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# HULTON PARK WESTHOUGHTON AMPHIBIAN AND POND MANAGEMENT STRATEGY

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Document Title	Amphibian and Pond Management Strategy
Prepared for	Peel Holdings (Land and Property) Ltd
Prepared by	TEP - Warrington
Document Ref	6741.07.001

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Date	April 2019
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Approved	David Sweeting

Amendment History					
Version	Date	Modified by	Check / Approved by	Reason(s) issue	Status
1.0	22/12/17	DB	DS	Original issue	Issued
2.0	24/04/19	RT	DS	Dates amended	Issued

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## Executive Summary

1. GCN and Common Toad have been identified north and south of the A6. Pre-commencement habitat creation will take place to create the Northern Receptor Site (NRS) and Southern Receptor Site (SRS) helping to sustain amphibian populations.
2. A Natural England GCN licence will be applied for in advance of the construction phase to permit capture of GCN and other amphibians to populate the NRS and SRS. Amphibian fencing will protect and temporarily constrain the populations until the golf course is complete, after which time the fencing will be removed to allow dispersal across the site.
3. Habitat management of the GCN mitigation ponds, all other ponds, and terrestrial habitats outside those managed specifically for golf will run through each phase from the point of creation/enhancement until all development is complete in 2040/41. Population monitoring will also take place at least biennially from the year of the first pond creation.
4. The Hulton Park site will undergo significant change with temporary infrastructure, parking and facilities created to host the Ryder Cup Tournament. Whether licensing is required will depend on the population size class at the time and the legislative constraints protecting amphibians at that time. At present it is proposed to manage the habitats to reduce the suitability of areas that will be subject to high levels of use during the tournament and to screen key habitats such as ponds and woodland to prevent damage.
5. Following the tournament, the site will be decommissioned with all temporary infrastructure removed and the post construction habitat management plan reinstated. A programme of additional pond creation and enhancement will take place after the Ryder Cup Tournament, running through to 2040/41, to identify areas of the site where new amphibian populations can be started. Several ponds will be created along the southern boundary to create a link offsite to the west to retain connectivity.
6. The residential phase will run parallel with several phases as residential development is constructed both before and after the Ryder Cup Tournament. The LHMP will be revised and resubmitted with these applications to provide an update with the latest population information and determine whether licensing is required.
7. Provided that the populations within the NRS and SRS are viable and recruitment to the adult population is high, eggs will be translocated to new or enhanced pond clusters each year to expand the range of GCN and common toad across the completed course.
8. The GCN strategy set out in this document can be secured under the outline consent using a section 106 agreement or alternatively a legal agreement under the NERC Act 2006 with Natural England could be signed to ensure the delivery of the management, maintenance and monitoring work until the completion of the development in 2040/41.

## 1.0 Vision Statement

- 1.1 Despite extensive terrestrial and aquatic habitats being present on site, the amphibian surveys only identified small populations of GCN in nine ponds across the site. Common toad were found during surveys north of the A6 and it is assumed they are present in ponds to the south.
- 1.2 Preconstruction works will focus on advance habitat creation and mitigation work for amphibians. An area of habitat south of the A6 has been identified as a GCN Reserve and will be protected throughout the construction phase with amphibian fencing. Pond creation and enhancement will be undertaken within the reserve, which will receive GCN and other amphibians translocated from selected areas of the wider site.
- 1.3 Habitat management and maintenance within the reserve will provide optimal conditions for breeding and, with the translocation of amphibians into the reserve likely to increase the number of breeding adults, the populations of both GCN and common toad are expected to increase in value from Neighbourhood to Local level.
- 1.4 At the end of the construction phase, the fence will be removed to allow amphibians to disperse across the golf course site. A range of new ponds will be immediately available for colonisation with larger ponds being more suitable for common toad and smaller ponds more suitable for great crested newt. Ponds will be managed accordingly with fish removed from GCN ponds but left in the larger ponds and lakes where common toad will cohabit.
- 1.5 Species-rich grassland creation and woodland management will increase invertebrate prey, and the creation of new hibernation sites will also contribute to the increases in amphibian populations across the site.
- 1.6 North of the A6, five new ponds will be provided to support the small GCN and toad populations in advance of works in this area.
- 1.7 Population monitoring will be undertaken to track the rate of colonisation of new ponds post construction. The monitoring results will be used to adapt habitat management proposals to improve connectivity to areas of the site that have not been colonised. With the commitment to provide more ponds leading up to the completion of all phases of the development, it is envisaged that large populations of both GCN and common toad will exist across the site, with breeding of each species in at least 50% of the ponds.
- 1.8 It should be noted that GCN licensing is currently changing and with the United Kingdom expected to leave the European Union in March 2019, legislative changes could affect the way this strategy is delivered. The habitat creation and management proposals will remain the same, but the implementation of the mitigation may change.

## 2.0 Baseline Summary

- 2.1 Amphibian surveys were undertaken within a 500m radius of Hulton Park in 2014, 2015 and 2016. The surveys used a combination of traditional methods (bottle trapping, torch and egg searching) and eDNA.
- 2.2 As eDNA surveys can only detect the presence of GCN in a pond rather than the population size class, positive eDNA results were followed up with surveys using traditional methods in subsequent years.
- 2.3 For each pond surveyed, the location, survey year and method is summarised at ES Volume 3b, Appendix 10.6. Pond locations are shown on Drawing 1: G6741.07.002 GCN Survey Results.

### **Great Crested Newt**

- 2.4 GCN were recorded in ponds 29, 31, 36, 38, 47, 61 and 65, by eDNA survey in 2015. These waterbodies were resurveyed using traditional methods in 2016 with the exception of pond 31, which is located in an off-site secure residential facility and could not be accessed. The 2016 surveys did not detect GCN in any of the on-site waterbodies. This lack of GCN finds using the traditional survey methods is attributed to a combination of small population sizes and conditions of the waterbodies, many of which are ephemeral, reducing detectability through standard survey means
- 2.5 Access was gained in 2016 to survey ponds to the north of the A6 and these were included within the traditional methods survey. GCN were recorded in ponds 71 and 72, north of the A6, with maximum counts of two adults for each pond.
- 2.6 The findings of the 2015/2016 surveys suggest that three meta-populations are present across the site. Metapopulation 1 exists north of the A6 (ponds 71 and 72), and two metapopulations exist south of the A6, separated from each other by distance. Metapopulation 2 is supported by four ponds (ponds 29, 36, 38, and 65), and Metapopulation 3 is supported by pond 61 alone. Pond 31 is off-site, with limited connectivity to Metapopulation 2. Although pond 47 returned a positive eDNA result, it is not thought to support a breeding population, as the Mill Dam stream runs through the pond, it is heavily silted and is considered unfavourable for GCN.
- 2.7 GCN is valued at the Neighbourhood level, taking into consideration the small populations present (despite suitable terrestrial habitats and corridors being present) and the known occurrence of GCN within the wider landscape surrounding the Project site.

### **Common Toad**

- 2.8 Common toad was also recorded in Ponds 73, 74 and 75, north of the A6, in 2016. The 2015 surveys south of the A6 survey did not detect common toad, however survey methods focussed upon detecting presence of GCN (due to its elevated protected status). The majority of extant ponds south of the A6, including those with low suitability for GCN, are likely to be suitable to support common toad.

- 2.9 Common toad is valued at the Neighbourhood level, as a consequence of the recorded occurrence and considering the suitability of habitats present within the Project site.

**Likely Future Trends Based on Current Conditions**

- 2.10 In the absence of development and any habitat management, the effect of climate change and pond habitat decline is likely to reduce the quality of the site for amphibians. Although a decline is predicted, it is unlikely there would be species extinction across the whole site, due to the current extent and distribution of waterbodies, so the value is predicted to remain as Neighbourhood.

## 3.0 Commitments

3.1 Commitments regarding amphibian mitigation at Hulton Park have been extracted from the documents listed below and summarised in Table 2:

- ES Chapter 10 Ecology and Arboriculture;
- ES Volume 4 Appendix 3.1b Conservation Management Plan; and
- Consultation Response to Greater Manchester Ecology Unit (GMEU) - TEP Ref: 5136.019.

*Table 1: Commitments relating to amphibians at Hulton Park*

ES Chapter 10 Ecology and Arboriculture	Conservation Management Plan	Consultation Response to GMEU
<p>Embedded mitigation: EPS Licensing as agreed with Natural England in combination with RAMS. Newt reserve to be fenced and managed during construction.</p>	<p>Document mainly tabulates the themes of management and maintenance of woodland and ponds in accordance with the ES. CEMP and LHMP need to be consistent.</p>	<p>The strategy for GCN and other amphibians' mitigation will be an appendix to the Interim LHMP and will be a full and thorough document to be made available prior to determination.</p>
<p>Mitigation proposals to the south and north of the A6 are separate so management will need to maintain both populations</p>	<p>Character Areas 1, 2, 3, 4, 5, 6: The pond and lake will be inspected once a week removing debris and litter as required. Invasive weeds will be monitored and removed. Any defects in the functioning of the pond or lake or any general damage will be reported and if necessary a specialist employed to rectify the problem.</p>	<p>Whilst the licensing process may result in minor amendments after planning consent is obtained, the prior engagement with NE that is proposed through DAS should ensure that these changes are minor. NE were enthusiastic about engaging with this project and did not express concerns that adequate mitigation would not be possible.</p>

ES Chapter 10 Ecology and Arboriculture	Conservation Management Plan	Consultation Response to GMEU
<p>Habitat management of retained terrestrial habitats to be undertaken throughout project phases.</p>	<p>Marginal planting will be cut back (1/3 per annum) and thinned in September or November once annually by lifting and splitting masses of roots and tubers. Most plants will need to have their foliage trimmed but some will die back naturally.</p>	<p>Potential isolation of Rawsthorne Wood, in terms of amphibian migration, is noted. This potential isolation will be mitigated through the measures suggested by GMEU (i.e use of dropped kerbs, off-set gully pots etc), to be included in Design Guides.</p> <p>Ponds to be provided on a 2-for-1 basis for all ponds lost to development. Some features already identified for enhancement are shallow depressions in grassland and will effectively be newly created ponds.</p>
<p>10.29ha woodland creation and 65.28ha to benefit GCN and Common Toad. Larger ponds and lakes likely to suit common toad. Smaller ponds to be managed to remove fish.</p>	<p>The lake will be de-silted annually where the specialist skills and equipment will be sought from a professional contractor with the correct equipment.</p> <p><i>Volume 2, Chapter 8 Action Plan by Character Area, Table 8.2 Landscape Management Actions (pg35)</i></p>	<p>With regard to the ponds lost to the driving range at the Golf Academy, given the need to provide these facilities, alternative layouts were considered, but no arrangement could be accommodated in the available space without the loss of these ponds.</p>

