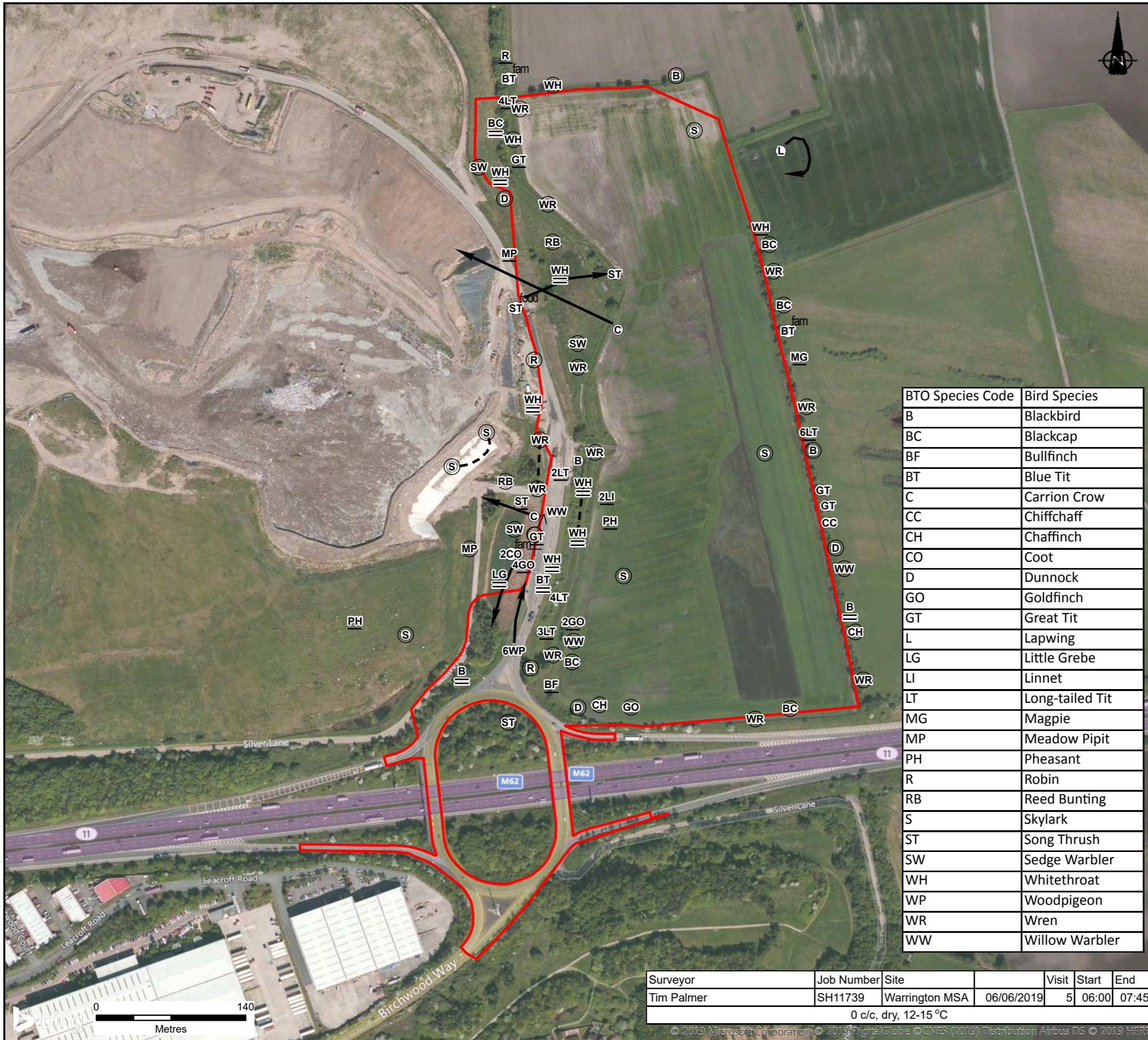
REVISION	DETAILS	DATE	DRAWN	CHKD	APPD
CLIENT					
EXTRA MOTORWAY SERVICE AREA GROUP					
PROJECT					
WARRINGTON MOTORWAY SERVICE AREA, J11 M62					
DRAWING TITLE					
BREEDING BIRD SURVEY RESULTS (VISIT 4)					
DRG No.	SH11739/049			REV	A
DRG SIZE	A3	SCALE	1:3,500	DATE	24/07/2019
DRAWN BY	EF	CHECKED BY	KS	APPROVED BY	TP

Surveyor	Job Number	Site	Date	Visit	Start	End
Jamie Ingram	SH11739	Warrington MSA	14/05/2019	4	07:00	08:30
f1 11-12°C dry 2/8-4/8 cc						

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- KEY**
- Site Boundary
  - Pair of birds
  - Bird(s) repeatedly calling
  - Sighting of Bird(s)
  - Calling bird(s)
  - Bird carrying food
  - Juvenile with parent(s)
  - Singing bird(s)
  - Bird(s) in flight
  - Two birds in song at the same time

Notes:  
 Aerial imagery shown for context purposes only.  
 Boundaries are indicative.

BTO Species Code	Bird Species
B	Blackbird
BC	Blackcap
BF	Bullfinch
BT	Blue Tit
C	Carrion Crow
CC	Chiffchaff
CH	Chaffinch
CO	Coot
D	Dunnock
GO	Goldfinch
GT	Great Tit
L	Lapwing
LG	Little Grebe
LI	Linnet
LT	Long-tailed Tit
MG	Maggie
MP	Meadow Pipit
PH	Pheasant
R	Robin
RB	Reed Bunting
S	Skylark
ST	Song Thrush
SW	Sedge Warbler
WH	Whitethroat
WP	Woodpigeon
WR	Wren
WW	Willow Warbler

REVISION	DETAILS	DATE	DRAWN	CHKD	APPD
CLIENT	EXTRA MOTORWAY SERVICE AREA GROUP				
PROJECT	WARRINGTON MOTORWAY SERVICE AREA, J11 M62				
DRAWING TITLE	BREEDING BIRD SURVEY RESULTS (VISIT 5)				
DRG No.	SH11739/051	REV	A		
DRG SIZE	A3	SCALE	1:3,500	DATE	24/07/2019
DRAWN BY	SW	CHECKED BY	TP	APPROVED BY	KS

Surveyor	Job Number	Site	Visit	Start	End
Tim Palmer	SH11739	Warrington MSA	06/06/2019	5 06:00	07:45
0 c/c, dry, 12-15 °C					

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**KEY**

- Site Boundary
- Pair of birds
- Sighting of Bird(s)
- Singing bird(s)
- Territories

**Notes:**

Aerial imagery shown for context purposes only.

Boundaries are indicative.

Sightings of Reed Bunting visit 3 (23/04/2019) are shown in purple, visit 4 (14/05/2019) are shown in green and visit 5 (06/06/2019) are shown in red.

REVISION	DETAILS	DATE	DRAWN	CHKD	APPD

CLIENT  
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PROJECT  
**WARRINGTON MOTORWAY SERVICE AREA, J11 M62**

DRAWING TITLE  
**REED BUNTING TERRITORY PLAN**

DRG No.	SH11739/053	REV	A
DRG SIZE	A3	SCALE	1:3,500
DRAWN BY	SW	CHECKED BY	KS
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<input type="checkbox"/> CARDIFF	<input type="checkbox"/> MANCHESTER
<input type="checkbox"/> CARLISLE	<input type="checkbox"/> SHEFFIELD
<input type="checkbox"/> EDINBURGH	<input type="checkbox"/> STOKE ON TRENT



**KEY**

- Site Boundary
- Bird carrying nest material.
- Sighting of Bird(s)
- Singing bird(s)
- Territories

**Notes:**

Aerial imagery shown for context purposes only.

Boundaries are indicative.

Sightings of Willow Warbler from visit 2 (19/04/2019) are shown in blue, visit 3 (23/04/2019) are shown in purple, visit 4 (14/05/2019) are shown in green and visit 5 (06/06/2019) are shown in red.

REVISION	DETAILS	DATE	DRAWN	CHKD	APPD

CLIENT  
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**WARRINGTON MOTORWAY SERVICE AREA, J11 M62**

DRAWING TITLE  
**WILLOW WARBLER TERRITORY PLAN**

DRG No.	SH11739/054	REV	A
DRG SIZE	A3	SCALE	1:3,500
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## **Appendix 5.8 – Wintering Birds Survey Report**



**EXTRA MSA GROUP**

**MOTORWAY SERVICES, WARRINGTON**

**WINTERING BIRD SURVEY**

**JULY 2019**

**DATE ISSUED:** JULY 2019  
**JOB NUMBER:** SH11739  
**REPORT NUMBER:** 008  
**VERSION:** V1.0  
**STATUS:** FINAL

**EXTRA MSA GROUP**

**MOTORWAY SERVICES, WARRINGTON**

**WINTERING BIRD SURVEY**

**JULY 2019**

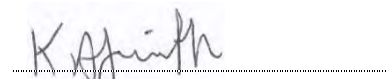
**PREPARED BY:**

Jamie Ingram Senior Ecologist



**REVIEWED BY:**

Katie Smith Ecologist



Richard Laws Principal Ecologist



**APPROVED BY:**

Tim Palmer Technical Director (Ecology)



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## APPENDICES

- Appendix 1 Wintering Bird Survey Table (2018)  
Appendix 2 Desk Study Data (RECORD and CAWOS)

<b>DRAWINGS</b>	<b>TITLE</b>	<b>SCALE</b>
SH11739-023	Wintering Bird Survey Results January 2018	1:3,500@A3
SH11739-024	Wintering Bird Survey Results February 2018	1:3,500@A3
SH11739-025	Wintering Bird Survey Results March 2018	1:3,500@A3
SH11739-026	Wintering Bird Survey Results October 2018	1:3,500@A3
SH11739-027	Wintering Bird Survey Results November 2018	1:3,500@A3
SH11739-028	Wintering Bird Survey Results December 2018	1:3,500@A3

## **1 METHODOLOGY**

### **1.1 Scoping Consultation**

1.1.1 A scoping report was issued to Tameside Metropolitan Borough Council (TMBRC) during December 2018. Comments were returned during February 2019. The scoping response from TMBRC agreed that impacts on wintering bird assemblages need to be considered in the Environmental Statement (ES). A recommendation of biodiversity net gain was made in line with the NPPF.

### **1.2 Desk Study**

1.2.1 The desktop study was informed by review of existing available information provided by RECORD (Local Records Centre), Cheshire and Wirral Ornithological Society (CAWOS), Barn Owl Conservation Trust (BOCT) and from available internet-based resources for a 2km search radius from the site boundaries. OS and satellite mapping were also used to gain contextual habitat information. Other organisations and recorders approached included:

- Greater Manchester Local Record Centre (GMLRC).

### **1.3 Field Surveys**

#### *Wintering Bird Survey*

1.3.1 Field survey methods were based upon and adapted from British Trust for Ornithology (BTO) winter farmland bird survey methodology (Gillings *et al.* 2008). The survey visits consisted of systematic walkovers of the site, recording all bird species observed or heard, and counts of numbers within wintering flocks.

1.3.2 A transect route was mapped out prior to the surveys being undertaken, paying particular attention to linear features (such as hedgerows and tree lines) and natural landscape features (such as watercourses and areas of scrub). The site was visited six times during winter months of 2018 including January to March (inclusive) and October to December (inclusive) with a single visit per month. All surveys were conducted between the hours of 08:30 and 15:30, surveys consisted of an alternate dawn and dusk survey per month to cover a range of species behavioural traits at varying times of the day. All fields were viewed from linear boundaries and all habitat features were surveyed to within 100 m where possible.

1.3.3 Bird surveys were scheduled to include variable weather conditions to ensure weather dependant winter bird movements were included within the survey, as bird dispersal can occur during periods of prolonged cold spells or during periods of rapid thaw.



1.3.4 The surveyor recorded all contacts with birds (either by sight or sound) by walking the pre-designated transect at a steady pace. The positions of the recorded birds were plotted as accurately as possible (to the nearest 10 – 20 m) on a suitably scaled base map. Standard BTO codes and symbols were used for mapping species, including, where detectable, sex and age (e.g. juvenile, immature or adult) and bird activity, including singing, alarm-calling, foraging, flight path and location.

1.3.5 An evaluation of the site assemblage has been undertaken according to Fuller, R.J (1980) *A Method for Assessing the Ornithological Interest of Sites for Conservation*. Biological Conservation 17 P-229-239. The Fuller method uses the total number of all species (including non-notable species) recorded within a surveyed area to provide an indication of species richness. The criteria according to Fuller (1980) are provided in Table 1.

Table 1: Breeding Bird Species Richness Criteria (Fuller 1980)			
Local	County	Regional	National
25-49	50-69	70-84	85+

1.3.6 Dates and weather conditions of the Wintering Bird Surveys are provided in Table 2, below:

Table 2: 2018 Wintering Bird Survey Weather Conditions			
Date	Weather	Sunrise/Sunset (Warrington)	Time on site
19/01/2019	Cloud 2-5/8, Wind F2-3, Dry – Rain Showers, Temp 4-6°C	08:13/16:28	09:00– 11:00
19/02/2019	Cloud 8/8, Wind F1, Dry, Temp 9-10°C	07:20/17:28	09:15 – 12:00
22/03/2019	Cloud 6/8, Wind F2, Dry, Temp 7-8°C	06:08/18:27	08:30 – 11:30
25/10/2018	Cloud 4/8, Wind F2, Dry, Temp 9°C	07:55/17:52	10:00 – 12:00
21/11/2018	Cloud 8-6/8, Wind F2, Dry, Temp 4°C	07:46/16:05	09:15 – 10:45
29/12/2018	Cloud 5-6/8, Wind F3, Dry, Temp 10-9°C	08:26/15:58	14:00– 15:30

1.3.7 Ornithological surveys are affected by a variety of factors that influence the presence of birds. These include weather, food availability, species behaviour and disturbance. The absence of any particular species within the survey area should not be taken as conclusive evidence that the species is not present or that it will not be present in the future.

## 2 RESULTS

### 2.1 Desk Study

2.1.1 Data from RECORD, CAWOS and the BOCT highlighted the presence of a wide range of declining waterfowl, geese, farmland and woodland species with the potential to occur on site between October and March, suggesting that the site offers potential foraging and resting opportunities throughout the winter period. Notable records include barn owl *Tyto alba*, bullfinch *Pyrrhula pyrrhula*, dunnock *Prunella modularis*, fieldfare *Turdus pilaris*, golden plover *Pluvialis apricaria*, grey partridge *Perdix perdix*, house sparrow *Passer domesticus*, kestrel *Falco tinnunculus*, lapwing *Vanellus vanellus*, linnet *Carduelis cannabina*, mallard *Anas platyrhynchos*, meadow pipit *Anthus pratensis*, mistle thrush *Turdus viscivorus*, redwing *Turdus iliacus*, reed bunting *Emberiza schoeniclus*, skylark *Alauda arvensis*, snipe *Gallinago gallinago*, song thrush *Turdus philomelos*, starling *Sturnus vulgaris*, stock dove *Columba oenas*, tawny owl *Strix aluco*, tree sparrow *Passer montanus*, willow tit *Parus montanus*, and yellowhammer *Emberiza citronella*. Appendix 2 gives further details of species recorded in the desk study data.

2.1.2 Data provided by CAWOS shows an average of 8.8 barn owl sightings per year in the last 5 years, the closest being within 100m of the survey site north west.

2.1.3 No data was provided by the following organisations or recorders, due to the organisation or recorder not covering that area fully, contains no additional records or due to the group not responding:

- Greater Manchester Local Record Centre (GMLRC).

### 2.2 Field Surveys

#### *Wintering Bird Survey (WBS)*

2.2.1 During the WBS, a total of 35 species were recorded within the entire surveyed area. A complete list of the species recorded on the development site and within the wider surveyed area during the course of the survey is included within Appendix 1 and displayed in Drawings numbered SH11739/023 – 028.

## 2.3 Species Accounts

2.3.1 Species accounts for all Annex 1, Schedule 1, Red/Amber-listed BoCC and s.41<sup>1</sup> species are provided, below. These accounts provide a brief description of species use of the site and activity, a summary table is included of the species for each group of protected species. The WBS results plans (Drawing No. SH11739-023 to 028) also highlight the locations of sightings and accompanies the text below.

### *Annex 1 Birds*

2.3.2 The desk study revealed the presence of 18 Annex 1 species within 2km of the site, with the potential to occur on site during the winter survey period.

2.3.3 During the WBS no EU Annex 1 listed bird species were recorded.

2.3.4 Desk study data results are summarised in Table 3, below.

<b>Table 3: Annex 1 species data</b>				
<b>Species</b>	<b>Desk Study</b>	<b>Supporting Wintering Habitat Onsite</b>	<b>WBS (total<sup>2</sup>/peak count<sup>3</sup>)</b>	<b>Potentially significant Effects</b>
Artic Tern	✓	x	N/a	x
Barn Owl	✓	✓	N/a	✓
Barnacle Goose	✓	x	N/a	x
Bittern	✓	x	N/a	x
Common Tern	✓	x	N/a	x
Crane	✓	x	N/a	x
Golden Plover	✓	✓	N/a	✓
Hen Harrier	✓	x	N/a	x
Kingfisher	✓	x	N/a	x
Marsh Harrier	✓	x	N/a	x
Mediterranean Gull	✓	x	N/a	x
Osprey	✓	x	N/a	x
Peregrine	✓	x	N/a	x
Red Kite	✓	x	N/a	x
Red-Backed Shrike	✓	x	N/a	x
Ruff	✓	x	N/a	x
Short-eared Owl	✓	x	N/a	x
Whooper Swan	✓	x	N/a	x

<sup>1</sup> Annex 1 - Birds Directive, Schedule 1 - Wildlife and Countryside Act (1981), s.41 - Natural Environment and Rural Communities Act (NERC) Section 41, BoCC – Birds of Conservation Concern Red list and Amber list

<sup>2</sup> Total number of registrations on or through study area.

<sup>3</sup> Peak count – i.e. maximum flock size at any point during survey, or total count if no risk of double counting.

Species	Desk Study	Supporting Wintering Habitat Onsite	WBS (total <sup>2</sup> /peak count <sup>3</sup> )	Potentially significant Effects
Wood Sandpiper	✓	x	N/a	x

*Schedule 1 Birds*

2.3.5 The desk study revealed the presence of ten Schedule 1 species within 2 km of the site, with potential to occur within the survey area during the winter survey period. These consisted of barn owl, brambling, cetti's warbler, common crossbill, fieldfare, green sandpiper *Tringa ochropus*, hobby, peregrine, redwing and little ringed plover.

2.3.6 During the WBS, two Schedule 1 listed species were recorded on site. These consisted of fieldfare and redwing.

*Fieldfare & redwing*

2.3.7 Both species are Schedule 1 listed birds due to having very small breeding populations in the far north of Scotland. Up to 680,000 fieldfare and 650,000 redwing overwinter in the UK from Scandinavia, Russia and Iceland, roving through the countryside feeding on berries, fruit and invertebrates (Robinson 2005). RECORD records (2014 and 2015) shows small wintering and passage flock numbers are consistently present in the area during winter. Fieldfare and redwing were recorded foraging within the development site in very small numbers or as individuals during the survey period.

2.3.8 Both desk study data and WBS results are summarised in Table 4, below.

Species	Desk Study	Supporting Wintering Habitat Onsite	WBS (total <sup>4</sup> /peak count <sup>5</sup> )	Potentially significant Effects
Barn Owl	✓	✓	N/a	✓
Bittern	✓	x	N/a	x
Black-necked Grebe	✓	x	N/a	x
Black-tailed Godwit	✓	x	N/a	x
Brambling	✓	x	N/a	x
Cetti's warbler	✓	x	N/a	x
Common crossbill	✓	x	N/a	x
Fieldfare	✓	✓	5/3	x
Firecrest	✓	x	N/a	x
Garganey	✓	x	N/a	x

<sup>4</sup> Total number of registrations on or through study area.

<sup>5</sup> Peak count – i.e. maximum flock size at any point during survey, or total count if no risk of double counting.