ES Chapter 10 Ecology and Arboriculture	Conservation Management Plan	Consultation Response to GMEU
<p>Crowd management measures during the tournament to protect habitats.</p>		<p>Equal mitigation to that required for licensing is the starting point, and any reduction in up-front trapping and translocation of animals needs to be countered by further strategic habitat enhancement or creation. The locations of the potential areas for pond creation to be shown on a plan.</p>
		<p>Addressing the potential for the Mill Dam Stream to be a dispersal barrier and prohibit dispersal across the site.</p>
		<p>GMEU would recommend that the Council obtains legal advice as to whether there is a valid planning mechanism available to secure a valid and enforceable newt conservation strategy up to the completion of all phases of the development.</p>

## 4.0 Golf Resort Pre-Construction Phase

- 4.1 The pre-construction phase will predominantly involve preparations for construction including the advance creation of compensatory habitats and mitigation for impacts on ponds and amphibians.
- 4.2 There will be no specific management of habitats in relation to amphibians outside of the advance creation of habitats under the GCN licence.

### Licensing

- 4.3 Following the issue of planning consent, a GCN licence application will be submitted to Natural England as in the absence of mitigation, the enabling works would be likely to impact on GCN. The licence will cover the impacts and mitigation of the construction of the golf course and future impacts to ponds 29 and 61.
- 4.4 During the pre-construction phase, ponds and hibernacula will be created or enhanced within the Northern Receptor Site (NRS) and Southern Receptor Site (NRS) as shown in Drawing 2: G6741.07.001 GCN Mitigation Strategy.
- 4.5 One hibernacula will be created in close association with each new pond. The location of each hibernacula will be micro-sited so that it will not be impacted on in the future and away from public access routes. Log piles will be created within woodland during routine management.
- 4.6 Aquatic habitat creation works must be undertaken at least six months (ideally a year) in advance of any amphibians being translocated.

### Habitat Management Strategy

- 4.7 The Habitat Management Strategy during the pre-construction phase will focus on enhancing the two GCN receptor sites and areas of retained woodland. The Strategy will include the following management operations:

#### Aquatic habitats (GCN mitigation ponds - existing, enhanced and newly created)

- The GCN mitigation ponds will be visually inspected on a monthly basis and any debris or rubbish will be removed. However, in the event that soft pliable debris is noted within the water during the period April to August inclusive, these items will be left in situ as they may potentially support amphibian eggs. Water quality will be visually monitored during these inspections for any signs of pollutants (e.g. scum, excessive algal growth and discolouration) and invasive species. Remedial actions will be implemented accordingly. The advice of an ecologist will be sought, where remedial actions may significantly affect the ecology of the pond.
- Planting of marginal plants suitable for newt egg laying, and the use of artificial egg laying strips, should there be insufficient vegetation in years 1 and 2 following pond creation
- Monitor for the presence of non-native plant species annually during June and immediately remove any found to be present.
- Monitor for the presence of fish in GCN ponds annually in June. If found, fish removal will be implemented in accordance with current best practice.

At the time of writing, guidance set out by Amphibian and Reptile Conservation is the most relevant (Fish Control Methods for Great Crested Newt Conservation, September 2010). The first option for fish removal will include draining down ponds in winter and leaving them to dry to remove fish. This may be combined with trapping or electrofishing, during the dormant period during late autumn or early spring.

- Ongoing checks for pollution incidents.

#### Terrestrial habitats

- Existing woodland will be retained and will provide wildlife corridors important for ecological connectivity and opportunities for foraging and refuge.
- Amphibian refuge features/hibernacula are to be maintained in a viable condition so as to provide shelter and winter refuge for amphibians.
- In the event the condition of the refuge feature/hibernacula deteriorates to a point that maintenance cannot ensure its viability, a new refuge feature will be recreated nearby. The existing refuge feature will be maintained in situ in its existing condition; if this is not desirable, an ecologist licensed to handle great crested newts will supervise the dismantling of the non-functioning refuge feature.

#### Monitoring

- 4.8 Monitoring will be undertaken using eDNA sampling, initially of all GCN mitigation ponds and other ponds which could potentially be colonised from the receptor sites through dispersal. Any evidence of common toad observed when the eDNA samples are taken will also be recorded.
- 4.9 The aim of the eDNA sampling is to identify when ponds have been colonised by GCN. Once GCN presence has been established, population size class assessments will be undertaken every other year (biennially) to monitor any increases or decreases in the population size class.
- 4.10 The use of traditional survey methods from population size class assessment surveys will also record other amphibian species in these years, including common toad.

## 5.0 Golf Resort Construction Phase

- 5.1 This Phase covers the demolition of marked existing buildings and the construction of the golf course, hotel, clubhouse, academy (adventure golf course and practice golf course areas delayed until after the Ryder Cup Tournament), works to Mill Dam, on-site and off-site highway infrastructure and some green infrastructure works.
- 5.2 Management of this Phase will focus on the protection of the landscape and will be under the jurisdiction of the Interim Construction and Environmental Management Plan (CEMP) in-line with the Management Strategies within the overarching LHMP.
- 5.3 The CEMP will detail measures of working to avoid, minimise and mitigate potentially adverse effects on the environment in-line with commitments outlined in the Environmental Statement (ES) Volume Two: Environmental Assessments (May 2017) and EPS Licence Method Statements i.e. embedded mitigation measures.
- 5.4 This Phase will be completed prior to the commencement of the Ryder Cup, allowing for a sufficient lead-in period with an operational course.

### **Licensing**

- 5.5 Advance habitat creation will already have been undertaken so the construction phase will focus on mitigation (capture and exclusion of GCN) and the management of created and retained habitats.
- 5.6 The principles of mitigation to be included within the licence are:
- Advance aquatic habitat creation and enhancement in and around the NRS and SRS which will have already been created during pre-construction management operations;
  - Partial enclosure of the NRS and SRS in semi-permanent one way fencing;
  - Pitfall and/or aquatic trapping of GCN from areas of the site where capture methods are likely to be both proportionate and productive;
  - Concentration of the populations of GCN north and south of the A6 in retained habitats in the NRS and SRS to build two sustainable populations; and
  - Drain down and destruction of GCN ponds to be lost over winter.
- 5.7 Other amphibians incidentally captured under the licence will also be translocated to the receptor sites. Drain down of ponds where GCN have not been found will be undertaken over winter where reasonably practicable.

### Impact Assessment

- 5.8 Earthworks to create the golf course would kill/injure GCN and common toad across development areas north and south of the A6 in the absence of mitigation. Given the assumed small populations in the ponds where GCN have been identified, losses of individuals could leave any residual populations within the retained areas vulnerable.

- 5.9 Construction will result in the loss of three ponds north of the A6 (ponds 71, 72, 73), and two ponds south of the A6 (ponds 44 & 60). Pond 61 will, at some point, become isolated within residential development in the Dearden's Farm area, and Pond 29 will be lost to the future staging of the Ryder Cup Tournament, before being reinstated.
- 5.10 In the absence of mitigation this construction activity would result in the loss of GCN ponds 71, 72, the functional loss through isolation of GCN pond 61, the temporary loss of pond 29 before the Ryder Cup Tournament and the loss of common toad breeding pond P73.
- 5.11 The predicted impacts of construction in the absence of mitigation are set out below and are shown on the appended Drawings 3-6:
- Ponds impacts (G5136.042A)
  - Disturbed grassland 122.029ha (G5136.034 grassland loss)
  - Lost grassland 47.57ha (G5136.034 grassland loss)
  - Lost woodland 12.27ha (G5136.036 woodland loss)
  - Hedgerow loss 2,908m (G5136.036 hedges lost and retained)
- 5.12 The majority of the impacts involve the disturbance of existing grassland habitats to allow for the remodelling of the site, with the grassland reinstated as either wildflower grassland or as areas to be managed as a golf course. Overall the proportion of wildflower grassland reinstated as part of the development will be a significant increase, in terms of both area and terrestrial amphibian habitat quality, on what is currently on site.
- 5.13 The lost habitats above cover impacts from all phases throughout development. There is also a risk that hard development (construction of infrastructure, hardstanding and buildings) would result in the loss of connectivity in discrete parts of the site during construction of the golf course.

#### *Summary*

- 5.14 In the absence of mitigation it is expected that the populations of GCN and common toad would become more vulnerable to extinction due to the losses and modification of habitats across the site, and loss of individuals during construction works.

#### Habitat Creation/Compensation

- 5.15 The habitat creation proposals are shown on Drawing 7: GCN Habitat Creation and include:
- Creation of 18 ponds (including mitigating on a 2:1 creation:loss ratio for all ponds lost). The area of created ponds (including lakes) will be 3.83ha.
  - Several waterbodies will be enhanced by dredging/desilting covering 2.3ha.
  - Wildflower grassland (far rough) reseeding 33.44ha
  - Wildflower grassland (conservation) reseeding 24.17ha
  - New woodland planting 10.47ha
  - Hedgerow Planting 4335m

- 5.16 The aquatic habitat creation will result in replacement of lost waterbodies at least at the 2:1 ratio for lost ponds, and will provide replacement breeding sites both north and south of the A6. The 2:1 pond replacement ratio does not include the large ponds created as features of the golf course, and relates only to the provision of GCN mitigation ponds.
- 5.17 GCN mitigation ponds will be at least 100m<sup>2</sup> in surface area, and the larger ponds/lakes created around the golf course will provide larger, deeper waterbodies more favoured by common toad. Management will focus on the function of the ponds.
- 5.18 Disturbed grassland habitats will be replaced by the managed golf course areas and the conservation grassland areas which will comprise wildflower grassland managed for wildlife.
- 5.19 Management and maintenance of aquatic and terrestrial habitats will be a continuous requirement through all phases of development

### Mitigation

#### *Use of New Licensing Policies*

- 5.20 Discussions have been held with Natural England over the potential use of the new licensing policies and that the development will result in a net gain of aquatic and terrestrial habitats across the Hulton Park site. A discussion on the policy wording, and how we propose to use these policies, is set out below. It is propose to seek agreement from Natural England over the proposals in relation to GCN through the Discretionary Advice Service (DAS) at key stages of the development. A DAS request for further advice was submitted to Natural England in December 2017.
- 5.21 New Licensing Policy 1 (NLP1) allows greater flexibility when excluding and relocating GCN from development sites.
- 5.22 Defra considers that compensation for impacts on GCN can be delivered without the need to relocate or exclude populations, where: exclusion or relocation measures are not necessary to maintain the conservation status of the local population; the avoid-mitigate-compensate hierarchy is followed; and compensation provides greater benefits to the local population than would exclusion and/or relocation.
- 5.23 New Licensing Policy 2 (NLP2) allows flexibility in the location of newly created habitats that compensate for habitats that will be lost.
- 5.24 If the licensing tests are met and the avoid-mitigate-compensate hierarchy is followed, off-site compensation measures may be preferred to on-site compensation measures, where there are good reasons for maximising development on the site of EPS impacts, and where an off-site solution provides greater benefit to the local population than an on-site solution.
- 5.25 The GCN survey data shows that GCN are likely to be present in three metapopulations across the site but that individual ponds support very low numbers. This conclusion is based on the surveys finding GCN eDNA in ponds, but not finding adults during the repeated surveys using more traditional methods.

- 5.26 It is not considered, therefore, that NLP1 could be used to the extent that no trapping or translocation is proposed, as sufficient GCN need to be protected throughout the development to ensure that the wider population remains viable and can then expand to colonise the compensatory habitat. Different approaches are proposed for GCN north and south of the A6 as the impacts are higher in the north including the loss of both GCN breeding ponds.
- 5.27 Given the extent of habitat being created throughout the development time frame, it is not considered necessary to use NLP2 as the onsite solution is likely to provide a greater benefit than any offsite solution could do.

*Mitigation Strategy North of the A6*

- 5.28 The mitigation strategy north of the A6 is shown in Drawing 2: GCN Mitigation Strategy.
- 5.29 Following the creation of the ponds within the NRS during the pre-construction phase, exclusion fencing will be installed and a capture and exclusion exercise will be undertaken during the spring migration. Ring fencing will surround ponds to be lost with pitfall traps positioned to capture amphibians migrating to breed. Pitfall trapping will be undertaken in suitable habitats within 250m of ponds P71 and P72.
- 5.30 Captured individuals will be translocated to the receptor ponds within the NRS.
- 5.31 GCN which breed in ponds P71 and P72 are likely to overwinter in the woodland offsite to the east, so pitfall traps may also be needed on the outside of the exclusion fencing here to intercept amphibians moving from the woodland to the breeding ponds.
- 5.32 Pond P70 will be enhanced by selective thinning of over shading scrub along its western and southern boundary, and by deepening over winter so that it is a more permanent feature. This will provide an enhanced water body on the east of the new development for any GCN that are not translocated to the receptor site during the trapping.
- 5.33 Ultimately, the creation of breeding ponds in an arc around the golf course areas north of the A6 will retain connectivity across this area. New woodland planting will strengthen this corridor.

*Mitigation Strategy South of the A6*

- 5.34 The mitigation strategy south of the A6 is shown in Drawing 2: GCN Mitigation Strategy.
- 5.35 P44 is to be lost to the south of the A6 to construction of the golf course. There are thought to be two metapopulations of GCN in the south, both with small populations. Metapopulation 2 is centred on ponds P29, P36, P38 and P65 and woodland between these ponds. Metapopulation 3 is the single isolated population within pond P61.

- 5.36 Although an eDNA positive result was returned from pond P47, this is a large, heavily silted lake which appears unfavourable for GCN breeding and contains fish. Mill Dam Stream runs through P47 so eDNA could have flowed into the waterbody or GCN may have been foraging within it. Hand searches will be carried out of suitable habitats under the licence in advance of any works around P47 and the Mill Dam, with any GCN captured moved to the SRS.
- 5.37 It is necessary to propose a proportionate mitigation strategy for the GCN metapopulations south of the A6. The strategy proposes the creation of the SRS around Rawsthorne Wood, Belgrave Spinney, and Dog Kennel Wood, which includes GCN ponds P36, P38, and P65.
- 5.38 A one way semi-permanent amphibian fence will be installed to partially enclose the SRS, which will remain open to the south to allow dispersal into and out of New Park Wood. The one way fence will allow amphibians outside the reserve to enter it, but will not allow dispersal in the other direction.
- 5.39 Pitfall trapping of areas outside the SRS will be carried out to increase the population of GCN within it, and this will be done in selective areas where capture success is likely to be high.
- 5.40 P29 will be temporarily lost to the golf event / tournament phase and reinstated within two years of completion of the Ryder Cup Tournament. P61 is to be functionally lost in the residential phase as it will become isolated within development at some point. The impacts on P29 and P61 are being mitigated within the construction phase to concentrate the population within the SRS and to avoid leaving isolated vulnerable populations around the site. Ring fencing of ponds P29 and P61 and selective use of drift fencing on woodland edges near to GCN ponds will be undertaken to capture GCN during the spring dispersal period.
- 5.41 The aim is to increase the number of individuals within the SRS and provide optimal breeding habitats to enable the population to increase whilst being protected during construction.
- 5.42 English Nature Research Report 576<sup>1</sup> on the efficiency of GCN capture found that by far the most captures were recorded within 50m of ponds and few animals were captured at distances greater than 100m.
- 5.43 Given the small populations present (only GCN eDNA was found south of the A6) we are not proposing to trap beyond 100m from any GCN pond south of the A6 and will only undertake trapping within 100m if the habitats indicate that GCN capture is likely.
- 5.44 It is acknowledged that GCN may be present in habitats beyond 100m, but we consider that the solution outlined above is preferable to widespread fencing and trapping across the site, which may only yield a small number of GCN. Effectively, therefore, we are proposing a slightly reduced trapping and translocation strategy under NLP1 with the habitat creation providing the base for amphibian populations to expand both during and after the development.

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<sup>1</sup> An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt *Triturus cristatus*. Warren Cresswell and Rhiannon Whitworth

## Habitat Management Strategy

5.45 The habitat management principles set out for the pre-construction phase will continue throughout the construction phase. The created habitats, particularly the ponds, will mature during construction so additional management principles will be required during the construction phase.

5.46 These are:

### Aquatic Habitat (GCN Ponds)

- Maintenance of amphibian fencing around the NRS and SRS
- The GCN mitigation ponds will be visually inspected on a monthly basis and any debris or rubbish will be removed. However, in the event that soft pliable debris is noted within the water during the period April to August inclusive, these items will be left in situ as they may potentially support amphibian eggs. Water quality will be visually monitored during these inspections for any signs of pollutants (e.g. scum, excessive algal growth and discolouration) and invasive species. Remedial actions will be implemented accordingly. The advice of an ecologist will be sought if required, if remedial actions may significantly affect the ecology of the pond.
- Monitor for the presence of non-native plant species annually during June and immediately remove any found to be present.
- Monitor for the presence of fish in GCN ponds annually in June. If found, fish removal will be implemented in accordance with current best practice. At the time writing, guidance set out by Amphibian and Reptile Conservation is the most relevant (Fish Control Methods for Great Crested Newt Conservation, September 2010). The first option for fish removal will include draining down ponds in winter and leaving them to dry to remove fish. This may be combined with trapping or electrofishing, during the dormant period during late autumn or early spring.
- Ongoing checks for pollution incidents.
- Maintenance of marginal vegetation will include strimming/cutting back invasive species (particularly Reed, Bulrush and Reed Sweet Grass) to 150mm to prevent them from encroaching upon areas of open water and regular removal of dead vegetation and litter, which leads to reed beds drying out and loss of habitat through natural succession.
- It is important that cutting does not take place over the entire basin area, and should therefore be cut in alternate sections on annual rotation leaving uncut areas as refuge for wildlife.
- Aquatic vegetation will be removed annually to retain between 30% and 60% of open water.

### Aquatic Habitats (Existing and created ponds, excluding GCN mitigation ponds)

5.47 During construction, in addition to the retained waterbodies, several additional waterbodies will be created with others disturbed and/or enhanced. The management principles for these waterbodies will be different to those created for great crested newt as they will be managed for aesthetic value and for general wildlife rather than specifically for GCN:

- Monitor for the presence of non-native plant species annually during June and immediately remove any found to be present.
- Ongoing checks for pollution incidents.
- Maintenance of marginal vegetation will include strimming/cutting back invasive species (particularly Reed, Bulrush and Reed Sweet Grass) to 150mm to prevent them from encroaching upon areas of open water and regular removal of dead vegetation and litter, which leads to reed beds drying out and loss of habitat through natural succession.
- It is important that cutting does not take place over the entire basin area, and should therefore be cut in alternate sections on annual rotation leaving uncut areas as refuge for wildlife.
- Aquatic vegetation will be removed annually to retain between 30% and 60% of open water.
- Fish will not be removed from these ponds, it is anticipated that the larger waterbodies may be colonised by fish and that these ponds will offer optimal habitats for common toad. Common toad is poisonous to fish at all stages of the toad life-cycle.