<b>Table 4: Schedule 1 species data</b>				
<b>Species</b>	<b>Desk Study</b>	<b>Supporting Wintering Habitat Onsite</b>	<b>WBS (total<sup>4</sup>/peak count<sup>5</sup>)</b>	<b>Potentially significant Effects</b>
Green sandpiper	✓	x	N/a	x
Greenshank	✓	x	N/a	x
Hen Harrier	✓	x	N/a	x
Hobby	✓	x	N/a	x
Kingfisher	✓	x	N/a	x
Little ringed plover	✓	x	N/a	x
Long tailed Duck	✓	x	N/a	x
Marsh Harrier	✓	x	N/a	x
Mediterranean Gull	✓	x	N/a	x
Merlin	✓	x	N/a	x
Osprey	✓	x	N/a	x
Peregrine	✓	x	N/a	x
Quail	✓	x	N/a	x
Red Kite	✓	x	N/a	x
Red-Backed Shrike	✓	x	N/a	x
Redwing	✓	✓	12/6	x
Ruff	✓	x	N/a	x
Whimbrel	✓	x	N/a	x
Whooper Swan	✓	x	N/a	x
Wood Sandpiper	✓	x	N/a	x

### **NERC s.41 Species**

2.3.9 The desk study revealed the presence of 28 s.41 species within 2 km of the site, 14 of which have the potential to occur on site during the winter survey period. These consisted of bullfinch, dunnock, grey partridge, house sparrow, lapwing, linnet, reed bunting, skylark, song thrush, starling, tree sparrow, willow tit, yellow wagtail and yellowhammer.

2.3.10 During the WBS, 10 s.41 species were recorded on site. These consisted of bullfinch, dunnock, lapwing, linnet, reed bunting, skylark, song thrush, starling, willow tit, yellowhammer.

#### *Bullfinch (Pyrrhula pyrrhula)*

2.3.11 Bullfinch is a common, widespread but declining resident that primarily associates with thick woodland undergrowth, thickets, scrub and hedgerow habitats (Snow *et al.* 1998). It is both Amber-listed and a NERC s.41 species due to moderate population decline in recent decades (Eaton *et al.* 2015). Bullfinch were recorded frequently in

the desk study data within 2km. During the WBS bullfinch was recorded in association with scrubby tree lined habitat on the southwestern boundary of the site throughout the visits.

*Dunnock (Prunella modularis)*

- 2.3.12 This species is both a BoCC Amber Listed and s.41 listed species as it is still recovering from the drop in abundance during the 1970s and 1980s. Dunnock is primarily insectivorous, although small seeds are an important food source over winter (Snow *et al.* 1998). This species was recorded occasionally within the site boundary during the survey period in association with scrubby tree lined habitats on southwestern and western boundary of the site on three visits.

*Lapwing*

- 2.3.13 Lapwing is both Red and s.41 listed due to rapid, long-term population decline associated with changes in farming practice and the reduction in suitable breeding habitat (Baillie *et al.* 2014). In the desk study a single individual was recorded onsite and a larger flock in fields adjacent north east of site. The rest of the records were observed some distance from site. This species was recorded on site in the wider survey during the majority of the surveys, with a peak count of 150 in February and October, the flocks were observed in the adjacent eastern field taking off and flying over the site before heading eastward. February was the only visit where an individual was recorded utilising the site.

*Linnet*

- 2.3.14 This species is Red and s.41 listed due to undergoing severe population declines in recent decades (Eaton *et al.* 2015). Small flock numbers (peak count 20) were recorded adjacent to site in association with open arable land outwith the northern boundary and unmanaged grassland outwith the western site boundary.

*Reed bunting*

- 2.3.15 This species is an Amber and s.41 listed due to steep population declines in the 1970s (Baillie *et al.* 2014). The species most commonly associates with wetland and reedbed habitats, although it is often found in arable farmland, especially in winter. Recorded in very low numbers with individuals recorded within marshy grassland habitat on the western boundary, within open arable land onsite and within the broadleaved woodland habitat within the eastern site boundary.

*Skylark*

2.3.16 Skylark is Red and s.41 listed due to sharp population declines in recent decades (Eaton *et al.* 2015). Displaying males were recorded on site during February, March and October. A flock with a peak count of 20 were recorded in February on adjacent land east of site with individual recorded sparsely throughout the site and the wider survey area. Considered to be foraging on site in association with arable fields in low numbers throughout the winter period.

*Song thrush*

2.3.17 Song thrush is Red and s.41 listed due to nationally sharp population declines in recent decades (Eaton *et al.* 2015). This species occurs in any habitat where trees and hedgerows are found in association with grassland and/or leaf litter that support large numbers of invertebrates (Snow *et al.* 1998). Recorded throughout the winter period in very low/individual numbers in association with tree lined habitats on site and is considered resident on site throughout the winter.

*Starling*

2.3.18 This species is Red and s.41 listed due to an ongoing population decline (Eaton *et al.* 2015). Starling associate with areas of short vegetation (e.g. arable stubble) and grassland on which they forage for invertebrate prey (Snow *et al.* 1998). Starlings were recorded as flyovers and in association with hedgerow habitats adjacent to site, with small numbers (peak count 50) on site throughout the winter period.

*Willow tit*

2.3.19 Willow tits have been in decline since the mid-1970s and have become locally extinct in an ever-growing number of former haunts (Baillie *et al.* 2014). A single individual was recorded during October.

*Yellowhammer*

2.3.20 Yellowhammer is Red and s.41 listed due to sharp population declines since the mid-1980s, thought to be due to reduced annual survival (Baillie *et al.* 2014). Recorded individually within scrubby habitats on site and hedgerow habitat adjacent to site during March survey only.

2.3.21 Both desk study data and WBS results are summarised in Table 5, below.

<b>Table 5: NERC s.41 species data</b>				
<b>Species</b>	<b>Desk Study</b>	<b>Supporting Wintering Habitat Onsite</b>	<b>WBS (total<sup>6</sup>/peak count<sup>7</sup>)</b>	<b>Potentially significant Effects</b>
Bittern	✓	x	N/a	x
Black-tailed Godwit	✓	x	N/a	x
Bullfinch	✓	✓	8/2	x
Corn bunting	✓	x	N/a	x
Cuckoo	✓	x	N/a	x
Curlew	✓	x	N/a	x
Duncock	✓	✓	5/1	x
Grasshopper warbler	✓	x	N/a	x
Grey partridge	✓	✓	N/a	✓
Herring gull	✓	x	N/a	x
House sparrow	✓	x	N/a	x
Lapwing	✓	✓	328/150	✓
Lesser redpoll	✓	x	N/a	x
Linnet	✓	✓	27/20	x
Marsh Tit	✓	x	N/a	x
Red-backed Shrike	✓	x	N/a	x
Reed bunting	✓	✓	3/1	x
Ring Ouzel	✓	x	N/a	x
Skylark	✓	✓	56/20	✓
Song thrush	✓	✓	4/1	x
Spotted Flycatcher	✓	x	N/a	x
Starling	✓	✓	12/6	x
Tree pipit	✓	x	132/50	x
Tree Sparrow	✓	✓	N/a	x
Willow tit	✓	✓	1/1	x
Yellow wagtail	✓	x	N/a	x
Yellowhammer	✓	✓	3/1	x

### **BoCC Red List Species**

2.3.22 The desk study revealed the presence of 36 BoCC Red List species within 2 km of the site, 13 of which have the potential to occur on site during the winter survey period. These consisted of fieldfare, grey partridge, house sparrow, lapwing, linnet, mistle

<sup>6</sup> Total number of registrations on or through study area.

<sup>7</sup> Peak count – i.e. maximum flock size at any point during survey, or total count if no risk of double counting.



thrush, redwing, skylark, song thrush, starling, tree sparrow, willow tit, and yellowhammer.

2.3.23 During the WBS, eight BoCC Red List species were recorded on site. These consisted of fieldfare, lapwing, linnet, redwing, skylark, song thrush, starling, willow tit, yellowhammer.

2.3.24 Species accounts for these are detailed above in Schedule 1 and s.41 sections above.

2.3.25 Both desk study data and WBS results are summarised in Table 6, below.

<b>Table 6: BoCC Red List species data</b>				
<b>Species</b>	<b>Desk Study</b>	<b>Supporting Wintering Habitat Onsite</b>	<b>WBS (total<sup>8</sup>/peak count<sup>9</sup>)</b>	<b>Potentially significant Effects</b>
Black-tailed Godwit	✓	x	N/a	x
Corn bunting	✓	x	N/a	x
Cuckoo	✓	x	N/a	x
Curlew	✓	x	N/a	x
Fieldfare	✓	✓	5/3	x
Grasshopper warbler	✓	x	N/a	x
Grey partridge	✓	✓	N/a	✓
Grey wagtail	✓	x	N/a	x
Hen Harrier	✓	x	N/a	x
Herring gull	✓	x	N/a	x
House sparrow	✓	✓	N/a	x
Lapwing	✓	✓	328/150	x
Lesser redpoll	✓	x	N/a	x
Linnet	✓	✓	27/20	x
Long-tailed duck	✓	x	N/a	x
Marsh tit	✓	x	N/a	x
Merlin	✓	x	N/a	x
Mistle thrush	✓	✓	N/a	x
Nightingale	✓	x	N/a	x
Pochard	✓	x	N/a	x
Redwing	✓	✓	12/6	x
Ring ouzel	✓	x	N/a	x
Ringed Plover	✓	x	N/a	x
Ruff	✓	x	N/a	x
Skylark	✓	✓	56/20	✓

<sup>8</sup> Total number of registrations on or through study area.

<sup>9</sup> Peak count – i.e. maximum flock size at any point during survey, or total count if no risk of double counting.

Table 6: BoCC Red List species data				
Species	Desk Study	Supporting Wintering Habitat Onsite	WBS (total <sup>8</sup> /peak count <sup>9</sup> )	Potentially significant Effects
Song thrush	✓	✓	4/1	x
Starling	✓	✓	132/50	x
Tree pipit	✓	x	N/a	x
Tree Sparrow	✓	✓	N/a	x
Whimbrel	✓	x	N/a	x
Whinchat	✓	x	N/a	x
Willow tit	✓	✓	1/1	x
Woodcock	✓	x	N/a	x
Yellow wagtail	✓	x	N/a	x
Yellowhammer	✓	✓	3/1	✓

### BoCC Amber List Species

2.3.26 The desk study revealed the presence of 48 BoCC Amber List species within 2 km of the site, nine of which have the potential to occur on site during the winter survey period. These consisted of a bullfinch, dunnock, kestrel, mallard, meadow pipit, reed bunting, snipe, stock dove, and tawny owl.

2.3.27 During the WBS, seven BoCC Amber List species were recorded on site. These consisted of black-headed gull, bullfinch, dunnock, kestrel, mallard, reed bunting, and snipe.

2.3.28 Species accounts for these are detailed as previously mentioned in the s.41 section above, with the exception of the species listed below.

#### *Black-headed gull (Chroicocephalus ridibundus)*

2.3.29 This species is both Amber and s.41 listed species as there has been an increase in the abundance index during the late 1980s, but a decline thereafter until 2003. The trend has been upward since then although has declined in 2015 (Baillie et al. 2014). The black-headed gull is the most widely distributed seabird breeding in the UK, with similar numbers breeding inland as on the coast (Baillie et al. 2014). This species was recorded in small flocks (peak count 30) typically flying over site or adjacent to site.

#### *Kestrel*

2.3.30 Kestrel is both Amber and s.41 listed due to the lethal and sublethal effects of organochlorine pesticides by the mid 1970s, the recovery probably driven by improving nesting success, but subsequently entered a decline. Since the mid 1980s,

the English population has fluctuated without a long-term trend being apparent but there are significant declines over the BBS period in England and especially in Scotland. (Baillie *et al.* 2014). This species was recorded on site and the wider survey during the majority of the surveys, individuals were recorded foraging on site.

*Mallard*

2.3.31 This species is both a BoCC Amber Listed and s.41 listed species as winter populations have declined since at least the late 1980s (Austin *et al.* 2014). Small flock numbers (peak count 8) were recorded adjacent to site in association with waterlogged open arable land outwith the northern boundary and within marshy grassland and open water on west of site.

*Snipe*

2.3.32 This species is an Amber and s.41 listed due to steep population declines in the 1970s (Baillie *et al.* 2014). The species most commonly associates with wetland and reedbed habitats, although it is often found in arable farmland, especially in winter. An individual was recorded during March only within an adjacent waterlogged arable field beyond the north-eastern boundary.

2.3.33 Both desk study data and WBS results are summarised in Table 7, below.

Table 7: BoCC Amber List species data				
Species	Desk Study	Supporting Wintering Habitat Onsite	WBS (total <sup>10</sup> /peak count <sup>11</sup> )	Potentially significant Effects
Arctic Tern	✓	x	N/a	x
Barnacle Goose	✓	x	N/a	x
Bittern	✓	x	N/a	x
Black-headed gull	✓	x	23/2	x
Black-necked Grebe	✓	x	N/a	x
Bullfinch	✓	✓	8/2	x
Common gull	✓	x	N/a	x
Common sandpiper	✓	x	5/3	x
Common Tern	✓	x	N/a	x
Crane	✓	x	N/a	x
Dunlin	✓	x	N/a	x
Dunnock	✓	✓	5/1	
Gadwall	✓	x	N/a	x

<sup>10</sup> Total number of registrations on or through study area.

<sup>11</sup> Peak count – i.e. maximum flock size at any point during survey, or total count if no risk of double counting.

<b>Table 7: BoCC Amber List species data</b>				
<b>Species</b>	<b>Desk Study</b>	<b>Supporting Wintering Habitat Onsite</b>	<b>WBS (total<sup>10</sup>/peak count<sup>11</sup>)</b>	<b>Potentially significant Effects</b>
Gannet	✓	x	N/a	x
Garganey	✓	x	N/a	x
Goldeneye	✓	x	N/a	x
Great Black-backed Gull	✓	x	N/a	x
Green sandpiper	✓	x	N/a	x
Greenshank	✓	x	N/a	x
Greylag Goose	✓	x	N/a	x
House martin	✓	x	N/a	x
Iceland Gull	✓	x	N/a	x
Kestrel	✓	✓	5/1	x
Kingfisher	✓	x	N/a	x
Lesser black-backed gull	✓	x	N/a	x
Mallard	✓	✓	12/8	x
Marsh Harrier	✓	x	N/a	x
Meadow Pipit	✓	✓	N/a	✓
Mediterranean Gull	✓	x	N/a	x
Mute swan	✓	x	N/a	x
Northern shoveler	✓	x	N/a	x
Osprey	✓	x	N/a	x
Oystercatcher	✓	x	N/a	x
Pinkfooted goose	✓	x	N/a	x
Pintail	✓	x	N/a	x
Quail	✓	x	N/a	x
Redshank	✓	x	N/a	x
Reedbunting	✓	✓	3/1	x
Shelduck	✓	x	N/a	x
Short-eared Owl	✓	x	N/a	x
Snipe	✓	✓	1/1	x
Stock dove	✓	✓	N/a	x
Swift	✓	x	N/a	x
Tawny owl	✓	✓	N/a	x
Teal	✓	x	N/a	x
Whooper Swan	✓	x	N/a	x
Wigeon	✓	x	N/a	x
Willow warbler	✓	x	N/a	x
Wood Sandpiper	✓	x	N/a	x

<b>Species</b>	<b>Desk Study</b>	<b>Supporting Wintering Habitat Onsite</b>	<b>WBS (total<sup>10</sup>/peak count<sup>11</sup>)</b>	<b>Potentially significant Effects</b>
Yellow-legged Gull	✓	x	N/a	x

2.3.34 In conclusion, the update survey recorded a total of 35 bird species on site, including two Schedule 1 species, eight red and seven amber listed BoCC species were also recorded. In addition, there are ten species which are also considered to be ‘Priority’ species as defined by NERC s41 (2006).

2.3.35 The total number of all species (including non-notable species) recorded within a surveyed area provides an indication of the species richness of a site. Fuller (1980) provides such criteria in Table 1, within the Methodology section.

2.3.36 Based upon the criteria provided by Fuller, the site is of **Local** value for wintering birds.

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**Appendix 1**  
**Wintering Bird Survey Results (2018/19)**

**Appendix 1: Wintering Bird Survey Results 2018/19**

Species	A1	S1	NERC s.41	Latin	V1	V2	V3	V4	V5	V6	All visits	Peak Count
Blackbird				<i>Turdus merula</i>	4	8	2	2	5	2	23	2
Black-headed Gull				<i>Chroicocephalus ridibundus</i>	32	1	8			1	42	30
Blue Tit				<i>Cyanistes caeruleus</i>	2	3	5	10	4	5	29	6
Bullfinch			✓	<i>Pyrrhula pyrrhula</i>	2		2	2		2	8	2
Buzzard				<i>Buteo buteo</i>	5	2	2	1		1	11	2
Canada Goose				<i>Branta canadensis</i>		1					1	1
Carrion Crow				<i>Corvus corone</i>	8	3	4		3	1	19	4
Chaffinch				<i>Fringilla coelebs</i>	1			1			2	1
Coot				<i>Fulica atra</i>		1					1	1
Dunnock			✓	<i>Prunella modularis</i>		1	1	3			5	1
Fieldfare		1		<i>Turdus pilaris</i>	1	3			1		5	3
Goldfinch				<i>Carduelis carduelis</i>	26	5	4	2	40	21	98	24
Great Tit				<i>Parus major</i>	1	4	1	5	1	1	13	4
Greenfinch				<i>Carduelis chloris</i>	1			7			8	1
Grey Heron				<i>Ardea cinerea</i>				2			2	2
Jay				<i>Garrulus glandarius</i>					1		1	1
Kestrel				<i>Falco tinnunculus</i>	1		1		2	1	5	1
Lapwing			✓	<i>Vanellus vanellus</i>	150	20	8	150			328	150
Linnet			✓	<i>Carduelis cannabina</i>		20			7		27	20
Long-tailed Tit				<i>Aegithalos caudatus</i>	1	6	1	9			17	6
Magpie				<i>Pica pica</i>					1		1	1
Mallard				<i>Anas platyrhynchos</i>		8	2			2	12	8
Pheasant				<i>Phasianus colchicus</i>	2		2				4	2
Redwing		1		<i>Turdus iliacus</i>	6				3	3	12	6
Reed Bunting			✓	<i>Emberiza schoeniclus</i>				2	1		3	1



**Appendix 1: Wintering Bird Survey Results 2018/19**

Species	A1	S1	NERC s.41	Latin	V1	V2	V3	V4	V5	V6	All visits	Peak Count
Robin				<i>Erithacus rubecula</i>	1	5	6	2	4	3	21	1
Rook				<i>Corvus frugilegus</i>		1					1	1
Skylark			✓	<i>Alauda arvensis</i>		40	8	8			56	20
Snipe				<i>Gallinago gallinago</i>			1				1	1
Song Thrush			✓	<i>Turdus philomelos</i>		2		1	1		4	1
Starling			✓	<i>Sturnus vulgaris</i>	74	7	31		20		132	50
Willow Tit			✓	<i>Poecile montana</i>				2			2	2
Woodpigeon				<i>Columba palumbus</i>	12	6	5			1	24	10
Wren				<i>Troglodytes troglodytes</i>	5	3	3	2	1	1	15	1
Yellowhammer			✓	<i>Emberiza citrinella</i>			3				3	3
<b>Total Annex 1</b>	0											
<b>Total WCA Schedule 1</b>	2											
<b>Total BoCC Red List</b>	8											
<b>Total BoCC Orange List</b>	7											
<b>Total BAP</b>	10											

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**Appendix 2**  
**Desk Study Data (RECORD and CAWOS)**