### Terrestrial habitats

- Mowing/cutting of grassland in areas where GCN have been translocated must be undertaken with flail cutters/mowers set to retain vegetation at a height at a minimum 150mm in order to prevent any risk to amphibians that may be present within the grasslands
- Existing woodland will be retained and will provide wildlife corridors important for ecological connectivity and opportunities for foraging and refuge.
- Woodland management practices should be undertaken over winter where possible and when using machinery should aim to avoid large/heavy machinery which would result in ground disturbance
- Wood greater than 250 mm diameter removed during routine management will be logged and used to create deadwood piles to increase biodiversity.
- Amphibian refuge features/hibernacula are to be maintained in a viable condition so as to function to provide shelter and winter refuge to amphibians.
- In the event the condition of the refuge feature/hibernacula deteriorates to a point that maintenance cannot ensure its viability, a new refuge feature will be recreated nearby. The existing refuge feature will be maintained in situ in its existing condition; if this is not desirable, an ecologist licensed to handle great crested newts will supervise the dismantling of the non-functioning refuge feature.

- 5.48 The eDNA/traditional survey method approach will continue throughout the construction phase. Any evidence of common toad observed when the eDNA samples are taken would also be recorded. The use of traditional survey methods from populations will also record other amphibian species in these years including common toad.
- 5.49 Once construction works are complete, the amphibian fencing will be removed to allow amphibians to disperse across the site.

## 6.0 Golf Resort Post-Construction (Habitat Management) Phase

- 6.1 During this phase, landscape improvement works have been completed and all habitats, will be managed under this LHMP. Tees, greens, fairways and semi-rough will be managed for golf, but observing the ecology constraints outlined in Chapter 7.0.
- 6.2 Post-construction, all amphibian fencing will have been removed, allowing GCN and common toad to disperse across the completed golf course.
- 6.3 Following construction, and assuming the population has risen within the reserve, it is proposed to translocate eggs to newly created or enhanced ponds. Habitat Suitability Index Assessments of existing ponds will be used to identify factors that are reducing suitability for GCN breeding to enhance the pond network across the site. GCN eggs will only be moved to GCN ponds with a HSI score of good >0.7 and any ponds receiving eggs will be incorporated into the eDNA then traditional survey monitoring programme.
- 6.4 An ongoing programme of pond enhancement and creation will assist natural colonisation from amphibians that have remained within the retained areas of woodland or those which disperse into these areas from elsewhere on site. Indicative locations for pond creation are shown on Drawing 7 with ponds being created until 2040.

### Licensing

- 6.5 The GCN licence is expected to be valid for a period of between 4-6 years following completion of construction. No licensable activities other than monitoring and translocation of eggs are expected within the post construction phase.

### Habitat Management Strategy

- 6.6 Habitat Management works will be broadly similar to those during construction. These will be:

#### Aquatic Habit (GCN Ponds)

- The GCN mitigation ponds will be visually inspected on a monthly basis and any debris or rubbish will be removed. However, in the event that soft pliable debris is noted within the water during the period April to August inclusive, these items will be left in situ as they may potentially support amphibian eggs. Water quality will be visually monitored during these inspections for any signs of pollutants (e.g. scum, excessive algal growth and discolouration) and invasive species. Remedial actions will be implemented accordingly. The advice of an ecologist will be sought if required, if remedial actions may significantly affect the ecology of the pond.
- Monitor for the presence of non-native plant species annually during June and immediately remove any found to be present.

- Monitor for the presence of fish in GCN ponds annually in June. If found, fish removal will be implemented in accordance with current best practice. At the time writing, guidance set out by Amphibian and Reptile Conservation is the most relevant (Fish Control Methods for Great Crested Newt Conservation, September 2010). The first option for fish removal will include draining down ponds in winter and leaving them to dry to remove fish. This may be combined with trapping or electrofishing, during the dormant period during late autumn or early spring.
- Ongoing checks for pollution incidents.
- Maintenance of marginal vegetation will include strimming/cutting back invasive species (particularly Reed, Bulrush and Reed Sweet Grass) to 150mm to prevent them from encroaching upon areas of open water and regular removal of dead vegetation and litter, which leads to reed beds drying out and loss of habitat through natural succession.
- It is important that cutting does not take place over the entire basin area, and should therefore be cut in alternate sections on annual rotation leaving uncut areas as refuge for wildlife.
- Aquatic vegetation will be removed annually to retain between 30% and 60% of open water.

#### Aquatic Habitats (Existing and created ponds)

6.7 The management principles for these waterbodies will be different to those created for great crested newt as they will be managed for aesthetic value and for general wildlife rather than specifically for GCN:

- Monitor for the presence of non-native plant species annually during June and immediately remove any found to be present.
- Ongoing checks for pollution incidents.
- Maintenance of marginal vegetation will include strimming/cutting back invasive species (particularly Reed, Bulrush and Reed Sweet Grass) to 150mm to prevent them from encroaching upon areas of open water and regular removal of dead vegetation and litter, which leads to reed beds drying out and loss of habitat through natural succession.
- It is important that cutting does not take place over the entire basin area, and should therefore be cut in alternate sections on annual rotation leaving uncut areas as refuge for wildlife.
- Aquatic vegetation will be removed annually to retain between 30% and 60% of open water.
- Fish will not be removed from these ponds, it is anticipated that the larger waterbodies will be colonised by fish and that these will offer optimal habitats for common toad.

#### Terrestrial habitats

- Mowing/cutting of grassland in areas where GCN have been translocated must be undertaken with flail cutters/mowers set to retain vegetation at a height at a minimum 150mm in order to prevent any risk to amphibians that may be present within the grasslands

- Existing woodland will be retained and will provide wildlife corridors important for ecological connectivity and opportunities for foraging and refuge.
- Woodland management practices should be undertaken over winter where possible and when using machinery should aim to avoid large/heavy machinery which would result in ground disturbance
- Wood greater than 250 mm diameter removed during routine management will be logged and used to create deadwood piles to increase biodiversity.
- Amphibian refuge features/hibernacula are to be maintained in a viable condition so as to function to provide shelter and winter refuge to amphibians.
- In the event the condition of the refuge feature/hibernacula deteriorates to a point that maintenance cannot ensure its viability, a new refuge feature will be recreated nearby. The existing refuge feature will be maintained in situ in its existing condition; if this is not desirable, an ecologist licensed to handle great crested newts will supervise the dismantling of the non-functioning refuge feature.

#### Monitoring

- 6.8 Monitoring will continue to use eDNA sampling on ponds where GCN presence is yet to be determined, and population size class assessments at ponds where GCN presence has been proven.
- 6.9 The use of traditional survey methods from populations will also record other amphibian species in these years including common toad.

## 7.0 Golf Resort Post-Construction (Golf Course Management) Phase

- 7.1 This Phase considers management following adoption of the golf course (i.e. the tees, greens, fairways and semi-rough) which will thereafter be subject to specialist golf course management and but will observe any ecological or arboricultural constraints identified in the LHMP.
- 7.2 There are not predicted to be any impacts on amphibians from the grassland management, and amphibians will be able to disperse across the intensively managed area.
- 7.3 The use of fertilisers will be avoided under the management of the golf course, in areas where runoff could enter ponds created or managed specifically for amphibians.

## 8.0 Golf Event / Tournament Phase

- 8.1 This Phase covers the commissioning, operation and decommissioning of the Ryder Cup Tournament and management of the landscape will fall under the jurisdiction of the Event and Travel Management Plan (ETMP) in-line with the Management Strategies within this LHMP.
- 8.2 It is anticipated that the construction of the temporary facilities, which will include hospitality pavilions, on-site parking, facilities for world-wide media coverage, and spectator grandstands will take approximately 100 to 120 days. The Ryder Cup Tournament would then be hosted for one week. The temporary facilities will then be decommissioned which will take approximately 42 to 84 days.

### Licensing

- 8.3 The principles of avoid-mitigate-compensate will be followed for the golf event / tournament phase in areas where GCN are expected to be present. It is anticipated that management of habitats to make them temporarily less suitable for GCN will reduce the impact of GCN to a level where licensing is not necessary.
- 8.4 Natural England will be consulted on the proposals, which will consider the survey data across the whole site. If mitigation and compensation are necessary, and a licence is required, this will be applied for over the winter prior to the commencement of the Ryder Cup Tournament so the licence is in place in advance of any works.

If a licence including amphibian fencing is required this will need to consider the residential phase as some of the habitats lost during the Ryder Cup Tournament (e.g. the spectator village and TV compound) will be built upon after the competition has finished.

### Habitat Management Strategy

- 8.5 Habitat management will be used to make areas of the site impacted by the Ryder Cup Tournament event phase less suitable for amphibians and to protect key areas of the site to prevent trampling/public access.
- 8.6 A toolbox talk will be given to contractors before works commence to set out working areas and areas of restricted access, amphibian ID, and any reasonable avoidance measures.
- 8.7 These measures will include:
- Ensuring grassland in areas with public access or temporary structures is regularly mown so that a maximum sward height of 50mm is maintained from the beginning of the vegetation growing season in the year in which the tournament is to be held until tournament decommissioning is complete;
  - Fencing off GCN waterbodies with Heras or site perimeter fencing to allow amphibian dispersal through the fencing but preventing human interference;
  - Restriction of public access from conservation grassland around GCN ponds;

- Temporary roads or trackways to be constructed to avoid creating barriers to amphibian dispersal
- Avoiding the creation of piles of rubble/debris/materials during decommissioning which is during the time of year when amphibians will be seeking hibernation habitats.

8.8 Management of terrestrial and aquatic habitats from previous phases will continue during the golf event / tournament phase:

Aquatic Habit (GCN Ponds)

- The GCN mitigation ponds will be visually inspected on a monthly basis and any debris or rubbish will be removed. However, in the event that soft pliable debris is noted within the water during the period April to August inclusive, these items will be left in situ as they may potentially support amphibian eggs. Water quality will be visually monitored during these inspections for any signs of pollutants (e.g. scum, excessive algal growth and discolouration) and invasive species. Remedial actions will be implemented accordingly. The advice of an ecologist will be sought if required, if remedial actions may significantly affect the ecology of the pond.
- Monitor for the presence of non-native plant species annually during June and immediately remove any found to be present.
- Monitor for the presence of fish in GCN ponds annually in June. If found, fish removal will be implemented in accordance with current best practice. At the time writing, guidance set out by Amphibian and Reptile Conservation is the most relevant (Fish Control Methods for Great Crested Newt Conservation, September 2010). The first option for fish removal will include draining down ponds in winter and leaving them to dry to remove fish. This may be combined with trapping or electrofishing, during the dormant period during late autumn or early spring.
- Ongoing checks for pollution incidents.
- Maintenance of marginal vegetation will include strimming/cutting back invasive species (particularly Reed, Bulrush and Reed Sweet Grass) to 150mm to prevent them from encroaching upon areas of open water and regular removal of dead vegetation and litter, which leads to reed beds drying out and loss of habitat through natural succession.
- It is important that cutting does not take place over the entire basin area, and should therefore be cut in alternate sections on annual rotation leaving uncut areas as refuge for wildlife.
- Aquatic vegetation will be removed annually to retain between 30% and 60% of open water.

Aquatic Habitats (Existing and created ponds, excluding GCN mitigation ponds)

8.9 The management principles for these waterbodies will be different to those created for great crested newt as they will be managed for aesthetic value and for general wildlife rather than specifically for GCN:

- Monitor for the presence of non-native plant species annually during June and immediately remove any found to be present.
- Ongoing checks for pollution incidents.
- Maintenance of marginal vegetation will include strimming/cutting back invasive species (particularly Reed, Bulrush and Reed Sweet Grass) to 150mm to prevent them from encroaching upon areas of open water and regular removal of dead vegetation and litter, which leads to reed beds drying out and loss of habitat through natural succession.
- It is important that cutting does not take place over the entire basin area, and should therefore be cut in alternate sections on annual rotation leaving uncut areas as refuge for wildlife.
- Aquatic vegetation will be removed annually to retain between 30% and 60% of open water.
- Fish will not be removed from these ponds, it is anticipated that the larger waterbodies will be colonised by fish and that these will offer optimal habitats for common toad.

#### Terrestrial habitats

- Mowing/cutting of grassland in areas where GCN have been translocated must be undertaken with flail cutters/mowers set to retain vegetation at a height at a minimum 150mm in order to prevent any risk to amphibians that may be present within the grasslands
- Existing woodland will be retained and will provide wildlife corridors important for ecological connectivity and opportunities for foraging and refuge.
- Woodland management practices should be undertaken over winter where possible and when using machinery should aim to avoid large/heavy machinery which would result in ground disturbance
- Wood greater than 250 mm diameter removed during routine management will be logged and used to create deadwood piles to increase biodiversity.
- Amphibian refuge features/hibernacula are to be maintained in a viable condition so as to function to provide shelter and winter refuge to amphibians.
- In the event the condition of the refuge feature/hibernacula deteriorates to a point that maintenance cannot ensure its viability, a new refuge feature will be recreated nearby. The existing refuge feature will be maintained in situ in its existing condition; if this is not desirable, an ecologist licensed to handle great crested newts will supervise the dismantling of the non-functioning refuge feature.

8.10 Within two years of the decommissioning of the Ryder Cup Tournament infrastructure, pond P29 will be reinstated and 4 new ponds will be created along the southern site boundary adjacent to the areas of open grassland/sports fields. These ponds will ensure connectivity is retained to the west and will provide stepping stone ponds linking to the GCN ponds in the Southern Receptor Site.

### Monitoring

- 8.11 Population monitoring will continue during the golf event / tournament phase and for a minimum period of 4 years post event completion. Monitoring in the year following the tournament will be in the form of a full population size class assessment of all confirmed GCN ponds to give an early indication of any impact on GCN as a result of the tournament.

## 9.0 Residential Phase

- 9.1 This Phase covers the construction of the residential development plots at Park End Farm, Dearden's Farm and Western Fields. This Phase will run parallel to the construction of the golf course, with partial completion of residential development at each location prior to the Ryder Cup Tournament; this excludes the southern extent of Western Fields, which will be used as a location for temporary facilities for the Ryder Cup Tournament. The development of the southern extent of Western Fields will commence following the Ryder Cup Tournament.
- 9.2 The management of the landscape would fall under the jurisdiction of the CEMP until after practical completion and the maintenance liability period when it will fall under an updated LHMP as part of reserved matters conditioned for each plot.
- 9.3 It is anticipated that all project development will be completed by 2040/41.

### **Licensing**

- 9.4 The GCN strategy set out within section 5.0 considers the losses of the land to the residential parcels. Mitigation and aquatic compensation are to be provided in advance for the isolation of pond P61 to the Dearden's Farm residential phase. GCN will be translocated from this area in advance of the construction phase.
- 9.5 Pond P47, as already discussed, is not considered to be a GCN breeding pond so the Park End Farm development phase, approximately 180m from P47, is predicted to have a negligible impact on GCNs.
- 9.6 The northern extent of Western Fields is over 250m from any GCN breeding pond so has no impacts on GCN; this section may be developed before the Ryder Cup Tournament .
- 9.7 The southern extent of the Western Fields will first be impacted by the golf event / tournament phase before being developed so the need for GCN licences will have been determined before the tournament it hosted in discussion with Natural England.
- 9.8 It is therefore not considered that licensing will be required specifically for the residential phases, with the impacts of the phases largely accounted for in the construction and golf event / tournament phase.

### Fragmentation

- 9.9 One important consideration in the design of the residential phases is the potential for infrastructure to become a barrier to dispersal. As part of each reserved matters application and based on the latest surveys, road and drainage design will consider the need to retain connectivity between habitats.
- 9.10 Natural England advice is to only consider tunnels or underpasses as a last resort, and to aim to design out impacts. If roads between Rawsthorne Wood and Belgrave Spinney are unavoidable they will be designed to permit amphibian movement.

- 9.11 If roads in this location are likely to be busy and used at night, tunnels or underpasses with permanent guide fencing will be used to permit movement beneath the road. If roads are likely to have low usage, particularly at night, dropped kerbs will be used to permit dispersal across the road and gully pot drainage systems will be not be used to avoid incidental capture.
- 9.12 There are currently no known offsite GCN populations within dispersal range of the populations at Hulton Park but, following the decommissioning of the Ryder Cup Tournament infrastructure, additional ponds and terrestrial habitats will be created to form a green link along the southern boundary of the site. This is likely to be created in association with the residential development and will form a corridor between the SRS ponds, New Park Wood and habitats to the west.
- 9.13 The new ponds will provide "stepping stone" breeding habitats enabling amphibians to colonise these areas. Pond P29 will be reinstated as part of these works.

### **Habitat Management Strategy**

- 9.14 The habitat management for the residential phase will largely be a continuation of the post-construction (habitat management) phase. The LHMP will be updated as part of the reserved matters applications so will provide an opportunity to incorporate any amendments including if licensing is required.
- 9.15 A toolbox talk will be given to contractors before works commence to set out working areas and areas of restricted access, amphibian ID, and any reasonable avoidance measures.

### Aquatic Habit (GCN Ponds)

- The GCN mitigation ponds will be visually inspected on a monthly basis and any debris or rubbish will be removed. However, in the event that soft pliable debris is noted within the water during the period April to August inclusive, these items will be left in situ as they may potentially support amphibian eggs. Water quality will be visually monitored during these inspections for any signs of pollutants (e.g. scum, excessive algal growth and discolouration) and invasive species. Remedial actions will be implemented accordingly. The advice of an ecologist will be sought if required, if remedial actions may significantly affect the ecology of the pond.
- Monitor for the presence of non-native plant species annually during June and immediately remove any found to be present.
- Monitor for the presence of fish in GCN ponds annually in June. If found, fish removal will be implemented in accordance with current best practice. At the time writing, guidance set out by Amphibian and Reptile Conservation is the most relevant (Fish Control Methods for Great Crested Newt Conservation, September 2010). The first option for fish removal will include draining down ponds in winter and leaving them to dry to remove fish. This may be combined with trapping or electrofishing, during the dormant period during late autumn or early spring.
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- Aquatic vegetation will be removed annually to retain between 30% and 60% of open water.

#### Aquatic Habitats (Existing and created ponds)

- The management principles for these waterbodies will be different to those created for great crested newt as they will be managed for aesthetic value and for general wildlife rather than specifically for GCN:
- Monitor for the presence of non-native plant species annually during June and immediately remove any found to be present.
- Ongoing checks for pollution incidents.
- Maintenance of marginal vegetation will include strimming/cutting back invasive species (particularly Reed, Bulrush and Reed Sweet Grass) to 150mm to prevent them from encroaching upon areas of open water and regular removal of dead vegetation and litter, which leads to reed beds drying out and loss of habitat through natural succession.
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- Fish will not be removed from these ponds, it is anticipated that the larger waterbodies will be colonised by fish and that these will offer optimal habitats for common toad.

#### Terrestrial habitats

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- Wood greater than 250 mm diameter removed during routine management will be logged and used to create deadwood piles to increase biodiversity.

- Amphibian refuge features/hibernacula are to be maintained in a viable condition so as to function to provide shelter and winter refuge to amphibians.
- In the event the condition of the refuge feature/hibernacula deteriorates to a point that maintenance cannot ensure its viability, a new refuge feature will be recreated nearby. The existing refuge feature will be maintained in situ in its existing condition; if this is not desirable, an ecologist licensed to handle great crested newts will supervise the dismantling of the non-functioning refuge feature.

#### Monitoring

- 9.16 The requirement for monitoring will be dependent on the impacts of the residential phases and the impacts, if any, on the amphibian populations.
- 9.17 Should amphibian tunnels and guide fencing be required, these will need to be maintained and monitored for their effectiveness once installed. The type and duration of monitoring will be dependent on the tunnel design and will be based on the latest evidence on the effectiveness of amphibian tunnels available at the time.

## 10.0 Legal Mechanism

### **S106 Agreement**

- 10.1 A legal mechanism is required to secure the long term habitat management and maintenance in relation to amphibians at Hulton Park. Typically this would be secured via a S106 agreement.