Appendix 2: Desk Study Data (RECORD and CAWOS)						
Species	A1	S1	BAP	Latin	RECORD	CAWOS
Arctic Tern	A1			<i>Sterna paradisaea</i>		✓
Barn Owl		1		<i>Tyto alba</i>	✓	✓
Barnacle Goose	A1			<i>Branta leucopsis</i>		✓
Bittern	A1	1	✓	<i>Botaurus stellaris</i>		✓
Blackbird				<i>Turdus merula</i>	✓	✓
Blackcap				<i>Sylvia atricapilla</i>	✓	✓
Black-headed Gull				<i>Chroicocephalus ridibundus</i>	✓	✓
Black-necked Grebe		1		<i>Podiceps nigricollis</i>		✓
Black-tailed Godwit		1	✓	<i>Limosa limosa</i>		✓
Blue Tit				<i>Cyanistes caeruleus</i>		✓
Blue Rock Thrush				<i>Monticola solitarius</i>	✓	
Brambling		1		<i>Fringilla montifringilla</i>	✓	✓
Bullfinch			✓	<i>Pyrrhula pyrrhula</i>	✓	✓
Buzzard				<i>Buteo buteo</i>	✓	✓
Canada Goose				<i>Branta canadensis</i>	✓	✓
Carrion Crow				<i>Corvus corone</i>	✓	✓
Chaffinch				<i>Fringilla coelebs</i>	✓	✓
Cetti's Warbler		1		<i>Cettia cetti</i>	✓	
Chiffchaff				<i>Phylloscopus collybita</i>		✓
Coal Tit				<i>Periparus ater</i>	✓	✓
Collared Dove				<i>Streptopelia decaocto</i>		✓
Common Gull				<i>Larus canus</i>	✓	✓
Common Crossbill		1		<i>Loxia curvirostra</i>	✓	
Common Sandpiper				<i>Actitis hypoleucos</i>	✓	✓
Common Tern	A1			<i>Sterna hirundo</i>		✓
Coot				<i>Fulica atra</i>	✓	✓
Cormorant				<i>Phalacrocorax carbo</i>	✓	✓
Corn Bunting			✓	<i>Emberiza calandra</i>	✓	✓
Crane	A1			<i>Grus grus</i>		✓
Cuckoo			✓	<i>Cuculus canorus</i>	✓	✓
Curlew			✓	<i>Numenius arquata</i>	✓	✓
Duncock			✓	<i>Prunella modularis</i>		✓
Dunlin				<i>Calidris alpina</i>	✓	
Fieldfare		1		<i>Turdus pilaris</i>	✓	✓
Firecrest		1		<i>Regulus ignicapilla</i>		✓
Gadwall				<i>Anas strepera</i>	✓	✓
Gannet				<i>Morus bassanus</i>		✓
Garden Warbler				<i>Sylvia borin</i>	✓	✓
Garganey		1		<i>Anas querquedula</i>		✓
Goldcrest				<i>Regulus regulus</i>	✓	✓

Appendix 2: Desk Study Data (RECORD and CAWOS)						
Species	A1	S1	BAP	Latin	RECORD	CAWOS
Golden Plover	A1			<i>Pluvialis apricaria</i>		✓
Goldeneye				<i>Bucephala clangula</i>		✓
Goldfinch				<i>Carduelis carduelis</i>	✓	✓
Goosander				<i>Mergus merganser</i>		✓
Grasshopper Warbler			✓	<i>Locustella naevia</i>	✓	✓
Great Black-backed Gull				<i>Larus marinus</i>		✓
Great Crested Grebe				<i>Podiceps cristatus</i>	✓	✓
Great Spotted Woodpecker				<i>Dendrocopos major</i>	✓	✓
Great Tit				<i>Parus major</i>	✓	✓
Green Sandpiper		1		<i>Tringa ochropus</i>	✓	✓
Green Woodpecker				<i>Picus viridis</i>	✓	✓
Greenfinch				<i>Carduelis chloris</i>	✓	✓
Greenshank		1		<i>Tringa nebularia</i>		✓
Grey Heron				<i>Ardea cinerea</i>	✓	✓
Grey Partridge			✓	<i>Perdix perdix</i>	✓	✓
Grey Wagtail				<i>Motacilla cinerea</i>	✓	✓
Greylag Goose				<i>Anser anser</i>	✓	✓
Hen Harrier	A1	1		<i>Circus cyaneus</i>		✓
Herring Gull			✓	<i>Larus argentatus</i>	✓	✓
Hobby		1		<i>Falco subbuteo</i>	✓	✓
Hooded Crow				<i>Corvus cornix</i>		✓
House Martin				<i>Delichon urbicum</i>	✓	✓
House Sparrow			✓	<i>Passer domesticus</i>	✓	✓
Iceland Gull				<i>Larus glaucooides</i>		✓
Jack Snipe				<i>Lymnocyptes minimus</i>	✓	✓
Jackdaw				<i>Corvus monedula</i>	✓	✓
Jay				<i>Garrulus glandarius</i>	✓	✓
Kestrel				<i>Falco tinnunculus</i>	✓	✓
Kingfisher	A1	1		<i>Alcedo atthis</i>		✓
Lapwing			✓	<i>Vanellus vanellus</i>	✓	✓
Lesser Black-backed Gull				<i>Larus fuscus</i>	✓	✓
Lesser Redpoll			✓	<i>Carduelis cabaret</i>	✓	✓
Lesser Whitethroat				<i>Sylvia curruca</i>		✓
Linnet			✓	<i>Carduelis cannabina</i>	✓	✓
Little Grebe				<i>Tachybaptus ruficollis</i>	✓	✓
Little Owl				<i>Athene noctua</i>	✓	✓
Little Ringed Plover		1		<i>Charadrius dubius</i>	✓	✓
Long-eared Owl				<i>Asio otus</i>	✓	✓
Long-tailed Duck		1		<i>Clangula hyemalis</i>		✓
Long-tailed Tit				<i>Aegithalos caudatus</i>	✓	✓

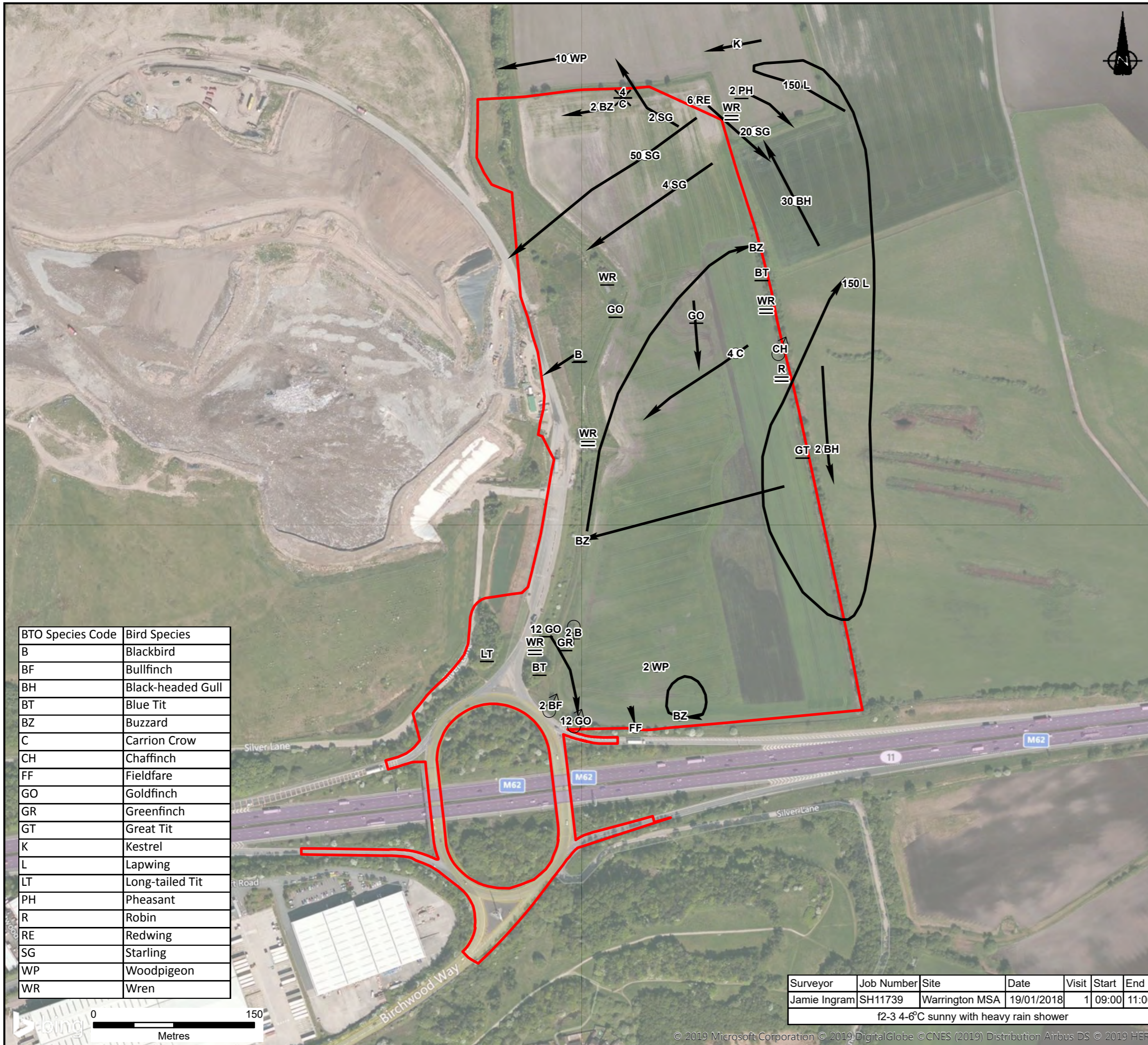
Appendix 2: Desk Study Data (RECORD and CAWOS)						
Species	A1	S1	BAP	Latin	RECORD	CAWOS
Magpie				<i>Pica pica</i>	✓	✓
Mallard				<i>Anas platyrhynchos</i>	✓	✓
Marsh Harrier	A1	1		<i>Circus aeruginosus</i>		✓
Marsh Tit			✓	<i>Poecile palustris</i>		✓
Meadow Pipit				<i>Anthus pratensis</i>	✓	✓
Mediterranean Gull	A1	1		<i>Larus melanocephalus</i>		✓
Merlin	A1	1		<i>Falco columbarius</i>		✓
Mistle Thrush				<i>Turdus viscivorus</i>	✓	✓
Moorhen				<i>Gallinula chloropus</i>	✓	✓
Mute Swan				<i>Cygnus olor</i>	✓	✓
Nightingale				<i>Luscinia megarhynchos</i>		✓
Northern Shoveler				<i>Anas clypeata</i>	✓	✓
Northern Wheatear				<i>Oenanthe oenanthe</i>	✓	✓
Nuthatch				<i>Sitta europaea</i>	✓	✓
Osprey	A1	1		<i>Pandion haliaetus</i>		✓
Oystercatcher				<i>Haematopus ostralegus</i>	✓	✓
Peregrine	A1	1		<i>Falco peregrinus</i>	✓	✓
Pheasant				<i>Phasianus colchicus</i>	✓	✓
Pied Wagtail				<i>Motacilla alba</i>	✓	✓
Pink-footed Goose				<i>Anser brachyrhynchus</i>	✓	✓
Pintail				<i>Anas acuta</i>	✓	
Pochard				<i>Aythya ferina</i>	✓	✓
Quail		1		<i>Coturnix coturnix</i>		✓
Raven				<i>Corvus corax</i>	✓	✓
Red Kite	A1	1		<i>Milvus milvus</i>		✓
Red-backed Shrike	A1	1	✓	<i>Lanius collurio</i>		✓
Red-crested Pochard				<i>Netta rufina</i>		✓
Red-legged Partridge				<i>Alectoris rufa</i>	✓	✓
Redshank				<i>Tringa totanus</i>		✓
Redwing		1		<i>Turdus iliacus</i>	✓	✓
Reed Bunting			✓	<i>Emberiza schoeniclus</i>	✓	✓
Reed Warbler				<i>Acrocephalus scirpaceus</i>	✓	✓
Ring Ouzel			✓	<i>Turdus torquatus</i>		✓
Ringed Plover				<i>Charadrius hiaticula</i>		✓
Ring-necked Parakeet				<i>Psittacula krameri</i>		✓
Robin				<i>Erithacus rubecula</i>	✓	✓
Rock Dove / Feral Pigeon				<i>Columba livia</i>		✓
Rook				<i>Corvus frugilegus</i>		✓
Ruddy Duck				<i>Oxyura jamaicensis</i>		✓
Ruff	A1	1		<i>Philomachus pugnax</i>		✓

Appendix 2: Desk Study Data (RECORD and CAWOS)						
Species	A1	S1	BAP	Latin	RECORD	CAWOS
Sand Martin				<i>Riparia riparia</i>	✓	✓
Sedge Warbler				<i>Acrocephalus schoenobaenus</i>	✓	✓
Shelduck				<i>Tadorna tadorna</i>	✓	✓
Short-eared Owl	A1			<i>Asio flammeus</i>		✓
Siskin				<i>Carduelis spinus</i>	✓	✓
Skylark			✓	<i>Alauda arvensis</i>	✓	✓
Snipe				<i>Gallinago gallinago</i>	✓	✓
Song Thrush			✓	<i>Turdus philomelos</i>	✓	✓
Sparrowhawk				<i>Accipiter nisus</i>	✓	✓
Spotted Flycatcher			✓	<i>Muscicapa striata</i>		✓
Starling			✓	<i>Sturnus vulgaris</i>	✓	✓
Stock Dove				<i>Columba oenas</i>	✓	✓
Stonechat				<i>Saxicola torquatus</i>	✓	✓
Swallow				<i>Hirundo rustica</i>	✓	✓
Swift				<i>Apus apus</i>	✓	✓
Tawny Owl				<i>Strix aluco</i>	✓	✓
Teal				<i>Anas crecca</i>	✓	✓
Tree Pipit			✓	<i>Anthus trivialis</i>	✓	✓
Tree Sparrow			✓	<i>Passer montanus</i>		✓
Treecreeper				<i>Certhia familiaris</i>		✓
Tufted Duck				<i>Aythya fuligula</i>	✓	✓
Water Rail				<i>Rallus aquaticus</i>	✓	✓
Whimbrel		1		<i>Numenius phaeopus</i>		✓
Whinchat				<i>Saxicola rubetra</i>		✓
Whitethroat				<i>Sylvia communis</i>	✓	✓
Whooper Swan	A1	1		<i>Cygnus cygnus</i>		✓
Wigeon				<i>Anas penelope</i>	✓	✓
Willow Tit			✓	<i>Poecile montana</i>	✓	✓
Willow Warbler				<i>Phylloscopus trochilus</i>	✓	✓
Wood Sandpiper	A1	1		<i>Tringa glareola</i>		✓
Woodcock				<i>Scolopax rusticola</i>	✓	✓
Woodpigeon				<i>Columba palumbus</i>	✓	✓
Wren				<i>Troglodytes troglodytes</i>	✓	✓
Yellow Wagtail			✓	<i>Motacilla flava</i>	✓	✓
Yellowhammer			✓	<i>Emberiza citrinella</i>	✓	✓
Yellow-legged Gull				<i>Larus michahellis</i>		✓
<b>Total Annex 1</b>					<b>1</b>	<b>18</b>
<b>Total WCA Schedule 1</b>					<b>10</b>	<b>28</b>
<b>Total BoCC Red List</b>					<b>23</b>	<b>36</b>

<b>Appendix 2: Desk Study Data (RECORD and CAWOS)</b>						
<b>Species</b>	<b>A1</b>	<b>S1</b>	<b>BAP</b>	<b>Latin</b>	<b>RECORD</b>	<b>CAWOS</b>
<b>Total BoCC Orange List</b>					27	48
<b>Total NERC s.41</b>					19	28

## DRAWINGS





BTO Species Code	Bird Species
B	Blackbird
BF	Bullfinch
BH	Black-headed Gull
BT	Blue Tit
BZ	Buzzard
C	Carrion Crow
CH	Chaffinch
FF	Fieldfare
GO	Goldfinch
GR	Greenfinch
GT	Great Tit
K	Kestrel
L	Lapwing
LT	Long-tailed Tit
PH	Pheasant
R	Robin
RE	Redwing
SG	Starling
WP	Woodpigeon
WR	Wren

KEY

- Site Boundary
- Bird(s) repeatedly calling
- Sighting of Bird(s)
- ✱ An aggressive encounter between two birds
- Calling bird(s)
- ♀ A female bird
- ♂ A male bird
- ➔ Bird(s) in flight

Notes:

Boundaries are indicative.

Aerial imagery shown for context purposes only.

REVISION	DETAILS	DATE	DRAWN	CHKD	APPD

CLIENT	EXTRA MSA GROUP
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PROJECT	WARRINGTON MSA
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DRAWING TITLE	WINTERING BIRD SURVEY RESULTS - JANUARY 2018
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DRG No.	SH11739/023	REV	A
DRG SIZE	A3	SCALE	1:3,500
DRAWN BY	SW	CHECKED BY	KS
		APPROVED BY	TP

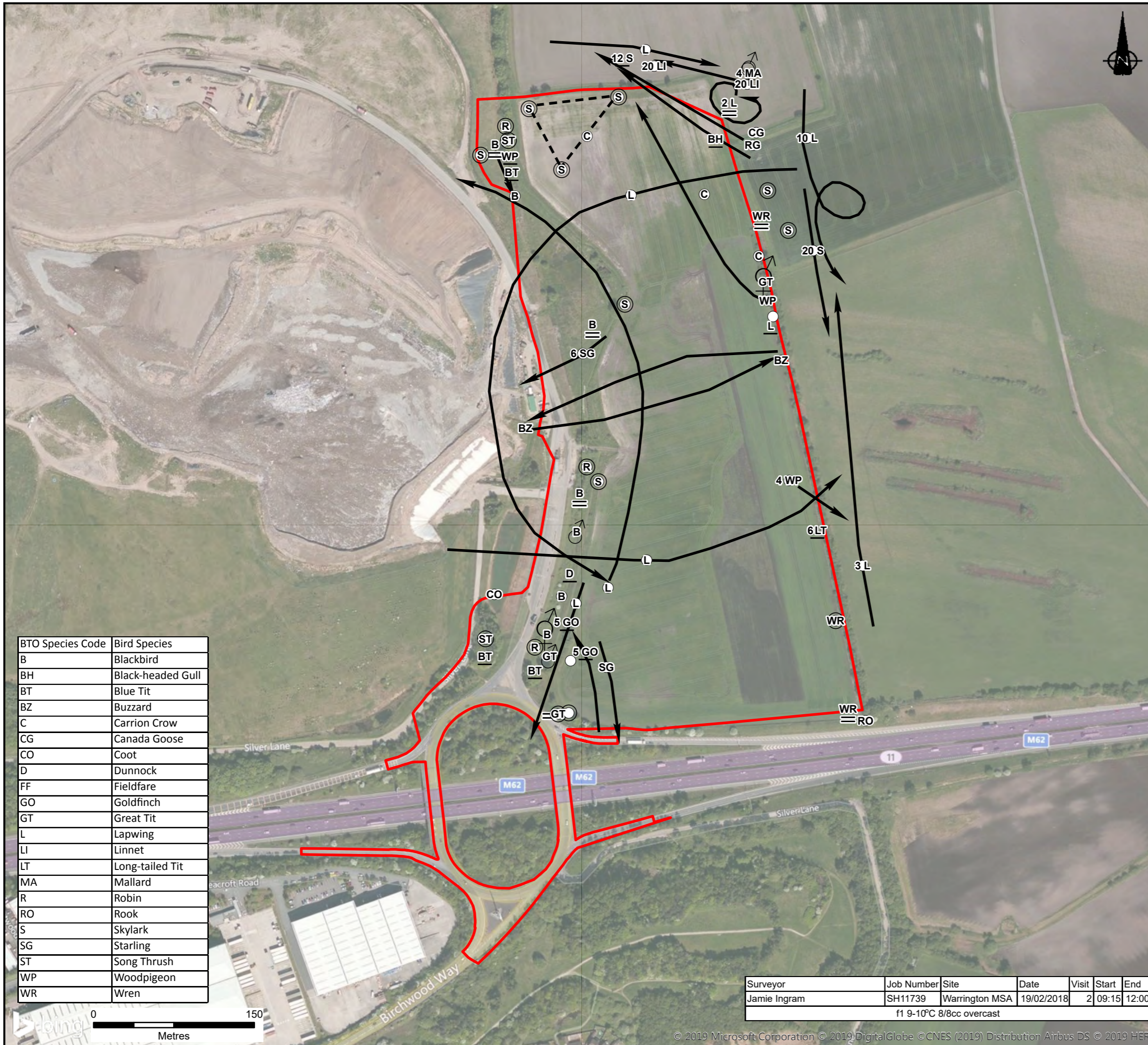
Surveyor	Job Number	Site	Date	Visit	Start	End
Jamie Ingram	SH11739	Warrington MSA	19/01/2018	1	09:00	11:00

f2-3 4-6°C sunny with heavy rain shower

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**KEY**

- Site Boundary
- Sighting of Bird(s)
- Singing bird(s)
- Bird(s) repeatedly calling
- Calling bird(s)
- A female bird
- A male bird
- Bird(s) in flight
- Two birds in song at the same time

**Notes:**  
 Boundaries are indicative.  
 Aerial imagery shown for context purposes only.

BTO Species Code	Bird Species
B	Blackbird
BH	Black-headed Gull
BT	Blue Tit
BZ	Buzzard
C	Carrion Crow
CG	Canada Goose
CO	Coot
D	Dunnock
FF	Fieldfare
GO	Goldfinch
GT	Great Tit
L	Lapwing
LI	Linnet
LT	Long-tailed Tit
MA	Mallard
R	Robin
RO	Rook
S	Skylark
SG	Starling
ST	Song Thrush
WP	Woodpigeon
WR	Wren

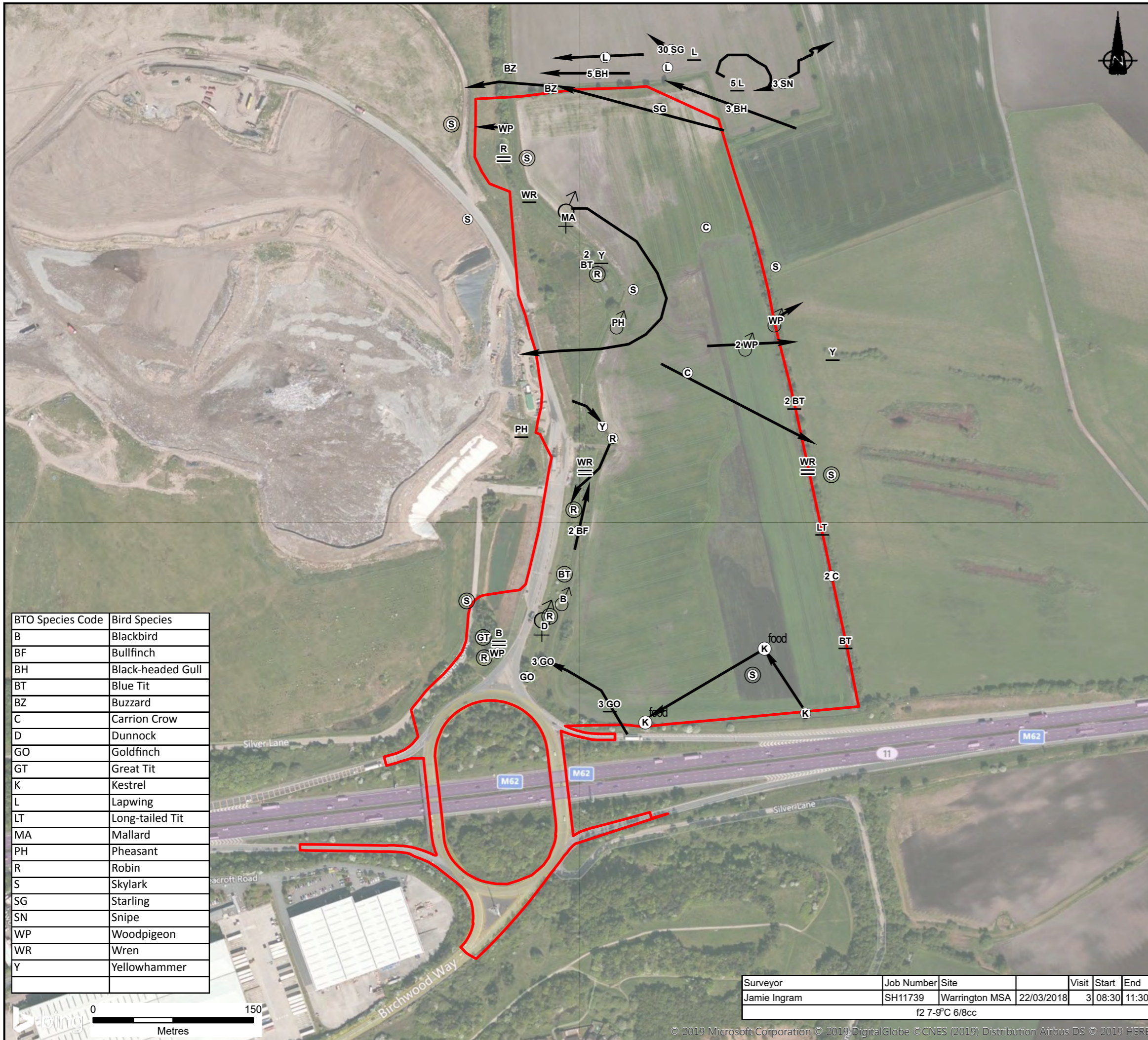
REVISION	DETAILS	DATE	DRAWN	CHKD	APPD
CLIENT EXTRA MSA GROUP					
PROJECT WARRINGTON MSA					
DRAWING TITLE WINTERING BIRD SURVEY RESULTS - FEBRUARY 2018					
DRG No.	SH11739/024		REV	A	
DRG SIZE	A3	SCALE	1:3,500	DATE	24/07/2019
DRAWN BY	SW	CHECKED BY	KS	APPROVED BY	TP

Surveyor	Job Number	Site	Date	Visit	Start	End
Jamie Ingram	SH11739	Warrington MSA	19/02/2018	2	09:15	12:00
f1 9-10°C 8/8cc overcast						

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- CARLISLE
- SHEFFIELD
- EDINBURGH
- STOKE ON TRENT



KEY

- Site Boundary
- Sighting of Bird(s)
- Singing bird(s)
- Calling bird(s)
- Bird carrying food
- A male bird
- Singing bird(s)
- Bird(s) in flight
- Pair of birds
- Bird(s) repeatedly calling

Notes:

Boundaries are indicative.  
Aerial imagery shown for context purposes only.

BTO Species Code	Bird Species
B	Blackbird
BF	Bullfinch
BH	Black-headed Gull
BT	Blue Tit
BZ	Buzzard
C	Carrion Crow
D	Dunnock
GO	Goldfinch
GT	Great Tit
K	Kestrel
L	Lapwing
LT	Long-tailed Tit
MA	Mallard
PH	Pheasant
R	Robin
S	Skylark
SG	Starling
SN	Snipe
WP	Woodpigeon
WR	Wren
Y	Yellowhammer

REVISION	DETAILS	DATE	DRAWN	CHKD	APPD

CLIENT  
**EXTRA MSA GROUP**

PROJECT  
**WARRINGTON MSA**

DRAWING TITLE  
**WINTERING BIRD SURVEY RESULTS - MARCH 2018**

DRG No.	SH11739/025	REV	A
DRG SIZE	A3	SCALE	1:3,500
DRAWN BY	SW	CHECKED BY	KS
		APPROVED BY	TP

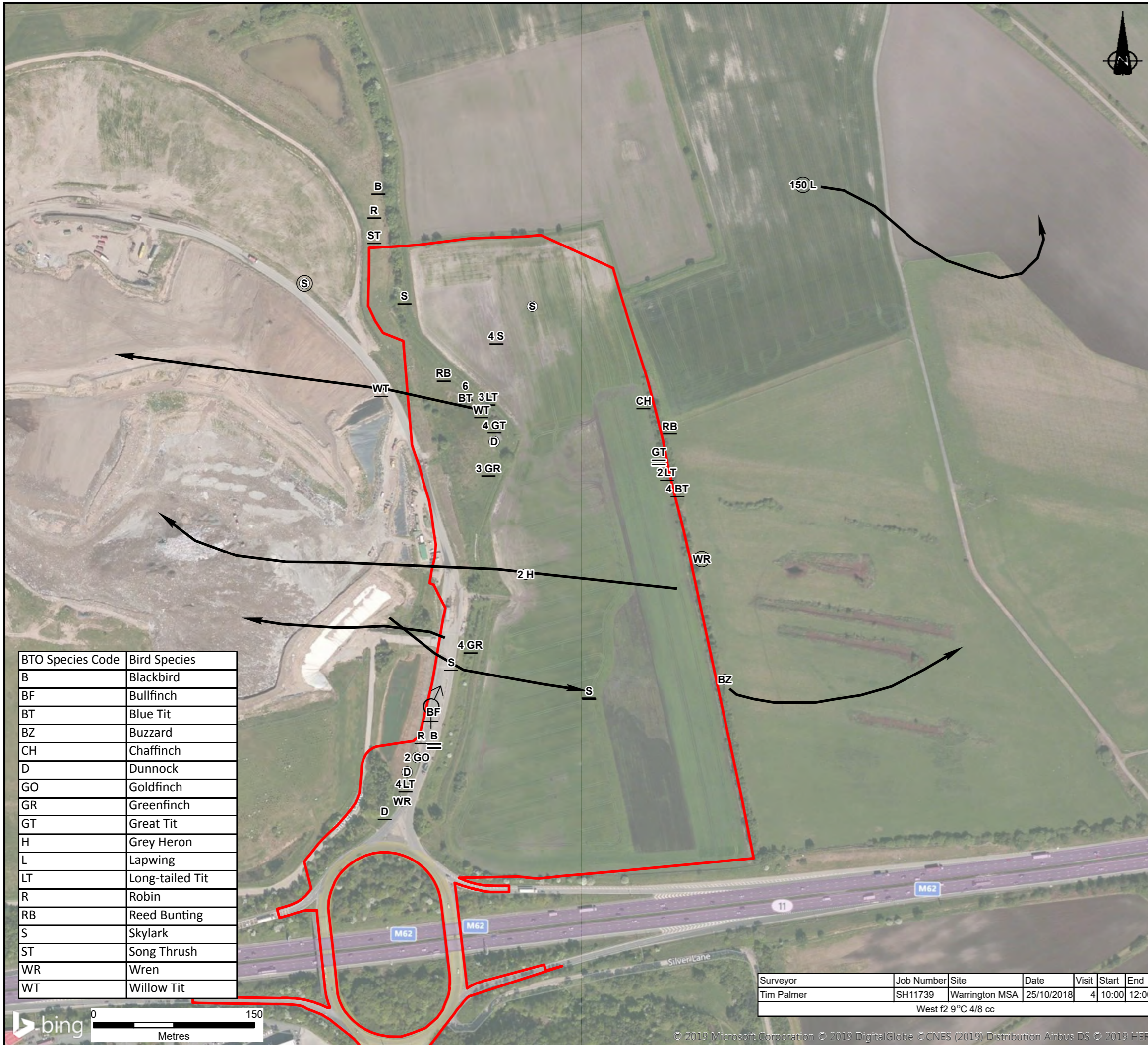
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- MANCHESTER
- SHEFFIELD
- STOKE ON TRENT

Surveyor	Job Number	Site	Visit	Start	End
Jamie Ingram	SH11739	Warrington MSA	22/03/2018	3 08:30	11:30

f2 7-9°C 6/8cc



- KEY**
- Site Boundary
  - Pair of birds
  - Bird(s) repeatedly calling
  - Sighting of Bird(s)
  - Calling bird(s)
  - A group of birds
  - Singing bird(s)
  - Bird(s) in flight

**Notes:**  
 Boundaries are indicative.  
 Aerial imagery shown for context purposes only.

BTO Species Code	Bird Species
B	Blackbird
BF	Bullfinch
BT	Blue Tit
BZ	Buzzard
CH	Chaffinch
D	Dunnock
GO	Goldfinch
GR	Greenfinch
GT	Great Tit
H	Grey Heron
L	Lapwing
LT	Long-tailed Tit
R	Robin
RB	Reed Bunting
S	Skylark
ST	Song Thrush
WR	Wren
WT	Willow Tit

REVISION	DETAILS	DATE	DRAWN	CHKD	APPD
CLIENT EXTRA MSA GROUP					
PROJECT WARRINGTON MSA					
DRAWING TITLE WINTERING BIRD SURVEY RESULTS - OCTOBER 2018					
DRG No.	SH11739/026		REV	A	
DRG SIZE	A3	SCALE	1:3,500	DATE	24/07/2019
DRAWN BY	SW	CHECKED BY	KS	APPROVED BY	TP

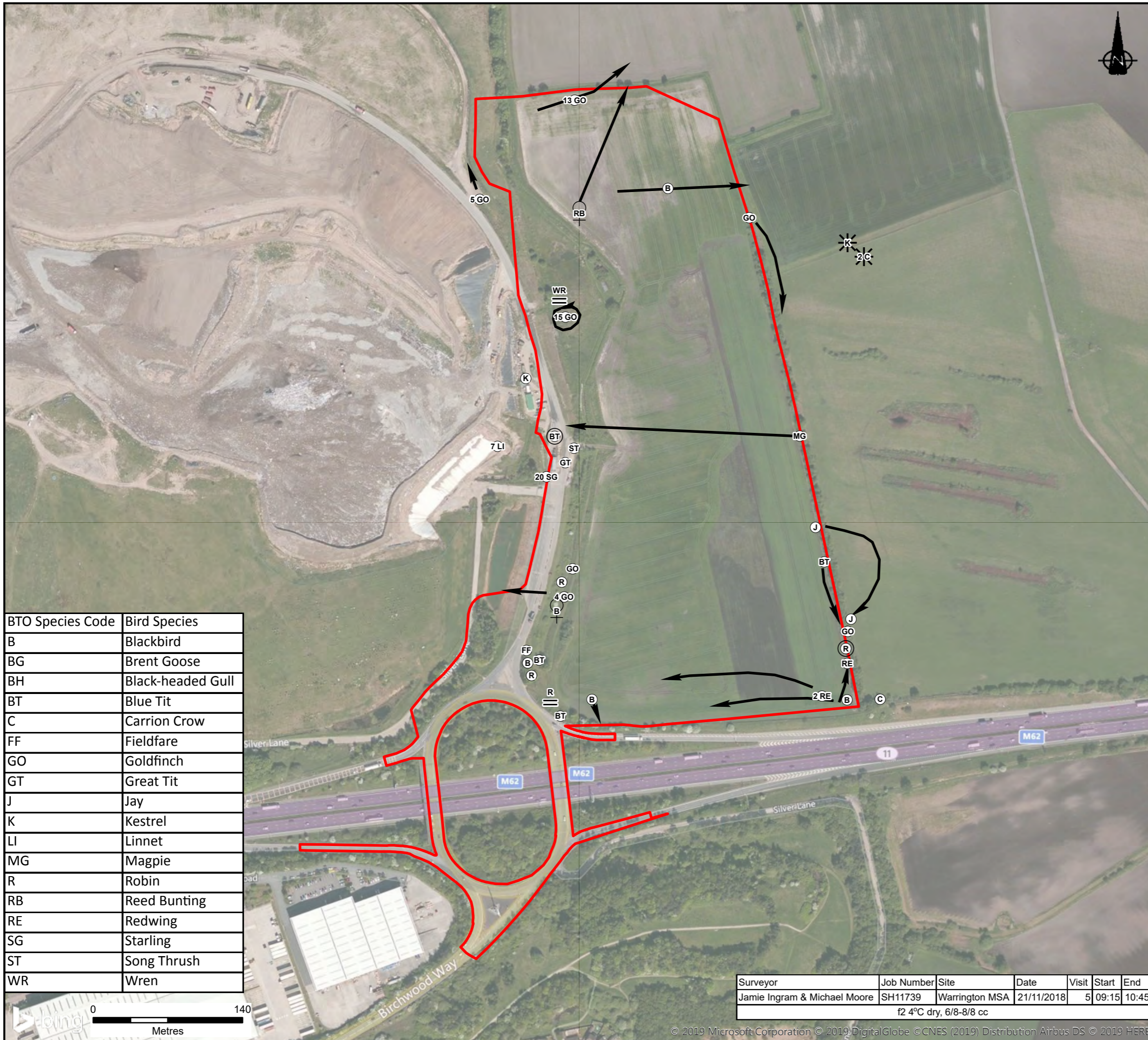
Surveyor	Job Number	Site	Date	Visit	Start	End
Tim Palmer	SH11739	Warrington MSA	25/10/2018	4	10:00	12:00

West f2 9°C 4/8 cc

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- SHEFFIELD
- EDINBURGH
- STOKE ON TRENT





**KEY**

- ≡ Bird(s) repeatedly calling
- Sighting of Bird(s)
- \* An aggressive encounter between two birds
- ♀ A female bird
- ⊙ Singing bird(s)
- Bird(s) in flight
- ▭ Site Boundary

**Notes:**  
 Boundaries are indicative.  
 Aerial imagery shown for context purposes only.

BTO Species Code	Bird Species
B	Blackbird
BG	Brent Goose
BH	Black-headed Gull
BT	Blue Tit
C	Carrion Crow
FF	Fieldfare
GO	Goldfinch
GT	Great Tit
J	Jay
K	Kestrel
LI	Linnet
MG	Magpie
R	Robin
RB	Reed Bunting
RE	Redwing
SG	Starling
ST	Song Thrush
WR	Wren

REVISION	DETAILS	DATE	DRAWN	CHKD	APPD
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CLIENT  
 EXTRA MSA GROUP

PROJECT  
 WARRINGTON MSA

DRAWING TITLE  
 WINTERING BIRD SURVEY RESULTS - NOVEMBER 2018

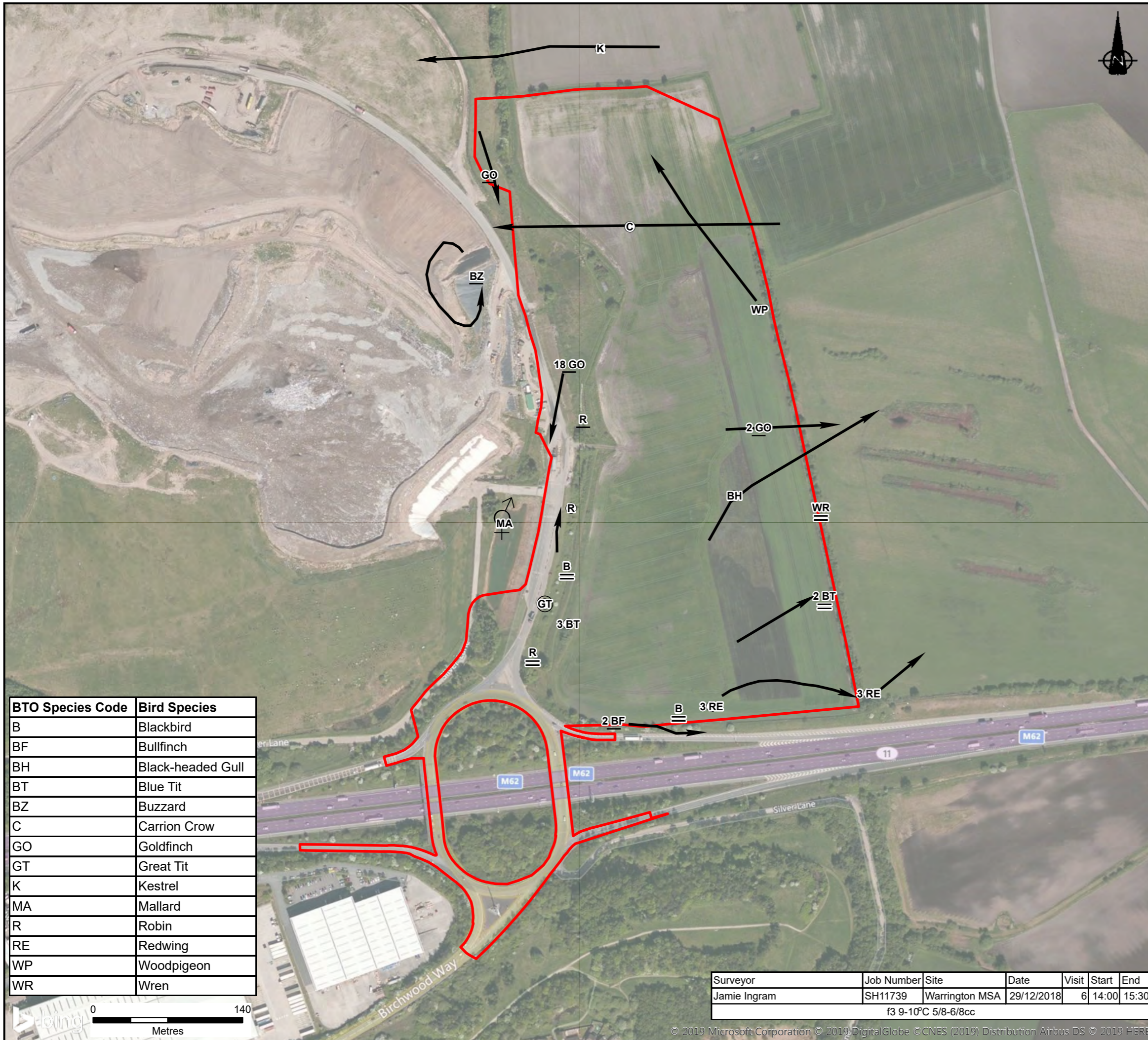
DRG No.	SH11739/027	REV	A
DRG SIZE	A3	SCALE	1:3,500
		DATE	25/07/2019
DRAWN BY	SW	CHECKED BY	KS
		APPROVED BY	TP

Surveyor	Job Number	Site	Date	Visit	Start	End
Jamie Ingram & Michael Moore	SH11739	Warrington MSA	21/11/2018	5	09:15	10:45

f2 4°C dry, 6/8-8/8 cc

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- SHEFFIELD
- EDINBURGH
- STOKE ON TRENT



**KEY**

- Site Boundary
- Pair of birds
- Bird(s) repeatedly calling
- Sighting of Bird(s)
- Calling bird(s)
- Singing bird(s)
- Bird(s) in flight

**Notes:**

Boundaries are indicative.