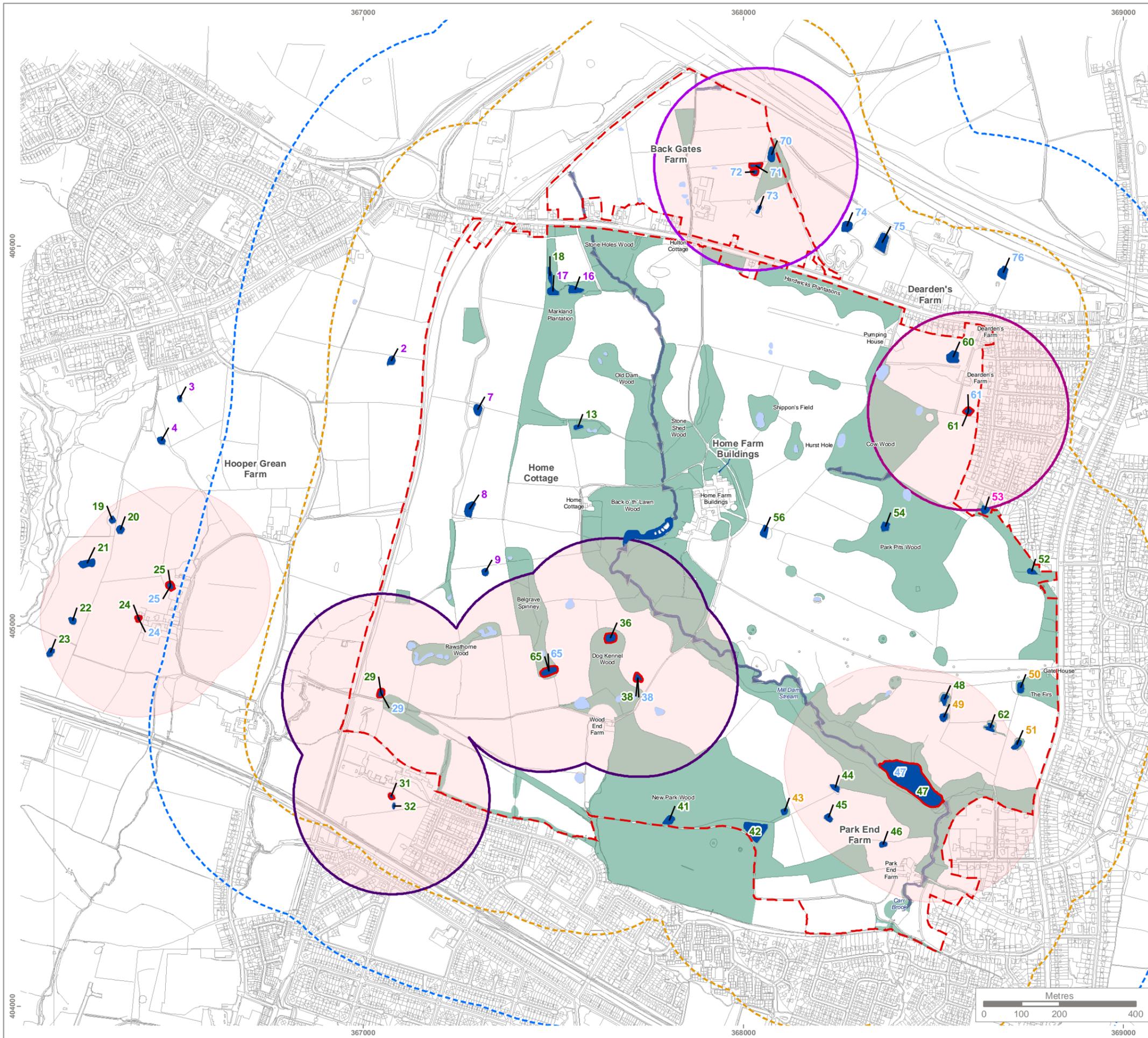
### **NERC Act 2006 Agreement**

- 10.2 Natural England has powers under the Natural Environment and Rural Communities Act 2006 to enter into legal agreements, and this has been done in recent years to legally secure habitat management and maintenance proposals with landowners and management providers.
- 10.3 If, for whatever reason a S106 Agreement is not possible (e.g. could be the changing ownership of various parts of the site over time), a NERC Agreement could be considered under both S7 and S13 of the Act which tie the agreement to the land meaning that compliance with the strategy is enforceable even when parcels are sold for residential development.

## **DRAWINGS**

- Drawing 1 – G6741.07.002 GCN Survey Results**
- Drawing 2 – G6741.07.001 GCN Mitigation Strategy**
- Drawing 3 - G5136.042A: Ponds Created, Enhanced, Disturbed & Lost**
- Drawing 4 - G5136.034 Tree Loss**
- Drawing 5 - G5136.035 Grassland Loss**
- Drawing 6 - G5136.036 Hedgerow Loss**
- Drawing 7 – G6741.07.003 GCN Habitat Creation**



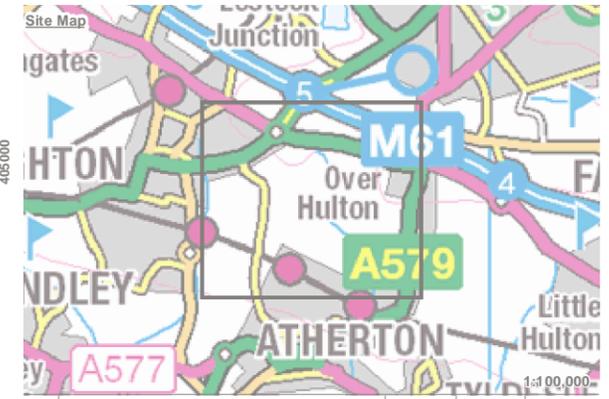


**KEY**

- Proposed Development Site
- 250m Offset from Site Boundary
- 500m Offset from Site Boundary
- Running Water
- Semi-natural Broad-leaved Woodland
- Ponds**
- GCN Pond
- No GCNs Present in Pond
- Ephemeral
- 250m Offset from GCN Ponds
- Metapopulations**
- Metapopulation 1
- Metapopulation 2
- Metapopulation 3



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 Base mapping provided by client



Rev	Description	Drawn	Approved	Date

**THE ENVIRONMENT PARTNERSHIP**

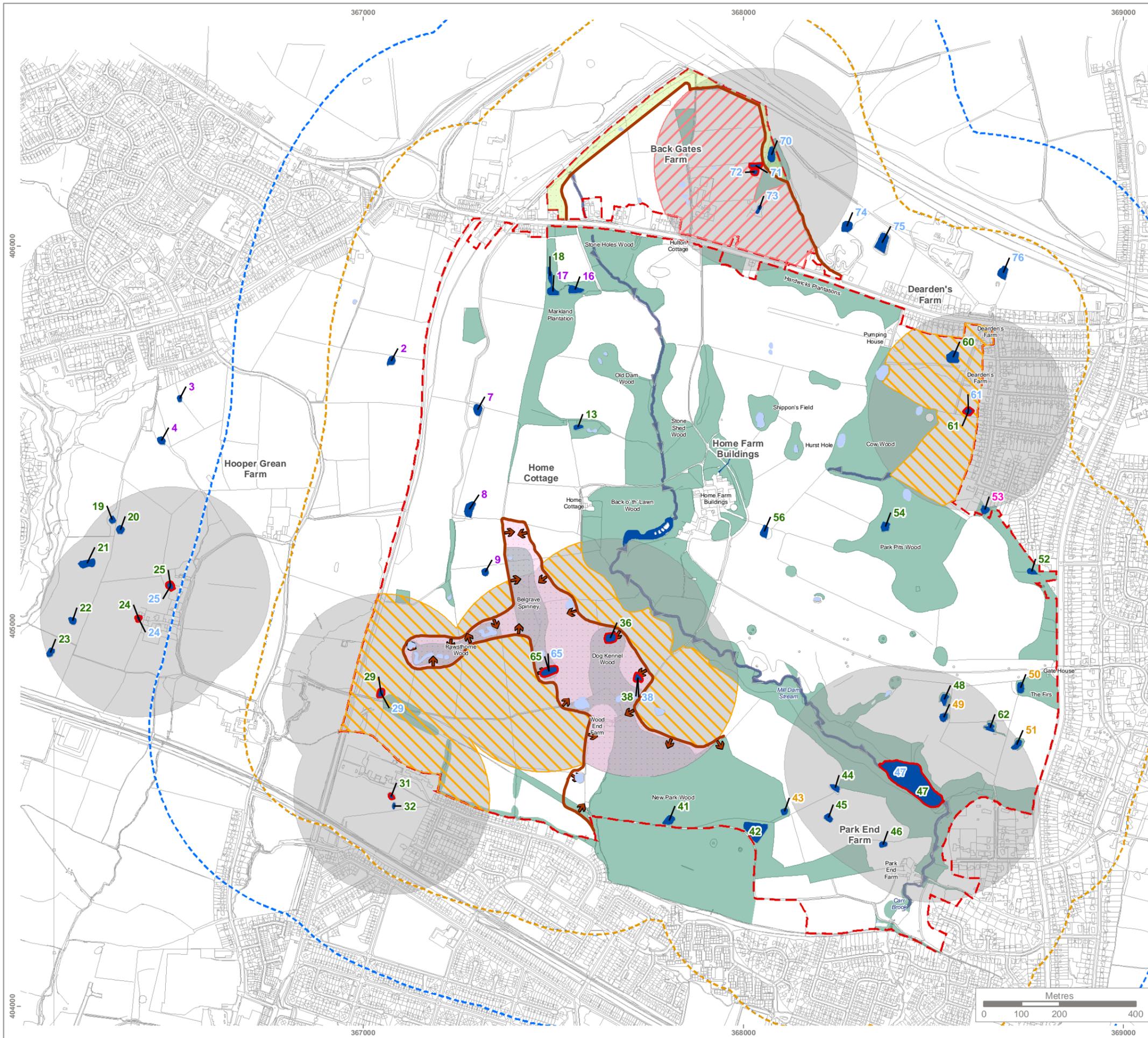
Genesis Centre, Birchwood Science Park, Warrington WA3 7BH  
 Tel 01925 844004 e-mail tep@tep.uk.com www.tep.uk.com