Aerial imagery shown for context purposes only.

BTO Species Code	Bird Species
B	Blackbird
BF	Bullfinch
BH	Black-headed Gull
BT	Blue Tit
BZ	Buzzard
C	Carrion Crow
GO	Goldfinch
GT	Great Tit
K	Kestrel
MA	Mallard
R	Robin
RE	Redwing
WP	Woodpigeon
WR	Wren

REVISION	DETAILS	DATE	DRAWN	CHKD	APPD

CLIENT  
**EXTRA MSA GROUP**

PROJECT  
**WARRINGTON MSA**

DRAWING TITLE  
**BREEDING BIRD SURVEY RESULTS -  
DECEMBER 2018**

DRG No.	SH11739/028	REV	A
DRG SIZE	A3	SCALE	1:3,500
DRAWN BY	SW	DATE	24/07/2019
CHECKED BY	LG	APPROVED BY	NB

Surveyor	Job Number	Site	Date	Visit	Start	End
Jamie Ingram	SH11739	Warrington MSA	29/12/2018	6	14:00	15:30
f3 9-10°C 5/8-6/8cc						

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- EDINBURGH
- STOKE ON TRENT

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## **Appendix 5.9 – Invertebrate Survey Report**



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WASTE RESOURCE MANAGEMENT



**EXTRA MSA**

**MOTORWAY SERVICES, WARRINGTON**

**TERRESTRIAL AND AQUATIC INVERTEBRATE ASSESSMENT REPORT**

**JULY 2019**

**DATE ISSUED:** JULY 2019  
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**EXTRA MSA**


**MOTORWAY SERVICES, WARRINGTON**

**TERRESTRIAL AND AQUATIC INVERTEBRATE ASSESSMENT REPORT**

**JULY 2019**

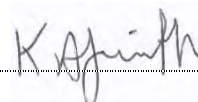
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<b>DRAWINGS</b>	<b>TITLE</b>	<b>SCALE</b>
SH11739-007	Extended Phase 1 Habitat Survey Results	1:3,000
Drawing 2	Aquatic Sample Locations	

## **1 INTRODUCTION**

### **1.1 Terms of Reference**

- 1.1.1 Wardell Armstrong LLP (WA) was commissioned by Extra MSA Group to undertake a Terrestrial and Water Invertebrate Assessment of a proposed Motorway Services Area development, located on the northern side of the M62 at Junction 11, central Ordnance Survey (OS) grid reference: SJ 67053 93630. On behalf of Wardell Armstrong, specialist sub-contractor Steve Muddiman completed the assessment.
- 1.1.2 This report presents a habitat assessment to determine potential for significant invertebrates together with the results of aquatic invertebrate sampling on land for a proposed Motorway Service Area off the M62 at Birchwood (J11) Warrington.
- 1.1.3 The site has been subject to a Preliminary Ecological Appraisal, including a Phase 1 habitat survey (Wardell Armstrong Dec. 2018).
- 1.1.4 The site is predominantly arable in nature, with sparse hedges and ditches around the periphery.
- 1.1.5 The invertebrate study comprises a desk review of existing invertebrate data, a walkover, habitat based, assessment of the site and sampling of aquatic invertebrates from open water within the study area.
- 1.1.6 The aim of this assessment is to define the potential of habitats on the site to support invertebrate species or assemblages of conservation importance.

### **1.2 Scoping Consultation**

- 1.2.1 A scoping report was issued to Tameside Metropolitan Borough Council (TMBRC) during December 2018. Comments were returned during February 2019. The scoping response from TMBRC gave a recommendation of achieving biodiversity net gain in line with the NPPF.

## 2 METHODOLOGY

### 2.1 Desk Study

2.1.1 Data from the Preliminary Ecological Assessment, comprising existing available information provided by RECORD (Local Records Centre) and from available internet-based resources for a 2km search radius was reviewed in order to define profiles of key characteristics of the site which may hold invertebrate species and assemblages of ecological value.

### 2.2 Habitat Assessment

2.2.1 A walkover of the whole site was carried out on 9th April 2019, to assess the potential value of the site for invertebrates.

2.2.2 The habitat types present were identified and assessed for their potential to support species of importance (including those from historical data). The key features of each habitat which were assessed comprised:

- **Physical Assessment:** the physical features of a habitat (aspect, soil type, hydrology) can have an effect on the assemblage of invertebrates which can make full use of the resources present.
- **Structural Assessment:** Density and height of vegetation can be of particular importance for predatory invertebrates and also those dependent on high daytime temperatures.
- **Plant species composition:** A higher plant species diversity is likely to correlate with a more diverse invertebrate assemblage. Some invertebrate species of conservation importance are associated with particular plant species.
- **Breeding/nesting:** Specific features within a habitat may be of value in maintaining a sustainable invertebrate population through the provision of habitat for breeding and overwintering e.g. the presence of dead wood/plant stems or dense grass tussocks.
- **Feeding/foraging;** the potential of the habitat to provide feeding opportunities such as nectar, pollen and open areas for predators to hunt is assessed.
- **Movement/migration:** the connectivity of habitat with similar areas, or habitats necessary for other life-stages is considered e.g. connectivity between open water for the development of aquatic larvae associated with suitable feeding habitat for emergent adults.

## **2.3 Sampling**

- 2.3.1 A standard pond net was used to take invertebrate samples on 9th April 2019 from three areas within the only ditch with significant open water within the site (see Drawing 2: Aquatic Sample Locations).
- 2.3.2 A standard pond net sampling methodology was employed, with three-minute timed samples being carried out within each area. Particular attention was paid to sampling from the full range of habitats present. Samples were identified to the most detailed taxonomic level possible, using standard reference material.

### 3 RESULTS

#### 3.1 Desk Study

3.1.1 As reported in the PEA, no desk study records for significant invertebrate species were returned from the data request.

#### 3.2 Habitat Assessment

3.2.1 Table 1 presents a summary of the assessment undertaken of the habitats present within the site, as mapped in Drawing number SH11739-007, together with an indication of the potential habitat value for invertebrates, and a reasoned explanation for the assigned level.

<b>Table 1: Habitat Assessment Summary</b>		
<b>Habitat/Feature</b>	<b>Potential Value for invertebrates of significance</b>	<b>Rationale</b>
Arable	Negligible	Unsuitable for any invertebrate species of conservation significance
Neutral Grassland, Tall Ruderal and scrub	Low	Habitat is species poor, with limited pollen and nectar resources. Structural variation is limited, without extensive nesting, breeding or foraging opportunities. Likely to support common and widespread invertebrate species only.
Marshy Grassland/Swamp	Low	Small area of generally uniform vegetation with limited plant diversity. Willowherb and meadowsweet offer some pollen and nectar resources at suitable times of year. Potential to support common and widespread species only.
Broadleaved scattered trees	Low	Sparse distribution of trees, each of which is of limited potential value, supporting no significant dead wood or other refugia. Likely to have a limited range of common and widespread invertebrate species only
Dry Ditches	Low	Lack of open water, small size and lack of significant morphological features severely limit potential of this habitat.
Ditch with water	Low	

#### 3.3 Aquatic Invertebrate Survey

3.3.1 Tables 1 to 4 below present the results of the aquatic invertebrate survey from the sampled locations (see Drawing 2).

Table 2: Aquatic Invertebrate Results of Sample 1		
Species	Family	Numbers
<i>Asellus aquaticus</i>	Asellidae	5-20
<i>Gammarus</i> sp.	Gammaridae	5-20
<i>Lymnaea stagnalis</i>	Lymnaeidae	5-20
<i>Lymnaea peregra</i>	Lymnaeidae	10-50
<i>Limnephilus lunatus</i>	Limnephilidae	10-20
<i>Polycelis tenuis</i>	Platyhelminthes	2
Indet.	Culicidae	5-10
<i>Hydrobius fuscipes</i>	Hydrophilidae	1
<i>Helophorus aequalis</i>	Hydrophilidae	1

3.3.2 Sample 1 was taken along a reed choked length of ditch with a channel approx. 1m wide with steep banks between 0.25 and 1m in height which comprised sparse grasses and herb species.

Table 3: Aquatic Invertebrate Results of Sample 2		
Species	Family	Numbers
<i>Lymnaea stagnalis</i>	Lymnaeidae	5-20
<i>Lymnaea peregra</i>	Lymnaeidae	10-50
Indet.	Ceratopogonidae	1
Indet. larva	Dytiscidae	1
Indet.	Culicidae	5-10
<i>Limnephilus lunatus</i>	Limnephilidae	5-15
<i>Anacaena globulus</i>	Hydrophilidae	3
<i>Anacaena limbata</i>	Hydrophilidae	1
<i>Helophorus</i> sp.	Hydrophilidae	1

3.3.3 Sample 2 was from a channel approximately 0.75m wide with reed across its entire width, extending up the bank, together with areas of light bramble scrub. Bank height from 1 to 1.5m.

Table 4: Aquatic Invertebrate Results of Sample 3		
Species	Family	Numbers
<i>Lymnaea stagnalis</i>	Lymnaeidae	5-10
<i>Lymnaea peregra</i>	Lymnaeidae	5-10
<i>Asellus aquaticus</i>	Asellidae	1-5
<i>Anax imperator</i>	Aeshnidae	1
<i>Diamesinae</i> sp.	Chironomidae	1
Indet. larva	Dytiscidae	5
<i>Rhantus frontalis</i>	Dytiscidae	1
<i>Helophorus grandis</i>	Hydrophilidae	2
<i>Halipus lineatocollis</i>	Halipidae	1-5



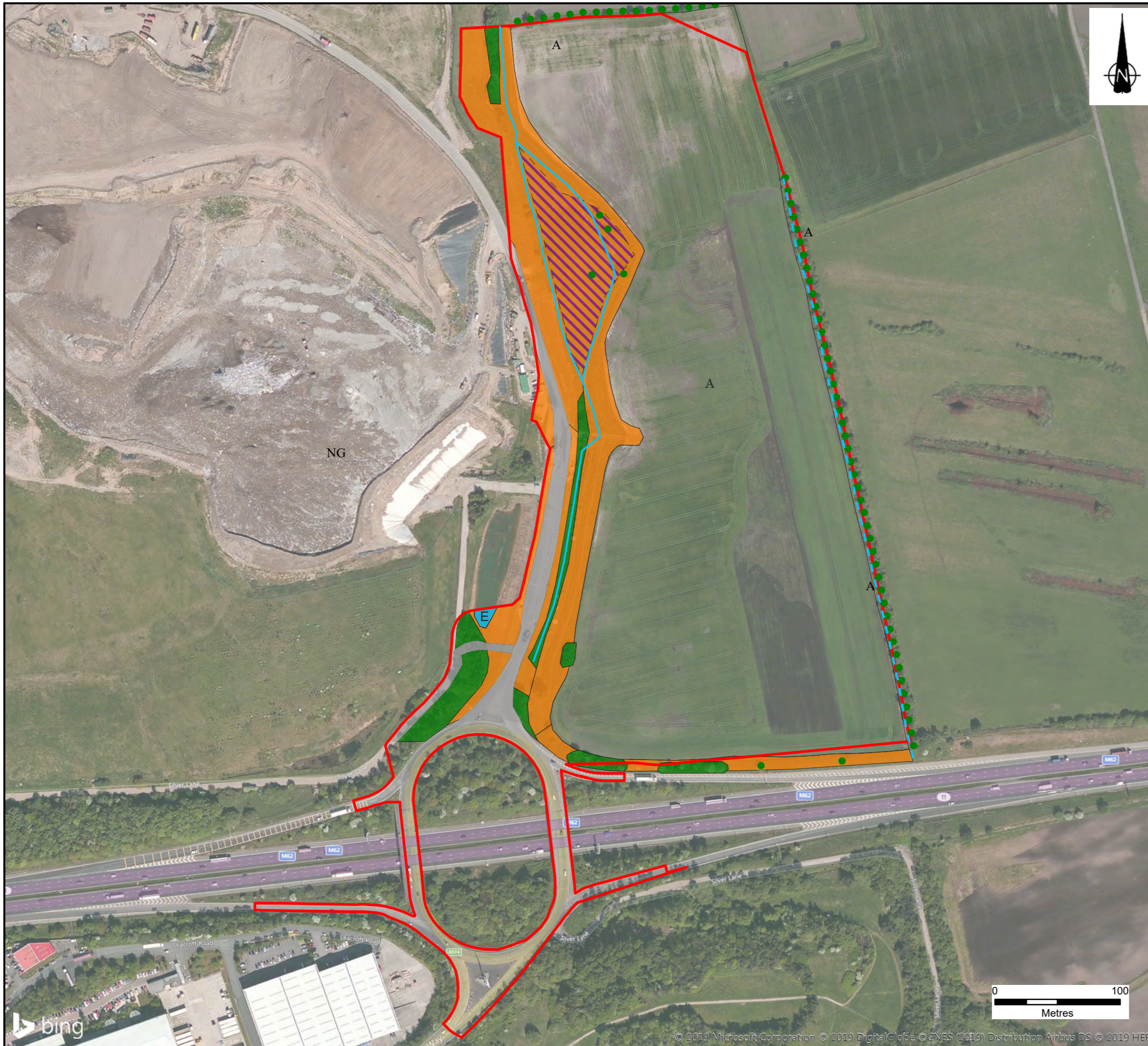
<b>Species</b>	<b>Family</b>	<b>Numbers</b>
<i>Ranatra linearis</i>	Nepidae	1
<i>Sigara dorsalis</i>	Corixidae	2
<i>Hesperocorixa sahlbergi</i>	Corixidae	2
<i>Limnephilus flavicornis</i>	Limnephilidae	1
<i>Limnephilus lunatus</i>	Limnephilidae	5-10
<i>Cloeon dipterum</i>	Baetidae	5-10

- 3.3.4 Sample 3 was from an area with channel width of 2.5m. Channel with dense reedmace, duckweed in the open areas. Bank height 0.5 to 1.5m with a made footpath along one edge.
- 3.3.5 The samples show an increase in species diversity reaching a maximum in sample 3. Further to the south of this sample location, the ditch becomes more shaded with overhanging young trees and supported less open water.
- 3.3.6 All of the invertebrates recorded are common and widespread, typical of slow moving or still water with extensive vegetation.

### **3.4 Conclusions**

- 3.4.1 The majority of the site comprises arable fields, which are of negligible value for invertebrates of conservation importance.
- 3.4.2 Other terrestrial habitats are likely to support a range of common and widespread invertebrates, but have little potential to support populations of significant species due to the small areas present, poor floristic diversity, lack of structural variation and absence of features of importance for species with specialist requirements (such as dead wood, loose soil, habitat mosaics).
- 3.4.3 The aquatic habitats support common species typical of the slow-moving, heavily vegetated open water habitats present in the survey area.

## **DRAWINGS**



**KEY**

- Site Boundary
- Broadleaved woodland - semi-natural
- Neutral grassland
- Marsh/marshy grassland
- Standing water - eutrophic
- Cultivated/disturbed land - arable
- Hardstanding
- Broadleaved Parkland/scattered trees
- Wet ditch
- - - Dry ditch

**Notes:**

Boundaries are indicative. Aerial imagery shown for context purposes only.

Classifications in accordance with Handbook for Phase 1 Habitat Survey - A technique for Environmental Audit (JNCC 2010).

S A	SITE BOUNDARY AMENDMENTS AND HABITAT UPDATES FIRST ISSUE	JULY 2019 APRIL 2019	SW SW	JS JS	TP TP
REVISION	DETAILS	DATE	DRAWN	CHKD	APPD

CLIENT  
**EXTRA MSA GROUP**

PROJECT  
**MOTORWAY SERVICES, WARRINGTON**

DRAWING TITLE  
**EXTENDED PHASE 1 HABITAT SURVEY RESULTS**

DRG No.	SH11739/007	REV	B
DRG SIZE	A3	SCALE	1:3,000
DRAWN BY	SW	CHECKED BY	TP
		APPROVED BY	TP

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Sample 1

Sample 2

No open  
water

Sample 3

Ch... 1... 0

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## **Appendix 5.10 – Framework Habitat Management Plan**



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**MOTORWAY SERVICES, WARRINGTON**

**FRAMEWORK ECOLOGICAL MANAGEMENT PLAN**

**JULY 2019**

**DATE ISSUED:** JULY 2019  
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**EXTRA MSA GROUP**

**MOTORWAY SERVICES, WARRINGTON**

**FRAMEWORK ECOLOGICAL MANAGEMENT PLAN**

**JULY 2019**


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**CHECKED & APPROVED BY:**

Tim Palmer Technical Director



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## **1 INTRODUCTION**

### **1.1 Terms of Reference**

1.1.1 Wardell Armstrong LLP (WA) is advising Extra MSA Group (hereafter referred to as Extra) in respect of a proposed development of a new Motorway Service Area (MSA) (hereafter referred to as the 'development'), located on the northern side of the M62 at Junction 11, central Ordnance Survey (OS) grid reference: SJ 67053 93630.

1.1.2 The proposals include the following:

- Extraction of an area of sub-surface peat and relocation to the surface in order to form a new peatland type habitat;
- the realignment of a Brook and the optimisation of newly created river corridor habitats;
- enhancement of retained areas of tree lines; and
- the establishment of flower rich meadow grassland habitats.

1.1.3 Both the enhanced and the newly created habitats will be brought under a formal programme of management, to ensure the new planting establishes fully and then is maintained in the long-term to provide ongoing biodiversity and amenity benefits.

1.1.4 Such a programme of management will be set out within an Ecological Management and Mitigation Plan, or Landscape and Ecological Management Plan (LEMP), which could be secured through a Condition of planning consent or a legal agreement. A recommended framework management plan is set out below, which could form the basis of the detailed Habitat Management Plan.

## **2 AIMS AND OBJECTIVES**

### **2.1 Tenure and Responsibility**

2.1.1 The entirety of the land covered by this Framework Management Plan is within the control of the applicant, Extra MSA Group (Extra). The implementation of the detailed management plan will be the responsibility of Extra.

### **2.2 Ecological Constraints**

2.2.1 The site has supports protected species, i.e. nesting birds, and an area of sub-surface peat. However ecological constraints are fairly limited given that the site is predominantly an area of intensively farmed arable land. A High Pressure Gas Main (HPGM) runs along the eastern boundary of the site with associated easements to allow for maintenance of the sub-surface pipeline. Consequently, it will be necessary to maintain minimal vegetation growth within this area, this will be achieved by the reversion of the current arable land to flower rich grassland.

2.2.2 Safeguards will be implemented to ensure the protection of birds, where appropriate, during habitat clearance. As such, the detailed Management Plan should set out measures to avoid grassland/tree clearance during the bird nesting season.

### **2.3 Areas Covered by the Framework Management Plan**

2.3.1 For the purposes of this Framework Management Plan, the site has been divided into general management zones, with their objectives broadly outlined below:

- New peatland habitat zone;
- Brook realignment zone;
- Enhancement of existing tree lines and creation of new woodlands; and
- Establishment of new meadows.

### **2.4 Framework for Enhancement of Existing Tree Lines and Creation of New Woodlands**

2.4.1 The woodland on site currently comprises a typical, mixed species shelterbelt planting of Lombardy poplar in the south west corner of the site on the roundabout embankment – this provides some screening to the adjacent fields, it is largely devoid of shrub and ground flora being heavily shaded. A line of mature and over mature downy birch define the eastern and northern boundary of the site, there are frequent gaps especially within the northern stand, to the east the line is more or less continuous. Goat willow, hazel and crack willow and red oak are also present around the western and southern boundary of the site either as single trees or as small groups.

2.4.2 Birch and Scot's pine woodland is a characteristic feature of the area, and woodland dominated by birch is distinguished by a generally dense canopy with a sparse understorey. New woodland will be planted around the margins of the scheme especially to the south and west, the new woodlands will include the following:

- promotion of mature standard trees, providing an important habitat resource in terms of deadwood and nesting and roosting features for birds and bats;
- Creating a graduated 'ecotone' at the edges of the woodlands through scrub/young trees to tall grassland;
- Creation of standing deadwood where appropriate; and
- Creation of new faunal habitat features, including log piles, brash piles and windrows to form refugia and hibernacula for a range of wildlife species, and provision of bat and bird boxes.

2.4.3 Management of the newly created woodland will initially aim to ensure the successful establishment of the trees, followed by long-term maintenance to provide long-term ecological benefits. This will be achieved through the following objectives:

- Planting of native tree and shrub species in a random pattern, in clusters leaving gaps for natural regeneration and woodland rides/glades;
- Considering the establishment of native species with drought tolerance ideally where they are locally native, for example field maple *Acer campestre*, Scot's pine *Pinus sylvestris*, small-leaved lime *Tilia cordata* or wild service tree *Sorbus torminalis*, so that the new woodlands are able to adapt to climate change.
- Retention in particular of older downy birch specimens at the eastern boundary as potential nesting habitat for Willow tit, and appropriate veteranisation methods to promote further (standing) deadwood resource;
- Permitting natural regeneration where appropriate and appreciating the value of scrub and ruderal vegetation as intermediate habitats;
- Maintain and replace trees and shrubs to ensure their healthy establishment;
- Establish and maintain a species-rich grassland ground flora during establishment; and

2.4.4 Management of the site should initially comprise an establishment period for at least the first year. This would include weed control around newly planted trees using non-herbicide methods such as coir matting, application of mulch, watering and

replacement, using biodegradable trees guards and replacement of failed specimens in the following season with the same species, as required.

- 2.4.5 In the longer-term, traditional, low intensity management using coppicing techniques should be introduced to create an on-going regime for broadleaved woodland that meets the UK Priority Habitat definition, creating a varied structure of benefit to invertebrates and bird diversity in particular. This can be maintained by establishing and maintaining glades and rides through new woodland areas.
- 2.4.6 The establishment period should include watering during drought conditions within the first 5 years, replacement of specimens (as required), removal and disposal of litter and treatment of non-native species as required.

## **2.5 Management Framework for New Peatland Habitat Zone**

- 2.5.1 The translocated peat will be subject to a different and likely variable hydrological regime and therefore unlikely to provide conditions suitable for 'active raised bog'. However, it will be necessary to ensure the Peat Habitat Zone (PHZ) is successful by being adaptable to a variable hydrological regime. This can be achieved by designing a habitat of variable peat depth and topography, providing a range of micro-habitats from dry to permanently wet; creating varied habitats for a range of flora and fauna.
- 2.5.2 Plant material from 'high quality' peatland vegetation from nearby designated sites should be considered where possible or existing established nurseries supplying those sites where re-vegetation is taking place, to ensure plants of local provenance establish on site.
- 2.5.3 A Habitat Management Plan will be provided that incorporates natural processes such as vegetation succession where appropriate, as well as ensuring any invasive species are removed.
- 2.5.4 There is an opportunity to create different habitats such regenerating scrub, dry and wet heathland areas and bog pools, rather than focussing on trying to create a flat raised rainwater-fed mire system. It is expected that the PHZ will receive water both from rain and from groundwater, given that the external bunds will be semi-permeable and hence allow a degree of continuity with external hydrology. It will therefore be possible to create hollows around groundwater level and to mound areas which will become largely dry heath vegetation. By creating a diversity of topography and habitats, the area will be more resistant to seasonal change as well as climate change.

2.5.5 The Chat Moss Project are in the process of restoring Mosslands nearby and this provides an opportunity to source vegetation locally to aid restoration. Bare peat is vulnerable to wind and solar ablation and erosion and so quick revegetation will be imperative to stabilising the peat. This can be achieved through plug planting, hydroseeding, or pre-planted coir matting and rolls.

2.5.6 Plant species and choice of planting process would be influenced by the finalised topography of the translocated peat. Pre-planted coir matting and rolls establish most effectively when partially submerged whereas hydroseeding and plug planting are likely to be more effective in drier areas. Pre-planted coir matting can be specified and ordered from companies such as Salix.

2.5.7 The vegetation once established is likely to conform to a habitat which is broadly analogous to 'degraded raised bog'. An extract from the JNCC Habitat account – '7120 Degraded raised bogs still capable of natural regeneration' – is provided below:

*"Degraded raised bogs occur where there has been widespread disruption, usually by man, to the structure and function of the peat body. This can involve changes to the hydrology, vegetation, and physical structure of the bog, leading to desiccation, oxidation and loss of species or changes in the balance of the species composition. In contrast to 7110 Active raised bogs, peat is not currently forming in degraded bog. The vegetation of degraded bog contains several, but not all, of the species typical of Active raised bogs, but the relative abundance and distribution of individual species differs:*

- *...Scrub woodland (usually birch *Betula* spp.);*
- *Bare peat;*
- *Impoverished vegetation dominated by species including purple moor grass *Molinia caerulea*, hare's-tail cottongrass *Eriophorum vaginatum* and heather *Calluna vulgaris*, and lacking significant cover of bog-mosses *Sphagnum* species"*

2.5.8 Other key species that can be targeted for re-introduction as part of the as part of the revegetation work include; cross-leaved heath *Erica tetralix*, round-leaved sundew *Drosera rotundifolia*, cranberry *Vaccinium oxycoccos*, bog asphodel *Narthecium ossifragum* and bog-rosemary *Andromeda polifolia*.

2.5.9 Monitoring through the restoration process will enable timely interventions, ensuring any less successful areas of revegetation are able to establish successfully. For

example it may be necessary to use fertiliser or lime on areas of substrate which are found to be too acidic.

2.5.10 There is an opportunity to establish locally uncommon species such as aspen *Populus tremula* and native black poplar *Populus nigra ssp. betulifolia*

2.5.11 During the management phase, parts of the PHZ would be permitted to develop natural tree and scrub regeneration, with species such as birch *Betula spp.*, willow *Salix spp.*, and alder *Alnus glutinosa* likely to self-seed from surrounding habitat. This would attract species such as willow warbler *Phylloscopus trochillus*, stonechat *Saxicola rubicola* and reed bunting *Emberiza schoeniculus*.

2.5.12 In other areas, trees and scrub could be prevented from establishing, such as parts of the developing floristically diverse heathland and near to the proposed bog pools. This would benefit species of invertebrate that are reliant on open water such black darter *Sympetrum danae* & common hawker *Aeshna juncea* dragonflies which are bog habitat specialists. Grasshopper warbler *Locustella naevia* and quail *Coturnix coturnix* have been recorded locally and may benefit from the more open habitats.

2.5.13 Example photos are provided below.



**Plate 1: Open birch woodland growing over peat soils. The edges of the peatland type habitat should be allowed to develop into a similar composition.**



**Plate 2: Open mire with boggy pools and dominant cotton grass.**



**Plate 3: Mire with heathland. The Heathland habitat could be replicated on drier (raised) sections within the Peat Habitat Zone.**

## **2.6 Management Framework for Newly Created Meadows/grassland**

2.6.1 Overall aims for meadow vegetation at the site will be to create species rich grasslands of various types, from tall infrequently managed to short-grazed areas.



- 2.6.2 The grassland to be created within the easement of the HPGM will be a tall species rich sward with high floristic diversity; this will be subject to a single cut during late summer/autumn as is the case for a traditional 'hay meadow'. The arisings should be gathered up and removed from site to progressively lower the nutrient status of the soil. The margins of this habitat should be left to a reduced mowing frequency to allow tussocky grassland to develop for the benefit of small mammals and invertebrates.
- 2.6.3 These areas will be seeded and planted with a suitable wildflower mix containing a range of neutral/acid grassland species. Within the mix it will be important to include yellow rattle *Rhinanthus minor* which will help to maintain the floral diversity in the long term by reducing the vigour of coarse grasses.
- 2.6.4 Areas of new meadow plantings around the margins of the newly planted woodlands should be left unmown to develop into coarse tussocky grassland with blackthorn, hawthorn or gorse scrub, within adjacent areas working outwards from the woodland edges more frequent cutting should be employed to allow tall grassland to develop, which is mown once/year in late summer. Closer to paths and amenity areas, the grassland should be mown more frequently still such that short grassland is maintained.

#### ***Establishment***

- 2.6.5 Management will initially aim to ensure the successful establishment of the meadow areas, followed by maintenance to provide long-term ecological benefits. This will be achieved through the following objectives in the first year:
- Preparation of a 'sterile' seed bed to reduce the competitive advantage of annual weeds through topsoil stripping or inversion. If topsoil is stripped, it could then be used to create topographical variation in the open mosaic habitats.
  - Sowing the wild flower meadow mix in the appropriate rate, during early spring or autumn; and
  - Controlling the weed growth by cutting or grazing as necessary.

#### ***Cutting Option***

- 2.6.6 Following establishment, the bulk of the grassland should be cut once a year in late summer and arisings removed and composted in the corner of the fields. A 5m wide strip around the margins of the new meadows should be left uncut to maintain tussocky grassland for small mammals and their predators.

2.6.7 After 5 years, the management will be reviewed at which point it should be clear which areas are of highest floristic value, which areas can be permitted for vegetation succession and which areas are favoured by livestock, should they be the preferred option.

## **2.7 Framework Management for Brook Re-alignment**

2.7.1 Silver Lane Brook, which is designated "main river", originates at the south western end of the proposed MSA and is fed by a culvert entering from off site from the south.

2.7.2 Silver Lane Brook ultimately drains a further 0.4km to the north to the Willow Brook and then which discharges 1.7km to the east to join the Glaze Brook.

2.7.3 The watercourse, as it runs down the western boundary of the site, is a relative narrow and shallow channel with steep banks, creating quite a constrained river corridor. The watercourse runs the full length of the western boundary, approximately 0.6km, and has a longitudinal gradient range of between approximately 1 in 400 and 1 in 2000. The channel has two culverted crossings allowing access into the eastern agricultural fields and there are numerous areas of standing water along the channel.

2.7.4 The diversion will be designed to contain meanders and in channel features within the open land areas and the channel will be enhanced through landscaping and ecological betterment with an aim to improve water quality and biodiversity. Where land is available, the surrounding areas to the diversion will be reprofile to endeavour to create variation and a natural landform. These measures will include consideration of the following features in order to maximise biodiversity benefit<sup>1</sup>:

- The channel should be designed to be as 'sinuous' as possible to maximise linear length and to create diversity in flows and depth;
- Riffles, gravel beds and sediment bars should be created to create habitats for a wide range of invertebrates and aquatic plants;
- Backwaters with static flows which become isolated from the channel during periods of low flows should be encouraged;
- The adjacent habitats should include as much structural diversity as possible with areas of dense marginal and emergent plant growth on shallow margins of great

---

<sup>1</sup> Stephen Addy, Susan Cooksley, Nikki Dodd, Kerry Waylen, Jenni Stockan, Anja Byg and Kirsty Holstead (2016) River Restoration and Biodiversity: Nature-based solutions for restoring rivers in the UK and Republic of Ireland. CREW reference: CRW2014/10

benefit to water vole, tree lined sections (with willow and alder) to allow roots to stabilise the banks and create important fish refuges and underwater habitats and vertical soil banks to provide nesting opportunities for kingfisher and sand martin.

- adjacent to the channel there should be an area of unmanaged 'riparian' habitat which in time should be allowed to develop a mosaic of fen habitat with wet woodland, scrub and areas of drier grassland.

2.7.5 Due to the ground conditions being partly in peat, the channel will be lined in these areas to reduce infiltration loss to the surrounding ground. Ground water ingress into the channel will also be discouraged by channel lining although this will be carefully designed to allow areas of marshy habitat to develop on adjacent land.

2.7.6 In terms of ongoing management this would be minimal to allow the habitats to develop in a natural manner. It may be necessary to monitor the development of the vegetation and river channel, to ensure that excessive erosion does not occur and to ensure it does not become blocked by fallen trees etc. Monitoring and remedial measures would be proposed in the detailed Habitat Management Plan.

2.7.7 Examples of channel features are provided in the plates below:



**Plate 4: Riffle features comprising areas of faster flow, shallow high energy water and exposed boulders/cobbles**



**Plate 5: Pool areas of deeper water and lower flows.**



**Plate 6: Backwaters – areas of very low/static flow which may become detached from the main channel during summer.**



**Plate 7: Exposed sediment, marginal growth and sediment 'cliff' providing nesting habitat for kingfisher and sand martin as well as refuge for solitary bees and wasps.**

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## **Appendix 5.11 – Biodiversity Offsetting Report**

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**EXTRA MSA GROUP**

**MOTORWAY SERVICES, WARRINGTON**

**BIODIVERSITY OFFSETTING REPORT**

**AUGUST 2019**



**DATE ISSUED:** AUGUST 2019  
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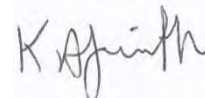
**MOTORWAY SERVICES, WARRINGTON**

**BIODIVERSITY OFFSETTING REPORT**

**AUGUST 2019**

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## APPENDICES

Appendix 1 Biodiversity Impact Assessment (BIA) Calculator

<b>DRAWINGS</b>	<b>TITLE</b>	<b>SCALE</b>
SH11739/007	Extended Phase 1 Habitat Survey Results	1:3,000@A3
LC-1	Warrington MSA J11/M62 Indicative Wider Landscape Landscape Context	1:5,000@A3

## **1 METHODOLOGY**

### **1.1 Scoping Consultation**

1.1.1 A scoping report was issued to Warrington Borough Council (WBC) during December 2018 in relation to the proposed Warrington Motorway Service Area (MSA) scheme. Comments were received from WBC in February 2019 recommending the demonstration of a net gain in biodiversity, in line with the National Planning Policy Framework (NPPF).

1.1.2 This report provides information supporting the net gain of biodiversity at the Warrington MSA application site.

### **1.2 Biodiversity Offsetting Metric**

1.2.1 The Warwickshire, Coventry and Solihull – Biodiversity Impact Assessment (BIA) calculator has been used to conduct this assessment. This pilot BIA is based on the Defra Biodiversity Offsetting methodology, is considered the national standard offsetting metric and is therefore applicable to use for this project.

### **1.3 Distinctiveness**

1.3.1 Existing information on habitat types within the Application Site is taken from the Extended Phase 1 Habitat Survey data (Wardell Armstrong, 2018), and shown on Drawing No. SH11739/007. This data is then inputted into the BIA metric and habitats are pre-assigned to one of four habitat bands, based on their distinctiveness:

- High: 6
- Medium: 4
- Low: 2
- None 0

1.3.2 Distinctiveness is defined as a collective measure of biodiversity based on parameters including species richness, diversity and rarity.

### **1.4 Condition Assessment**

1.4.1 Each habitat type identified is then given a condition weighting. The methodology used to assign a condition weighting to each habitat type is based on the 'Higher Level Stewardship Scheme: Farm Environment Plan (FEP) Manual' (Natural England 2010<sup>1</sup>), although ecological expertise and experience is also used. Condition weightings are:

---

<sup>1</sup> <http://adlib.everysite.co.uk/resources/000/251/202/NE264.pdf>

- Good: 3
- Moderate: 2
- Poor: 1

1.4.2 In the FEP manual, each habitat type is assigned a number of habitat assessment criteria and it is these that allow an assessment of condition to be made:

- Good condition: All criteria met
- Moderate Condition: All but one criterion met
- Poor Condition: Two or more criteria failed

1.4.3 Drawing number LC-1 'Warrington MSA J11/M62 Indicative Wider Landscape - Landscape Context' provided by SLR (July 2019) has been used to inform details of proposed habitats following completion of the development.

## 2 RESULTS

2.1.1 The results of the BIA are summarised below, taken from the full metric which is provided in Appendix 1.

Habitats	Area (ha)	Habitat Biodiversity Value
Total existing area on site	16.5	39.08
Habitats negatively impacted by Proposed Development Habitat Impact Score	16.48	38.72
On site habitat mitigation - Habitat Mitigation Score		47.83
<b>Habitat Biodiversity Impact Score</b> If negative further compensation required		9.11
Hedgerow Impact Assessment	Length (km)	Hedge Biodiversity Value
Total existing length on site	0.62	2.47
Hedgerow features negatively impacted by Proposed Development Hedge Impact Score (HIS)	0	0
On site linear mitigation Hedge Mitigation Score (HMS)		0
<b>Hedgerow Biodiversity Impact Score</b> If negative further compensation required		0
Connectivity Impact Assessment	Length (km)	Connectivity Biodiversity Value
Total existing length on site	0.48	0.95
Connectivity features negatively impacted by Proposed Development Connectivity Impact Score (CIS)	0	0
On site linear mitigation Connectivity Mitigation Score (CMS)		0
<b>Connectivity Biodiversity Impact Score</b> If negative further compensation required		0

2.1.2 The existing habitats within the application site have a biodiversity value of 39.08 units and the proposed development will result in a loss (Biodiversity Impact Score) of 38.72 units. For area based habitats, 47.83 units will be created and enhanced as a result of the proposed development, resulting in an overall Habitat Biodiversity Impact Score of **+9.11 (Gain)**.

2.1.3 The existing linear features on the application site have a biodiversity value of 2.73 and the Proposed Development will result in no change in hedge or connectivity biodiversity value, as hedge and connectivity features will be retained. The overall

Hedgerow Biodiversity Impact Score and Connectivity Impact Score is **0.00 (no change)**.

### **3 CONCLUSION**

3.1.1 The BIA metric results demonstrate that the landscape proposals within the site boundary are adequate to mitigate biodiversity losses. 'Good' condition habitats should be targeted following the development. The landscape proposals will result in a percentage increase of 22% in biodiversity value overall, therefore further off-site mitigation through an offset provider is not considered necessary.

## **APPENDICES**



**Appendix 1**  
**Biodiversity Impact Assessment (BIA) Calculator**







Warwickshire Coventry and Solihull - Connectivity Impact Assessment [optional]

Please fill in both tables

KEY	
	No action required
	Enter value
	Drop-down menu
	Calculation
	Automatic lookup
	Result

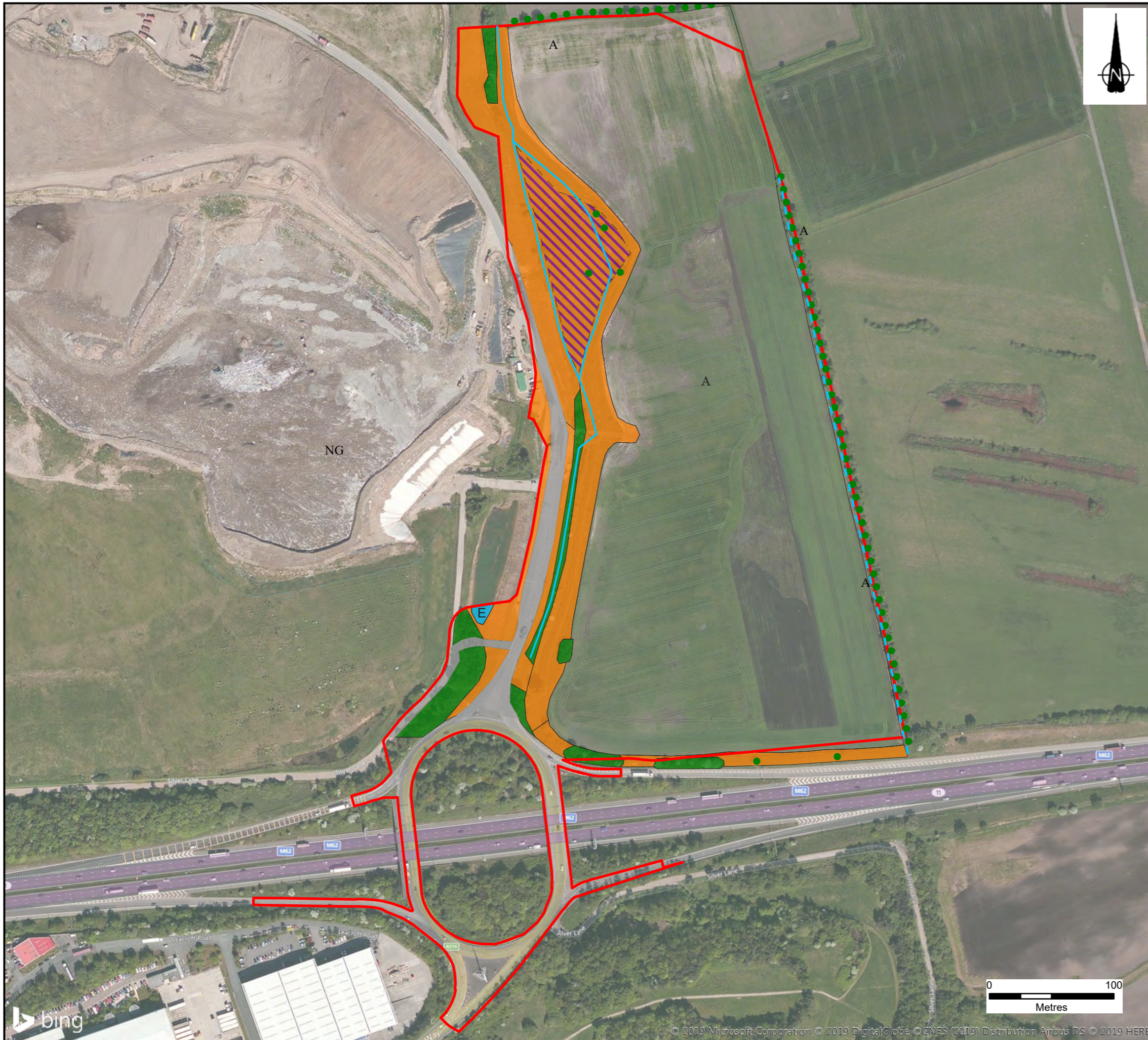
**Connectivity Features**  
 This sheet gives an indication as to whether the development will enhance connectivity through or around the site.  
 These units are not transferrable as compensation for either the Habitat or Hedgerow Impact Assessment scores.