Project  
**Hulton Park, GCN Management Strategy**

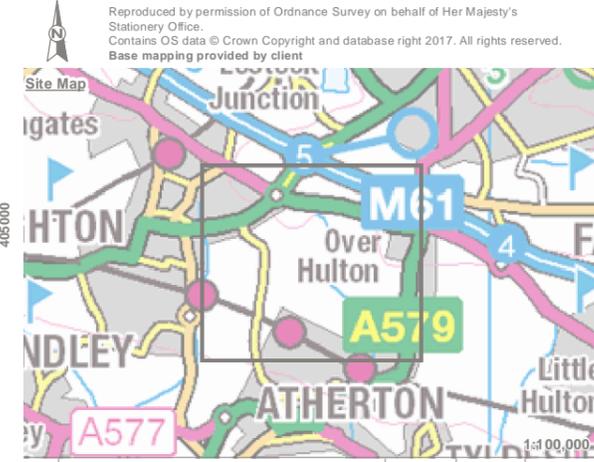
Title  
**GCN Survey Results**

Drawing Number  
**G6741.07.002**

Drawn	Checked	Approved	Scale	Date
MK	DB	DS	1:10,000 @ A3	27/01/2017



- KEY**
- Proposed Development Site
  - 250m Offset from Site Boundary
  - 500m Offset from Site Boundary
  - Running Water
  - Semi-natural Broad-leaved Woodland
- Ponds**
- GCN Pond
  - No GCNs Present in Pond
  - Ephemeral
  - 250m Offset from GCN Ponds
- Receptor Sites**
- Northern Receptor Site (NRS)
  - Southern Receptor Site (SRS)
- Mitigation Strategy**
- Area for Selected Trapping of High Quality Areas Only
  - Expected Trapping within 250m North of A6
  - One-way Amphibian Fence
  - Vertical Amphibian Fence
- Purple Label - eDNA Test 2014  
 Green Label - eDNA Test 2015  
 Pink Label - eDNA Survey 2016  
 Orange Label - Full Amphibian Survey 2015  
 Blue Label - Full Amphibian Survey 2016



Rev	Description	Drawn	Approved	Date

**THE ENVIRONMENT PARTNERSHIP**

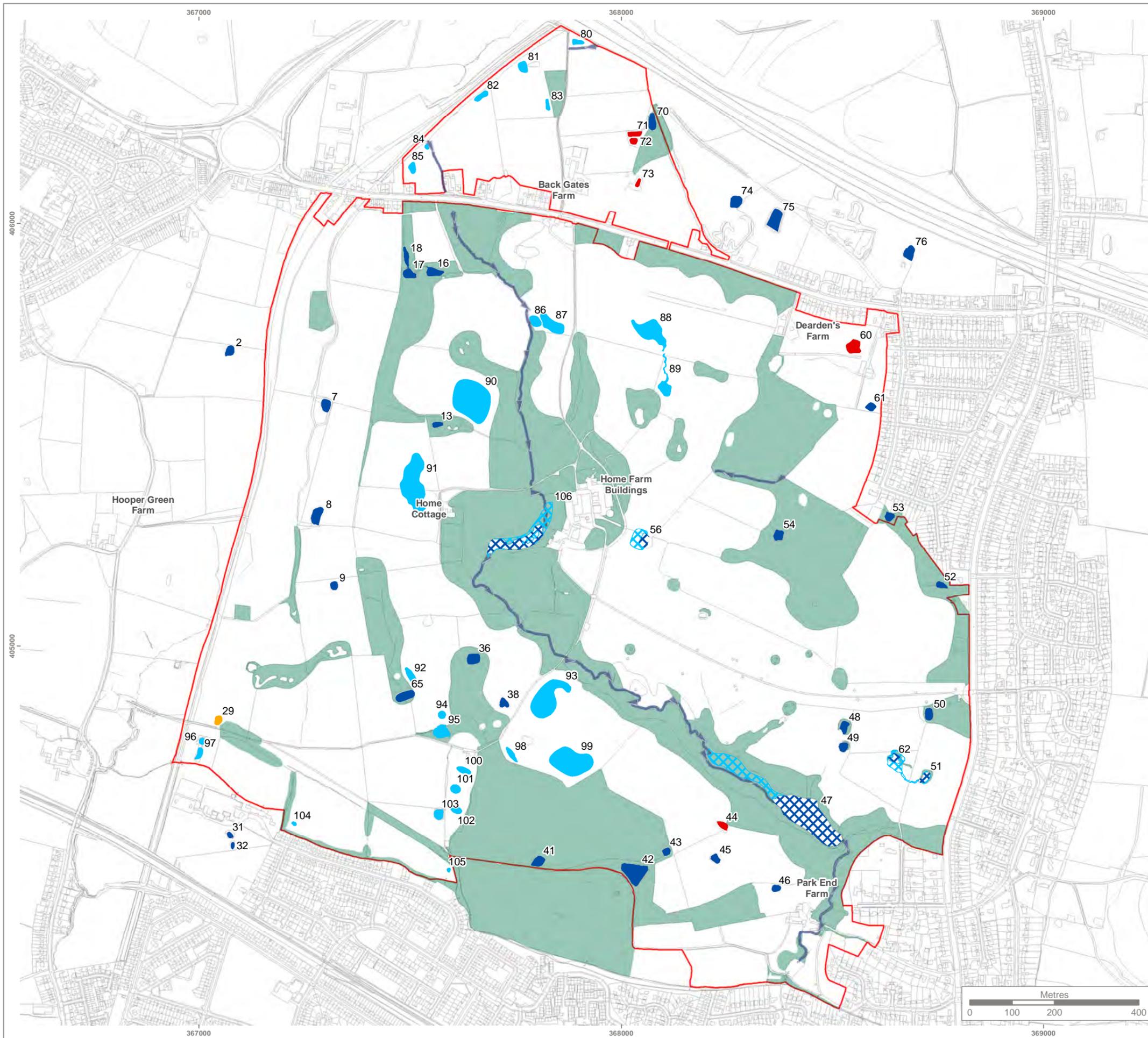
Genesis Centre, Birchwood Science Park, Warrington WA3 7BH  
 Tel 01925 844004 e-mail tep@tep.uk.com www.tep.uk.com

Project  
**Hulton Park, GCN Management Strategy**

Title  
**GCN Mitigation Strategy**

Drawing Number  
**G6741.07.001**

Drawn	Checked	Approved	Scale	Date
MK	DB	DS	1:10,000 @ A3	27/01/2017

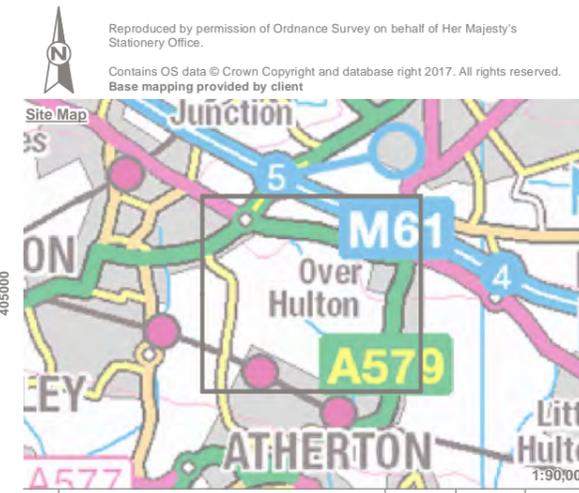


**KEY**

- Proposed Development Site
- Semi-natural Broad-leaved Woodland
- Running Water

**Pond Status**

- Disturbed/Enhanced 13,891m<sup>2</sup>
- Extension 9,162m<sup>2</sup>
- Pond Lost 2,091m<sup>2</sup>
- Pond Lost and Restored 344m<sup>2</sup>
- Pond Created 35,798m<sup>2</sup>
- Pond Retained 19,337m<sup>2</sup>



Rev	Description	Drawn	Approved	Date
A	Pond Update	AP	DCS	19/12/2017

**TEP** | **THE ENVIRONMENT PARTNERSHIP**

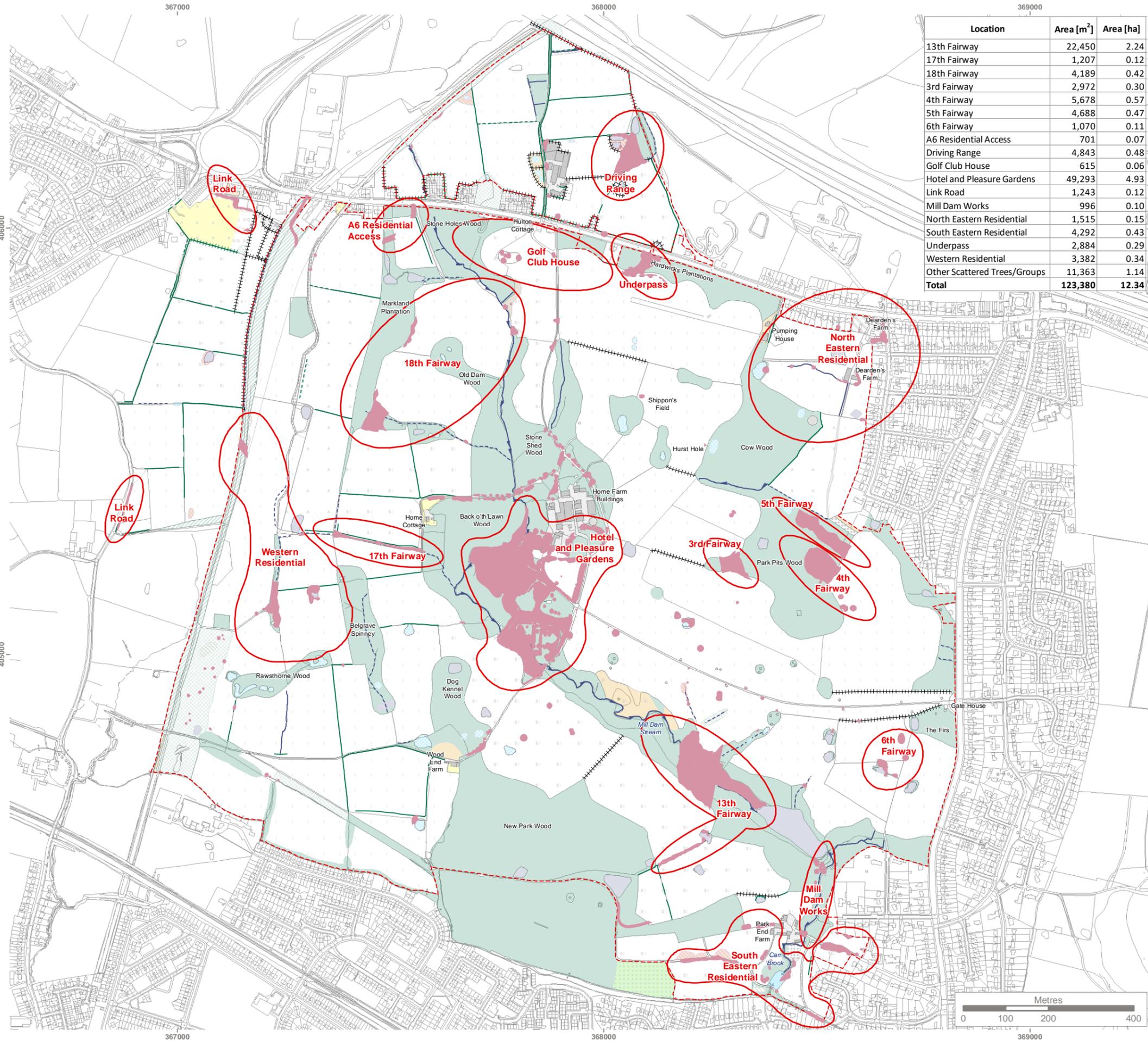
Genesis Centre, Birchwood Science Park, Warrington WA3 7BH  
 Tel 01925 844004 e-mail tep@tep.uk.com www.tep.uk.com