Please do not edit the formulae or structure  
 To condense the form for display hide vacant rows, do not delete them  
 If additional rows are required, or to provide feedback on the calculator please contact WCC Ecological Services

T. Note	code	Existing Connectivity features on site		Connectivity distinctiveness		Connectivity condition		Connectivity features to be retained with no change within development		Connectivity Biodiversity Value				Comment				
		Phase 1 habitat description	Feature length (km)	Distinctiveness	Score	Condition	Score	Length (km)	Existing value	Length (km)	Existing value	Length (km)	Existing value					
		Direct Impacts and retained features		A		B		C		E		F		G		H		
								A x B x C = D		A x B x E = F		A x B x G = H						
J26		Ditches: Dry ditch	0.48	Low	2	Poor	1	0.48	0.95									Dry ditch retained. Condition poor due to presence of invasive plant species.
		Total		0.48		Total		0.48 0.95		0.00		0.00		0.00		0.00		J
										Site Connectivity Biodiversity Value		0.95						
		Indirect Negative Impacts						Value of loss from indirect impacts										
		Before/after impact		K				K x A x B = Li, Lii		Li - Lii								
		Before																
		After																
		Before																
		After																
		Before																
		After																
		Before																
		After																
		Before																
		After																
		Total		0.00				0.00		M								
										Connectivity Impact Score (CIS)		CIS = J + M		0.00				



## DRAWINGS



**KEY**

- Site Boundary
- Broadleaved woodland - semi-natural
- Neutral grassland
- Marsh/marshy grassland
- Standing water - eutrophic
- Cultivated/disturbed land - arable
- Hardstanding
- Broadleaved Parkland/scattered trees
- Wet ditch
- - - Dry ditch

**Notes:**

Boundaries are indicative. Aerial imagery shown for context purposes only.

Classifications in accordance with Handbook for Phase 1 Habitat Survey - A technique for Environmental Audit (JNCC 2010).

S A	SITE BOUNDARY AMENDMENTS AND HABITAT UPDATES FIRST ISSUE	JULY 2019 APRIL 2019	SW SW	JS JS	TP TP
REVISION	DETAILS	DATE	DRAWN	CHKD	APPD

CLIENT  
**EXTRA MSA GROUP**

PROJECT  
**MOTORWAY SERVICES, WARRINGTON**

DRAWING TITLE  
**EXTENDED PHASE 1 HABITAT SURVEY RESULTS**

DRG No.	SH11739/007	REV	B
DRG SIZE	A3	SCALE	1:3,000
DRAWN BY	SW	CHECKED BY	TP
		APPROVED BY	TP

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LEGEND	
	APPLICATION SITE BOUNDARY
	EXISTING WOODLAND / TREE
	GAS MAIN
	EXISTING POND
	EXISTING WATERCOURSE
	EXISTING DEVELOPMENT
	PERMISSIVE BRIDLEWAY
	PERMISSIVE FOOTPATH
	PUBLIC FOOTPATH
PROPOSED DEVELOPMENT STRATEGY	
	NEW STRATEGIC GREEN LINK
	AMENITY BUILDING
	FUEL FILLING STATION / ELECTRIC CHARGING STATION
	CHILDREN'S PLAY AREA
LANDSCAPE PROPOSALS	
	PROPOSED AREA OF MIXED WOODLAND / TREE AND SHRUB PLANTING
	ROUGH GRASSLAND
	WILDFLOWER MEADOW
	AMENITY GRASSLAND WITHIN MSA
	FLOWER RICH ACID GRASSLAND WITHIN MSA
	DIVERTED SILVER LANE BROOK, MARGINS AND/ MARSHY ACID GRASSLAND





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WARRINGTON MSA J11/M62  
INDICATIVE WIDER LANDSCAPE  
LANDSCAPE CONTEXT

**LC-1**

Scale 1:5,000 @A2	Date JULY 2019
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## **Appendix 5.12 – Water Vole Survey Report**

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**MOTORWAY SERVICES, WARRINGTON**

**WATER VOLE SURVEY REPORT**

**JULY 2019**

**DATE ISSUED:** JULY 2019  
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**EXTRA MSA GROUP**

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<b>DRAWINGS</b>	<b>TITLE</b>	<b>SCALE</b>
SH11739-022	Water Vole Survey Results	1:1,000@A3

## **1 INTRODUCTION**

1.1.1 Wardell Armstrong LLP (WA) were commissioned by Extra MSA Group to undertake a water vole survey of a proposed Motorway Services Area development (hereafter after referred to as the 'site'), located on the northern side of the M62 at Junction 11, central Ordnance Survey (OS) grid reference: SJ 6705393630.

1.1.2 WA undertook the water vole habitat assessment on the 12th February 2019 with subsequent presence/absence visits on the 15<sup>th</sup> April and 4<sup>th</sup> June 2019. The aims of the water vole surveys were to determine the likely presence/absence of water vole along the watercourses on or adjacent to site, ii) determine the likely impacts of the proposed development, iii) determine the levels of activity and distribution, iv) to inform whether a Natural England Species Licence for water vole is required and inform appropriate mitigation measures.

### **1.2 Background**

1.2.1 It is proposed that the development will include a main services area with food and retail facilities and a hotel, car, coach and HGV parking, a fuel station and associated road infrastructure.

### **1.3 Scoping Consultation**

1.3.1 A scoping report was issued to Tameside Metropolitan Borough Council (TMBRC) during December 2018. Comments were returned during February 2019. The scoping response from TMBRC agreed that impacts to water vole foraging and burrowing habitat need to be considered in the Environmental Statement (ES). A recommendation of biodiversity net gain was made in line with the NPPF.

### **1.4 Site Context**

1.4.1 The majority of the site is cultivated land with the boundary habitats consisting of broadleaved treeline, drainage ditches/running water, neutral grassland, broadleaved woodland and marshy grassland.

1.4.2 The site is bound by cultivated land and grazing pasture to the east, cultivated land to the north, a capped landfill to the west and the M62 motorway to the south. The wider area includes arable land and the Birchwood settlement

### **1.5 Legislative framework**

1.5.1 Water voles receive full protection under Section 9 of Schedule 5 Wildlife and Countryside Act, 1981 (as amended). Under this legislation it is an offence to:

- Damage, destroy or obstruct access to, a structure or place which is used by a water vole for shelter or protection [Section 9(4) (a)];
- Disturb a water vole whilst it is occupying such as structure or place which it is using for that purpose [Section 9 (4)(b)];
- Intentionally kill, injure or to take a water vole [Section 9 (1)];
- Have in one's possession or control any live or dead water voles or derivatives of [Section 9(2)]; or
- Sell, or offer to sell a water vole, or to be found in possession of, or to transport, a water vole for the purpose of sale. This includes publishing any advertisement for the sale of water voles [Section 9 (5a & 5b)].

1.5.2 Water vole are a priority species in England and are listed s.41 species of principal importance, NERC Act 2006.

### 1.5.3 **Licensing Requirements**

1.5.4 The design of the proposed development should seek to avoid disturbing water voles if at all possible. However, if disturbance and damage to habitats cannot be avoided then it is recommended that ecological advice is sought as to whether or not a licence application should be made to Natural England. It is not possible to obtain a licence for the specific purpose of development but in some circumstances Natural England will consider issuing a licence in relation to a development proposal if the licensed action is going to provide a conservation benefit for water voles. A licence application would be needed if any capture and translocation of water voles is considered necessary.

## 1.6 **Water Vole Ecology**

1.6.1 Water voles live in colonies, comprising a series of adjoining territories along a watercourse. These territories can range between 30m and 300m depending on the season, habitat quality and population density.

1.6.2 Typically, water vole favour riparian habitat with dense patches of grasses, rushes, sedges and reed (the *Poaceae* family). They may be found on rivers, streams, brooks, canals, lakes, reservoirs, gravel pits and ponds. They create an underground burrow system, up to 3m in length, usually with an underwater entrance and an above-water entrance on the bank.



- 1.6.3 Sites that are subject to periods of excessive drought or flood may be unsuitable and they are also discouraged by livestock grazing or bank management and excessive shading by trees and shrubs.
- 1.6.4 Water voles are largely herbivorous and although the *Poaceae* form a large part of their diet, they may consume up to 240 different species including, rarely, snails and crayfish.
- 1.6.5 They were once common throughout lowland Britain but have suffered a significant decline in numbers and distribution, with populations in some areas falling by over 95% in the last century<sup>1</sup>.

## **1.7 Caveats**

- 1.7.1 Ecological surveys are limited by factors that affect species presence such as time of year, weather, migration patterns and behaviour. Water vole surveys can be carried out any time of year. The optimum time for surveying water vole is between April and October.

---

<sup>1</sup> <http://www.whitchurchwatervoles.co.uk/index.php/en/>

## **2 SURVEY METHODOLOGY**

### **2.1 Desk Study**

2.1.1 A desk study was undertaken within the Ecological Assessment carried out by WA with data records provided by RECORD (Local Records Centre), including for water vole within 2km development.

### **2.2 Field Survey**

2.2.1 A detailed search of the area to be directly affected by works associated with the proposed development was undertaken by experienced surveyors on the 12<sup>th</sup> February during a habitat assessment and during survey visits 1 and 2 on the 15<sup>th</sup> April and 4<sup>th</sup> June 2019. Wherever possible, the survey was undertaken from within the watercourses, in order to allow for a close search for signs of water voles.

2.2.2 A brook and drainage ditch located adjacent to the western boundary of site were surveyed for the presence/absence of water vole as shown on Drawing Number SH11739-022.

2.2.3 The specific aims of the survey were to:

- map the distribution of water vole burrows, latrines, paths and, where possible, territorial boundaries;
- describe the status/structure of burrows;
- assess the quality of water vole foraging habitat; and
- identify areas where more detailed surveys may be required.

2.2.4 Survey techniques were undertaken in accordance with the Water Vole Conservation Handbook (Strachan & Moorhouse, 2006). Within the search area both brook habitats have been systematically surveyed for evidence of water vole in the form of:

- faeces: water vole usually deposit faeces (latrine) in concentrations along the waters bank of which (latrine sites) are typically found at home-range boundaries where females mark territories during the breeding season;
- burrows: comprising either single isolated holes or a series of holes slightly above the water's edge or under water surface known as bolt holes;
- tracks: form as water vole leave burrows either to the water or bank tops leading to lawns;

- feeding stations: form and consist of cut vegetation usually on a 45°-degree angle and often stems are stripped leaving behind white flesh piles;
- footprints; prints are usually about 15-25mm from toe to heel, often evident in soft muddy substrate along water's edge or banking and outside burrows; and
- visual observation of water vole during the survey.

2.2.5 Latrines are indicators of terrestrial behaviour, which in turn generally correlates with breeding activity. It is therefore considered that watercourses/bodies which display latrines, burrows and feeding signs form breeding sites for water voles.

#### *Camera Traps*

2.2.6 Two passive infra-red (PIR) triggered optical cameras were placed at the site near to suspected water vole field signs (burrows and feeding piles) found within the drainage ditch in order to monitor activity from the 9<sup>th</sup> February to 5<sup>th</sup> March 2019.

2.2.7 PIR cameras were placed approximately 1m from the chosen area to ensure that the animals were not disturbed. The cameras were protected by a camouflage casing and produce no 'mechanical' sounds.

### **2.3 Population estimates**

2.3.1 The number of latrines along a watercourse can be used to obtain an estimate of water vole population size. This is based on live trapping of water voles and latrine counts at three sites in the North York Moors National Park, (Morris et al, 1998) which presented a predictive equation to calculate approximate population size from the number of latrines, as presented below:

- Number of water voles = 0.68 x (Number of latrines) + 1.48.

2.3.2 Additionally, guidance within *The Water Vole Mitigation Handbook* (Dean et al, 2016) states that numbers of latrines recorded by the survey will give an indication of relative population size and can be helpful in identifying the most valuable parts of a site for water voles. The survey area can be subdivided into areas supporting water voles at 'high', 'medium' or 'low' density, which could be interpreted as shown in Table 1 below.

<b>Table 1: Relative Population Size</b>		
<b>Relative Population Density</b>	<b>First half of survey season (mid-April to end of June)</b>	<b>Second half of survey season (July to September)</b>
High	10 or more	20 or more
Medium	3 – 9	6 – 19

<b>Table 1: Relative Population Size</b>		
<b>Relative Population Density</b>	<b>First half of survey season (mid-April to end of June)</b>	<b>Second half of survey season (July to September)</b>
Low	≤ 2 (or none, but with other confirmatory field signs)	≤ 5 (or none, but with other confirmatory field signs)

2.3.3 It is not possible to make robust estimates of absolute numbers of water vole from latrine counts. However, latrines provide relative indices of activity suitable for the purposes of assessing impacts or designing mitigation.

## 2.4 Survey Limitations

2.4.1 During the survey, dense marginal vegetation (namely reed bulrush *Typha latifolia* and other ruderal species) obscured small sections of the banks and limited access to some parts of the watercourses. However, the character of these areas is similar to those that are accessible and therefore the presence of vegetation is not likely to have compromised the conclusions within this report.

### **3 SURVEY RESULTS**

#### **3.1 Desk Study**

3.1.1 The desk study data provided by RECORD (Local Records Centre) identified 1 record of water vole 59m west of the proposed development.

#### **3.2 Field Survey**

##### Habitat Assessment

3.2.1 The habitats on site are not considered optimal water vole habitat, however, do present optimal features in some areas of the two watercourses. The brook/drainage ditch provide bank characteristics with suitable gradient and height that allows burrow creation at varying heights above the water level. Riparian vegetation present provided suitable food source for water vole and additional connectivity to wider landscape including the Risley Moss SSSI via a culvert to the south.

##### *Brook One*

3.2.2 Brook one extends approximately 1km adjacent the western boundary of the site adjacent a public footpath. The brook is approximately 1-1.5m wide with shallow embankments. Water depth is approximately 0.5m deep with slow flowing water to the north. The embankments within the southern section, after the initial culvert, were heavily shaded by trees and dense scrub including bramble *Rubus fruticosus*, hawthorn *Crataegus sp.* and goat willow *Salix caprea*. In addition, the channel had very low water levels and heavily vegetated with tall ruderals including willowherb species *Epilobium sp.* and reed canary grass *Phalaris arundinacea*. Therefore, this section was considered sub-optimal water vole habitat and unlikely to support them. Subsequently, the southern section was excluded from further survey.



**Photograph 1 –Northern Section**



**Photograph 2 – Southern Section**



**Photograph 3– Dense stands of vegetation along the banks of Brook One**

#### *Drainage Ditch*

- 3.2.3 The drainage ditch extends approximately 227m in length to the west of the public footpath with no connectivity to brook one. The ditch is approximately 2.5m wide but varies in size throughout the channel. Average water depth is approximately 0.5m with areas fluctuating to 1m. The western embankment is large and steep, and the eastern embankment is short and steep, approximately 3m from the public footpath in the northern section. The bankside habitat included a combination of scattered scrub, tall ruderal and grassland with species present being perennial rye grass *Lolium perenne*, cocksfoot *Dactylis glomerate*, Yorkshire fog *Holcus lanatus*, bramble, common nettle *Urtica dioica*, vetch *Vicia* sp, reed canary-grass and rosebay willowherb *Chamerion angustifolium*. Sections of bank habitat were heavily shaded with tree species such as goat willow, hawthorn and alder *Alnus glutinosa*. These sections were considered sub-optimal habitat providing minimal ground vegetation for cover and food resource. Marginal vegetation included soft-rush *Juncus effuses*, pendulous sedge *Carex pendula*, lesser celandine *Ranunculus ficaria*, bulrush *Typha latifolia* and common reed *Phragmites australis*.

3.2.4 In channel, submerged, vegetation is dominated by bulrush with occasional water cress *Nasturtium officinale*, water forget me not *Myosotis scorpioides*, common water crowfoot *Ranunculus aquatilis* and brooklime *Veronica beccabunga*.



Photograph 4 – Drainage ditch during habitat assessment



Photograph 5 - Drainage ditch during survey visit 1



Photograph 6– Dense stands of vegetation along the banks to the north

#### *Potential water vole signs*

- 3.2.5 No evidence of water vole was identified within brook one. Several burrows and one latrine are present but considered to be bank vole *Myodes glareolus*.
- 3.2.6 Three possible water vole burrows were observed along the western bank of the drainage ditch, one in the mid-section and two in the southern section. Additionally, four possible feeding stations were identified along the eastern bank. No latrines were observed that are considered to be water vole.
- 3.2.1 The approximate location of water vole signs identified during the habitat assessment are shown on Drawing SH11739-022.



**Photograph 7- Possible water vole burrow**



**Photograph 8 – Possible feeding station**

#### *Water Vole Survey Visit 1*

3.2.2 During the presence/absence survey, no evidence of water vole was identified within the brook or drainage ditch. The water level within the drainage ditch had significantly dropped with only a small area holding a low level of water. This is due to the water levels in the drainage ditch being managed by the adjacent restored landfill as part of their previous surface water management.

3.2.3 A number of adult toads *Bufo bufo* were found during the search in brook one and juveniles were present in the drainage ditch, which suggests the watercourses are suitable breeding habitat.

#### *Survey Visit 2*

3.2.4 During the second survey, no evidence of water vole was identified within both brooks. The burrows and latrine found are considered too small to be water vole.

3.2.5 A number of adult toads *Bufo bufo* were found during the search in brook one and juveniles were present in brook two, which suggests the brooks are being used for breeding.



#### 4 REFERENCES

Dean *et al*, 2016, *The Water Vole mitigation handbook* (The Mammal Society Mitigation Guidance Series). Eds Fiona Mathews and Paul Channin. The Mammal Society, London.

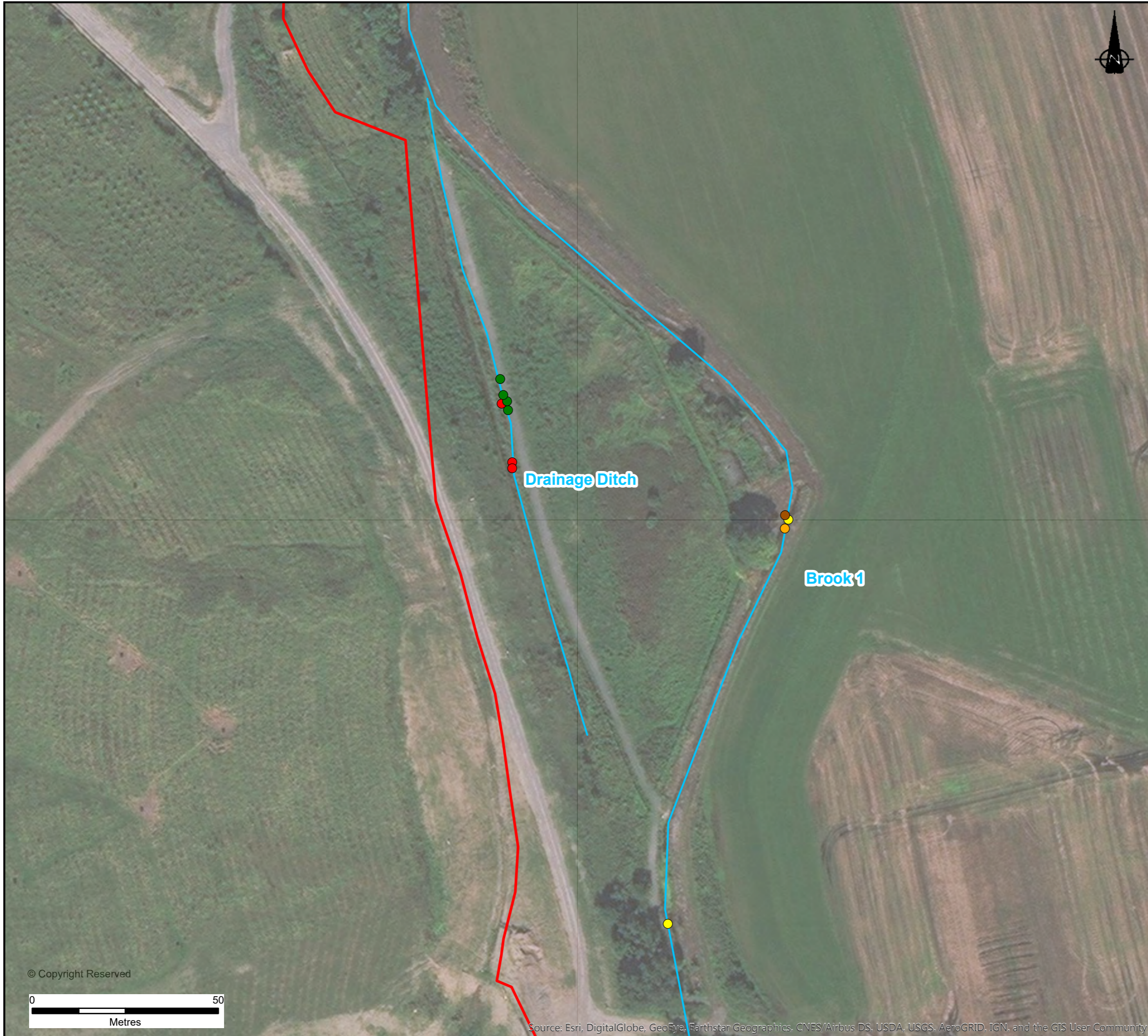
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WILDCRU (2011), *Water Vole Conservation handbook (3<sup>rd</sup> edition)*, The Wildlife Conservation Research Unit. Abington, UK.

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## **DRAWINGS**



**KEY**

- Site Boundary
- Watercourse
- Brick Bank
- Potential Burrows
- Concrete Bank
- Culvert
- Potential Feeding Pile

Notes:  
Coordinates to British National Grid

REVISION	DETAILS	DATE	DRAWN	CHKD	APPD

CLIENT  
**EXTRA MSA GROUP**

PROJECT  
**MOTORWAY SERVICES, WARRINGTON**

DRAWING TITLE  
**WATER VOLE SURVEY RESULTS**

DRG No.	SH11739-022	REV	A
DRG SIZE	SCALE	DATE	
A3	1:1,000	24/07/2019	
DRAWN BY	CHECKED BY	APPROVED BY	
CT	KS	TP	

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## **Appendix 5.13 – Reptile Survey Report**

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MINERAL ESTATES  
WASTE RESOURCE MANAGEMENT



**EXTRA MSA GROUP**

**MOTORWAY SERVICES, WARRINGTON**

**REPTILE SURVEY REPORT**

**JULY 2019**

**DATE ISSUED:** JULY 2019  
**JOB NUMBER:** SH11739  
**REPORT NUMBER:** 013  
**VERSION:** V1.0  
**STATUS:** FINAL

**EXTRA MSA GROUP**

**MOTORWAY SERVICES, WARRINGTON**

**REPTILE SURVEY REPORT**

**JULY 2019**

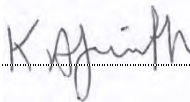
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## APPENDICES

- Appendix 1 Legislation and Policy Summary  
Appendix 2 Survey Weather Conditions

<b>DRAWINGS</b>	<b>TITLE</b>	<b>SCALE</b>
SH11739/007	Extended Phase 1 Habitat Survey Results	1:3,000@A3
SH11739/055	Reptile Tin Location Plan	1:1,000@A3



## **1 INTRODUCTION**

### **1.1 Terms of Reference**

1.1.1 Wardell Armstrong LLP (WA) was commissioned by Extra MSA Group to undertake Reptile Presence/ Absence surveys of a proposed Motorway Services Area development (hereafter referred to as the 'site'), located on the northern side of the M62 at Junction 11, central Ordnance Survey (OS) grid reference: SJ 67053 93630.

1.1.2 Surveys followed recommendations from a Preliminary Ecological Appraisal (PEA) undertaken by Wardell Armstrong in 2018 which recommended that the potential for presence/absence of reptiles within the site and surrounding area should be investigated further.

### **1.2 Scope of Assessment**

1.2.1 The aims of the assessment are as follows:

1. determine the likely presence/absence of reptiles;
2. if present, determine the species, number and status;
3. summarise the current site condition, including arrangement of suitable habitats and connecting corridors;
4. assess whether additional surveys are required;
5. assess the conservation value of the site for reptiles;
6. to determine likely impacts of the proposed development; and
7. to inform whether a European Protected Species Licence is required and inform appropriate mitigation measures.

### **1.3 Background Information**

1.3.1 This report follows a Preliminary Ecological Appraisal report (Wardell Armstrong 2019), which identified the presence of small areas of rough grassland, arable field margins, grassland mosaics and scrub, which were suitable to support a reptile population.

### **1.4 Scoping Consultation**

1.4.1 A scoping report was issued to Tameside Metropolitan Borough Council (TMBRC) during December 2018. Comments were returned during February 2019. The scoping response from TMBRC agreed that the impact on grass snake *Natrix helvetica*

basking habitat needs to be considered in the Environmental Statement (ES). A recommendation of biodiversity net gain was made in line with the NPPF.

## **1.5 Site Context**

- 1.5.1 The site is located immediately adjacent to Junction 11 of the M62, on the north side of the motorway. Suitable reptile habitat including grassland, scrub and arable field margins are present on site. The wider landscape comprises arable farmland/pasture to the east, south east and north, a capped landfill directly west of the site and Birchwood Business and Technology Park to the south west.
- 1.5.2 Holcroft Moss Site of Special Scientific Interest is located approximately 1,080m east and Manchester Mosses Special Area of Conservation, Risley Moss Site of Special Scientific Interest and Risley Moss Local Nature Reserve are located approximately 1.4km south of the site.

## 2 METHODOLOGY

### 2.1 Habitat Suitability Assessment

2.1.1 Utilising references documents (Stafford, 1987; Stafford, 1989; Froglife, 2016; Froglife, 2016b), general habitat requirements for each species were used to assess if onsite habitats are suitable to support any British reptile species.

2.1.2 Common lizard *Zootoca vivipara* occupies a wide range of habitats providing that they are structurally diverse and provide adequate cover. The more typical mosaics include, but are not limited to (Stafford, 1989):

- Open marshy heathland with south-facing banks with dense vegetation;
- Wasteland, railway embankments;
- Sand dunes;
- Edges of woodland;
- Damp meadows; and
- Gardens.

2.1.3 Slow worms *Anguis fragilis* occupy a more diverse range of habitats than common lizard, tolerating a less diverse vegetation structure and often being found on brownfield sites and within open woodland. Slow worm favour well vegetated dryer habitats with extensive ground cover, including open heaths. However, the species is not limited to this habitat and can be recorded in wetter habitats also (Stafford, 1989). Typical habitats include (Stafford, 1989):

- Steep cliffs;
- Woodland clearings;
- Old ivy-covered walls;
- Hedge and railway embankments; and
- Gardens.

2.1.4 Grass snake are generally associated with wetlands but can also be found in many other habitats that provide some cover and a degree of structural diversity. They are very mobile and do not rely on a single site for hibernation, foraging and egg-laying and it is not uncommon to see grass snake in woodland during hot weather.

2.1.5 Adder *Vipera berus* are typically associated with dry sand heaths, heathland and moorland locations and are poor colonisers of less suitable sites associated with arable/pastoral farmland. However, the species is not restricted to the above habitat. Adder have been recorded within several other habitats, including but not restricted to (Stafford, 1987):

- Pine and deciduous forest;
- Reed beds;
- Rocky hillsides, quarries and sand dunes;
- Moorland; and
- Disused railway cuttings.

2.1.6 During spring adder occupy the hibernation sites, which include dry south-facing bank covered with low vegetation. During summer individuals may then travel and disperse in to lower-lying and potentially wetter habitats, including damp river meadows, returning to hibernation sites from late August onwards (Stafford, 1987).

2.1.7 Sand lizard is restricted to lowland sandy habitats and have a limited distribution across the British Isles, mainly associated with Dorset, Hampshire and the western borders of Surrey and Berkshire (Stafford, 1989; Froglife, 2016) and Merseyside (Froglife, 2016). In addition, breeding programs have reintroduced sand lizard to areas of North Wales, Devon Cornwall and West Sussex (Froglife, 2016).

2.1.8 Smooth snake is often found in mature heather on dry, sandy, or gravel heathland, with a very limited distribution across the British Isles. Smooth snake is typically recorded in Dorset, Hampshire, Surrey and West Sussex (Froglife, 2016b).

## 2.2 Desk Study

2.2.1 The desktop study was informed by review of existing available information provided for a search radius of 2.5 km from a central grid reference point within the boundary of the site. Ordnance Survey (OS) and satellite mapping was also used to gain contextual habitat information. Organisations and recorders approached included:

- RECORD (The Biodiversity Information System for Cheshire, Halton, Warrington and Wirral).

## 2.3 Field Survey

- 2.3.1 The field survey methodology has been devised with reference to the requirements of all relevant legislation and good practice guidance, including the Herpetofauna Workers' Manual (Foster & Gent, 1996) and reptile survey guidance (Froglife, 1999).
- 2.3.2 During May 2019, twenty-one artificial refugia consisting of bituminous roofing felt and corrugated bituminous sheets (Corolyne) approximately 0.5 x 0.5 m to 0.5 x 1 m in size were placed within suitable reptile habitats (See Drawing number SH11739/055 for approximate locations). These included hedgerow bases and associated arable field margin, breaks in low scrubby vegetation, grassland and the edges of scrub.
- 2.3.3 The centre of the arable fields were considered as unsuitable habitat and were not surveyed. Refugia tiles were individually numbered for reference and left to settle for a period of two weeks before being checked for the first time.
- 2.3.4 The artificial refugia were checked from a distance using binoculars and were visually inspected on approach. The refugia were also turned to check beneath. In addition, natural (logs and stones) and semi-natural refugia, such as anthropogenic materials that have been in place for a significant time, were identified as potentially suitable for use by reptiles, and were also checked for reptile presence.
- 2.3.5 Refugia were visited seven times during the survey period during suitable weather conditions as defined by relevant guidance. Surveys were carried out on the following dates during 2019:
- Survey visit 1 – 3<sup>rd</sup> May 2019;
  - Survey visit 2 – 7<sup>th</sup> May 2019;
  - Survey visit 3 – 14<sup>th</sup> May 2019;
  - Survey visit 4 – 15<sup>th</sup> May 2019;
  - Survey visit 5 – 17<sup>th</sup> May 2019;
  - Survey visit 6 – 20<sup>th</sup> May 2019; and
  - Survey visit 7 – 24<sup>th</sup> May 2019.
- 2.3.6 The number of refugia used depends on many factors, such as the likelihood of disturbance, the size of the site and area of suitable habitat. In general, the more artificial refugia used, the greater the chance of finding reptiles (and the larger the number of reptiles seen), should they be present on site. For general survey purposes,

five to ten refugia per hectare is considered sufficient (Froglife, 1999). Due to the large area of unsuitable habitat less were used in this instance.

2.3.7 The site covers an area of approximately 16.6 hectares. Upon visiting the site, it was considered that approximately 1.5 hectares or 9.03% of the site was potentially suitable reptile habitat, with the remaining land being arable fields with no cover or with few sun breaks. Thus, artificial refugia were placed at a density of approximately 14 per hectare within the areas of suitable habitat.

2.3.8 A scoring system for categorising the size of reptile populations present (Foster & Gent, 1996) has been used to assess the indicative population sizes present within the site (see Table 1, below). This scoring system gives a population size estimate described as low, good or exceptional, based on “the maximum numbers of reptiles seen by observation and/or found under tiles at a density of up to 10/ha<sup>1</sup>, by one person in one day”. This approach has been applied to the results of the surveys undertaken.

<b>Table 1: Reptile population size classification</b>			
<b>Reptile</b>	<b>Low Population</b>	<b>Good Population</b>	<b>Exceptional Population</b>
Adder	<5	5-10	>10
Grass snake	<5	5-10	>10
Common lizard	<5	5-20	>20
Slow worm	<5	5-20	>20

2.3.9 Surveys were carried out during optimum temperature and weather conditions (intermittent sunshine, temperatures between 9°C and 20°C with low winds). The ideal time to carry out surveys is between the hours of 09:00 and 11:00 and 16:00 and 19:00 when reptiles have not reached their optimum temperature and so are more easily observed; however, sunshine immediately after rain is also suitable at any time of the day so long as the temperature is greater than 9°C.

2.3.10 See Appendix 2 for weather conditions recorded during each of the surveys.

## **2.4 Caveat**

2.4.1 The absence of desk study records is not relied upon to determine absence of reptiles. Often, the absence of records is a result of under-recording within the given search

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<sup>1</sup> If reptiles were recorded the data will be extrapolated to match the measuring system, given the onsite refugia density of 14/ha

area and as such the experience of the ecologist concerned together with a range of additional factors, in particular the presence/absence of potentially supporting habitat; is used to infer likely presence/absence of ecological receptors.

## **2.5 Quality Assurance & Environmental Management**

- 2.5.1 The surveys and assessments have been overseen by and the report checked and verified by a member of CIEEM, whom is bound by its code of professional conduct. All surveys and assessments have been undertaken with reference to the recommendations given in British Standard BS 42020, and as stated within specialist guidance, as appropriate and referenced separately.

### **3 RESULTS**

#### **3.1 Habitat Suitability for Reptiles**

3.1.1 The majority of the site is comprised of unsuitable habitat in the form of arable fields. Suitable habitat consisting of hedgerows, scrub, ditches and grassy field margins are present around the periphery of the site. The Extended Phase 1 Habitat Survey Results plan (Drawing number SH11739/007) shows the locations of these habitats.

3.1.2 Based on information outlined in reference documents and as described in Section 2.1, it is considered that the site has potential to support common lizard, grass snake and slow worm.

#### **3.2 Desk Study**

3.2.1 Within data from RECORD there are 39 records of adder, 29 records of common lizard, 5 records of grass snake and 4 records of slow worm within 2km of the site over the past 10 years. These are predominantly recorded at Risley Moss Local Nature Reserve and other locations off site.

#### **3.3 Field Survey**

3.3.1 Throughout the 7 survey visits no reptiles were observed on site. Adult and juvenile common toads were observed during each visit, common frogs were recorded during visit 3 and visit 5 and one smooth newt was sighted during visit 1.



#### 4 REFERENCES

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**Appendix 1**  
**Legislation and Policy Summary**

## **Appendix 1 – Legislation and Policy Summary**

All UK reptile species receive partial protection under The Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000), which provide protection against intentional killing or injury of any such animal.

Sand Lizard and smooth snake are listed within Schedule 5 of the Wildlife and Countryside Act 1981 as amended) and receive protection under section 9 of this act, which makes it illegal (subject to certain exceptions) to:

- Intentionally kill, injure or take any such animal;
- Intentionally or recklessly damage, destroy or obstruct any place used for shelter or protection by any such animal; and
- Intentionally or recklessly disturb such animals while they occupy a place used for shelter or protection.

Smooth snake alone, is also protected under section 39 of the Conservation (Natural Habitats, &c.) Regulations 1997 (and amendments) (known as the Habitats Regulations). With this and the Wildlife and Countryside Act 1981 (as amended) taken together, the following offences apply under the combined acts:

- Deliberately or intentionally capture, injure or kill a smooth snake;
- Intentionally or recklessly damage, destroy or obstruct access to; any structure or place used for shelter or protection by a smooth snake;
- deliberately, intentionally or recklessly disturb a smooth snake;
- damage or destroy a breeding site or resting place of a smooth snake; or
- keep, transport, sell, exchange or offer for sale any smooth snake(s) or anything derived from this species.

Disturbance of animals includes in particular any disturbance, which is likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young, or in the case of animals of a hibernating or migratory species, to hibernate or migrate; or to affect significantly the local distribution or abundance of the species to which they belong.

### *Policy Summary*

Section 40 of the Natural Environment and Rural Communities (NERC) Act imposes a legal duty on Planning Authorities to ‘have regard’ to the conservation of biodiversity when considering planning applications.

Section 41 of the NERC Act requires the Secretary of State to publish a list of species and habitats of principal importance for conserving biodiversity in the UK. Such Biodiversity Action Plan (BAP) Habitats and Species (2007) do not offer the species any specific protection but help to highlight the species importance at a national level. This list is used by Local Planning Authorities to identify the species and habitats that should be afforded priority when applying the requirements of the National Planning Policy Framework (NPPF).

The NPPF underpins the Government's planning policies for England and how these are to be applied. The central theme of the NPPF is a presumption in favour of sustainable development. This presumption does not apply where development requiring Appropriate Assessment under the Birds or Habitats Directives is being considered, planned or determined.

The NPPF states:

*'When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:*

- if significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- proposed development on land within or outside a Site of Special Scientific Interest (SSSI) likely to have an adverse effect on a SSSI (either individually or in combination with other developments) should not normally be permitted. Where an adverse effect on the site's notified special interest features is likely, an exception should only be made where the benefits of the development, at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of SSSIs;*
- development proposals where the primary objective is to conserve or enhance biodiversity should be permitted;*
- opportunities to incorporate biodiversity in and around developments should be encouraged;*
- planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss; and*

- *the following wildlife sites should be given the same protection as European sites: potential Special Protection Areas (SPA) and possible Special Areas of Conservation (SAC); listed or proposed Ramsar sites; and sites identified, or required, as compensatory measures for adverse effects on European sites, potential SPAs, possible SACs, and listed or proposed Ramsar sites.'*

The NPPF requires the Planning Authority to have a responsibility to promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets, and identify suitable indicators for monitoring biodiversity in the plan. In addition, the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.

**Appendix 2**  
**Survey Weather Conditions**

## Appendix 2 - Survey Weather Conditions

Date	Time of survey	Weather data during survey
03/05/2019	11:07-12:17	10°C, 6/8 cloud cover, 2/10 wind speed, sunny spells. Rainfall prior to survey.
07/05/2019	16:30-17:00	14°C, dry, light wind, cloudy
14/05/2019	09:25-11:00	17°C, dry, light wind, clear
15/05/2019	09:30-10:30	17°C, dry, light wind, clear
17/05/2019	16:10-17:00	16°C, dry, light wind, cloudy
20/05/2019	16:10-17:10	15°C, dry, light breeze, clear
24/05/2019	16:00-16:30	18°C, dry, light wind, partially cloudy

## DRAWINGS





**KEY**

- Site Boundary
- Broadleaved woodland - semi-natural
- Neutral grassland
- Marsh/marshy grassland
- Standing water - eutrophic
- Cultivated/disturbed land - arable
- Hardstanding
- Broadleaved Parkland/scattered trees
- — — Wet ditch
- - - Dry ditch

**Notes:**

Boundaries are indicative. Aerial imagery shown for context purposes only.

Classifications in accordance with Handbook for Phase 1 Habitat Survey - A technique for Environmental Audit (JNCC 2010).

S A	SITE BOUNDARY AMENDMENTS AND HABITAT UPDATES FIRST ISSUE	JULY 2019 APRIL 2019	SW SW	JS JS	TP TP
REVISION	DETAILS	DATE	DRAWN	CHKD	APPD

CLIENT  
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PROJECT  
**MOTORWAY SERVICES, WARRINGTON**

DRAWING TITLE  
**EXTENDED PHASE 1 HABITAT SURVEY RESULTS**

DRG No.	SH11739/007	REV	B
DRG SIZE	A3	SCALE	1:3,000
DRAWN BY	SW	CHECKED BY	TP
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DO NOT SCALE FROM THIS DRAWING

- KEY**
- SITE BOUNDARY
  - REPTILE TIN LOCATIONS



REVISION	DETAILS	DATE	DRAWN	CHECKED	APPROVED
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DRAWING TITLE  
**REPTILE TIN LOCATION PLAN**

DRG No.	SH11739-055	REV	A
DRG SIZE	A1	SCALE	1:1000
DRAWN BY	HP	CHECKED BY	KS
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