Project  
**Hulton Park, Westhoughton**

Title  
**ES Volume 3b A: Appendix 10.10(a)  
 Ponds Retained, Enhanced, Disturbed and Lost**

Drawing Number  
**G5136.042A**

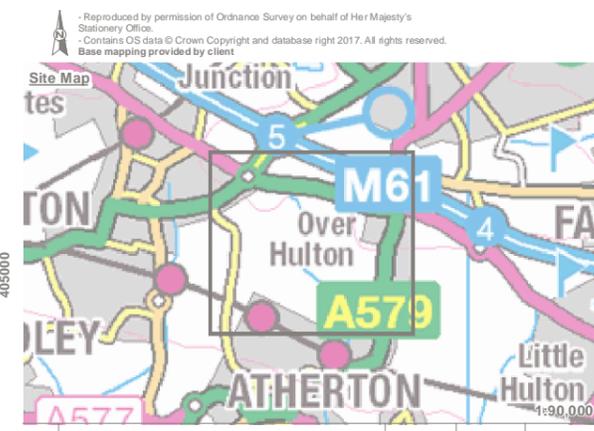
Drawn	Checked	Approved	Scale	Date
CM	DSC	DSC	1:9,000 @ A3	20/12/2017



Location	Area [m <sup>2</sup> ]	Area [ha]
13th Fairway	22,450	2.24
17th Fairway	1,207	0.12
18th Fairway	4,189	0.42
3rd Fairway	2,972	0.30
4th Fairway	5,678	0.57
5th Fairway	4,688	0.47
6th Fairway	1,070	0.11
A6 Residential Access	701	0.07
Driving Range	4,843	0.48
Golf Club House	615	0.06
Hotel and Pleasure Gardens	49,293	4.93
Link Road	1,243	0.12
Mill Dam Works	996	0.10
North Eastern Residential	1,515	0.15
South Eastern Residential	4,292	0.43
Underpass	2,884	0.29
Western Residential	3,382	0.34
Other Scattered Trees/Groups	11,363	1.14
<b>Total</b>	<b>123,380</b>	<b>12.34</b>

**KEY**

- Proposed Development Site
- Standing Water
- Running Water
- Species-poor Intact Hedge
- Species-poor defunct hedge
- Species-poor Hedge and Trees
- Fence
- Wall
- Dry Ditch
- Area of Tree Removal
- Tree Removal Locations
- Private Garden
- Dense/Continuous Scrub
- Semi-natural Broad-leaved Woodland
- Plantation broad-leaved woodland
- Semi-natural Mixed Woodland
- Unimproved acid grassland
- Semi-improved Neutral Grassland
- Modified Neutral Grassland
- Species-poor modified neutral grassland
- Improved Grassland
- Marsh/Marshy Grassland
- Poor Semi-improved Grassland
- Continuous Bracken
- Tall Ruderal
- Swamp
- Ephemeral Pool
- Standing Water
- Arable
- Amenity Grassland
- Slurry Tank
- Introduced shrub
- Buildings
- Not Surveyed
- Bare Ground
- Hardstanding



Rev	Description	Drawn	Approved	Date
A	Scheme Changes	MK	DS	03/01/2018

**TEP THE ENVIRONMENT PARTNERSHIP**

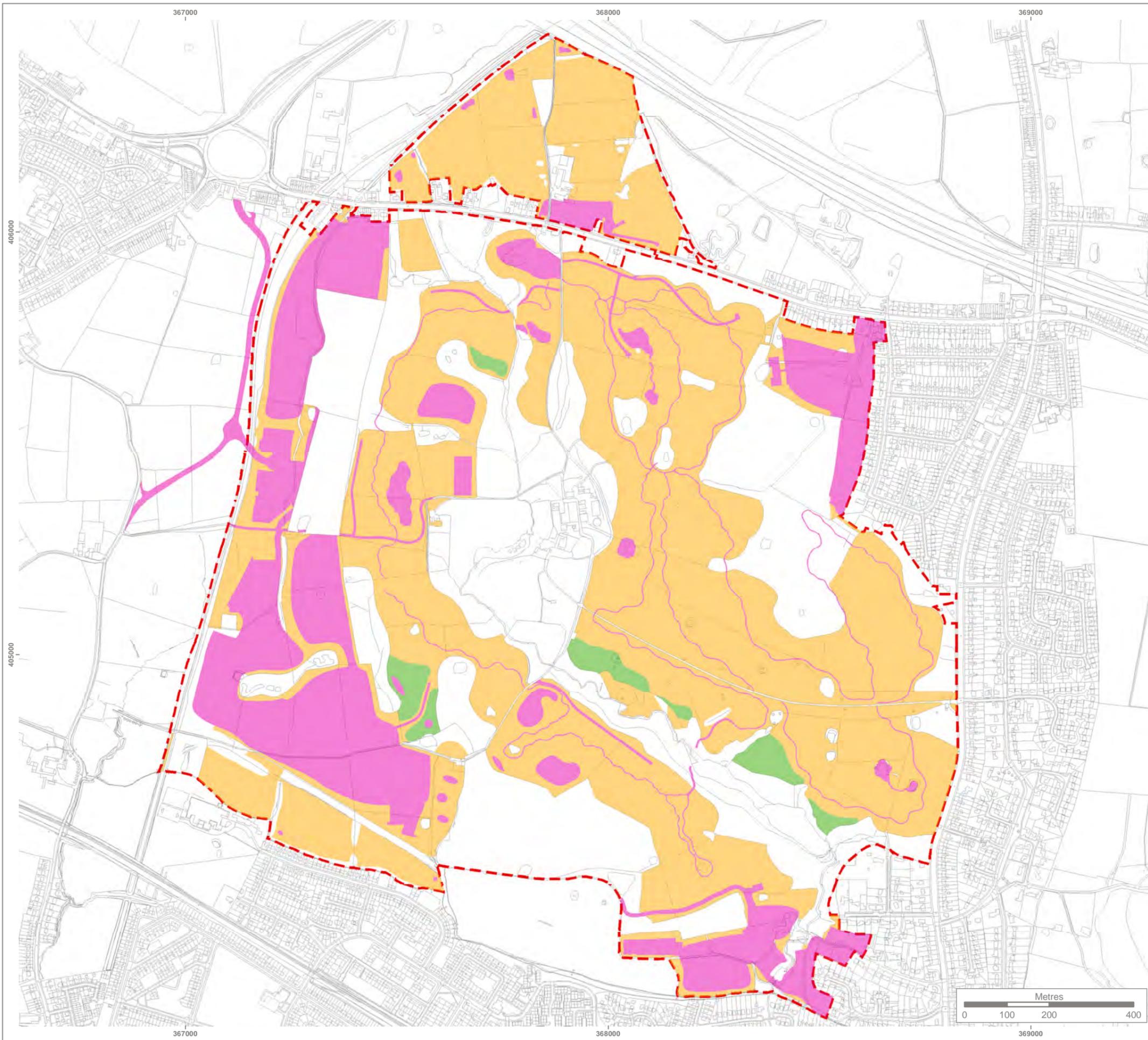
Genesis Centre, Birchwood Science Park, Warrington WA3 7BH  
 Tel 01925 844004 e-mail tep@tep.uk.com www.tep.uk.com

Project: Hulton Park, Westthoughton

Title: ES Volume 3b A: Appendix 10.2(a) - Tree Loss

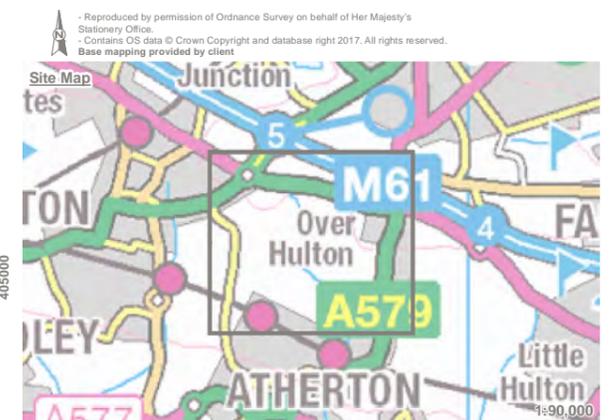
Drawing Number: G5136.034A

Drawn	Checked	Approved	Scale	Date
CM	DCS	DCS	1:9,000 @ A3	09/03/2017



**KEY**

- Proposed Development Site
- Disturbed Grassland (121.89ha)
- Lost Grassland (48.42ha)
- Retained (4.09ha)



Rev	Description	Drawn	Approved	Date
A	Scheme Changes	MK	DS	04/01/2018

**THE ENVIRONMENT PARTNERSHIP**

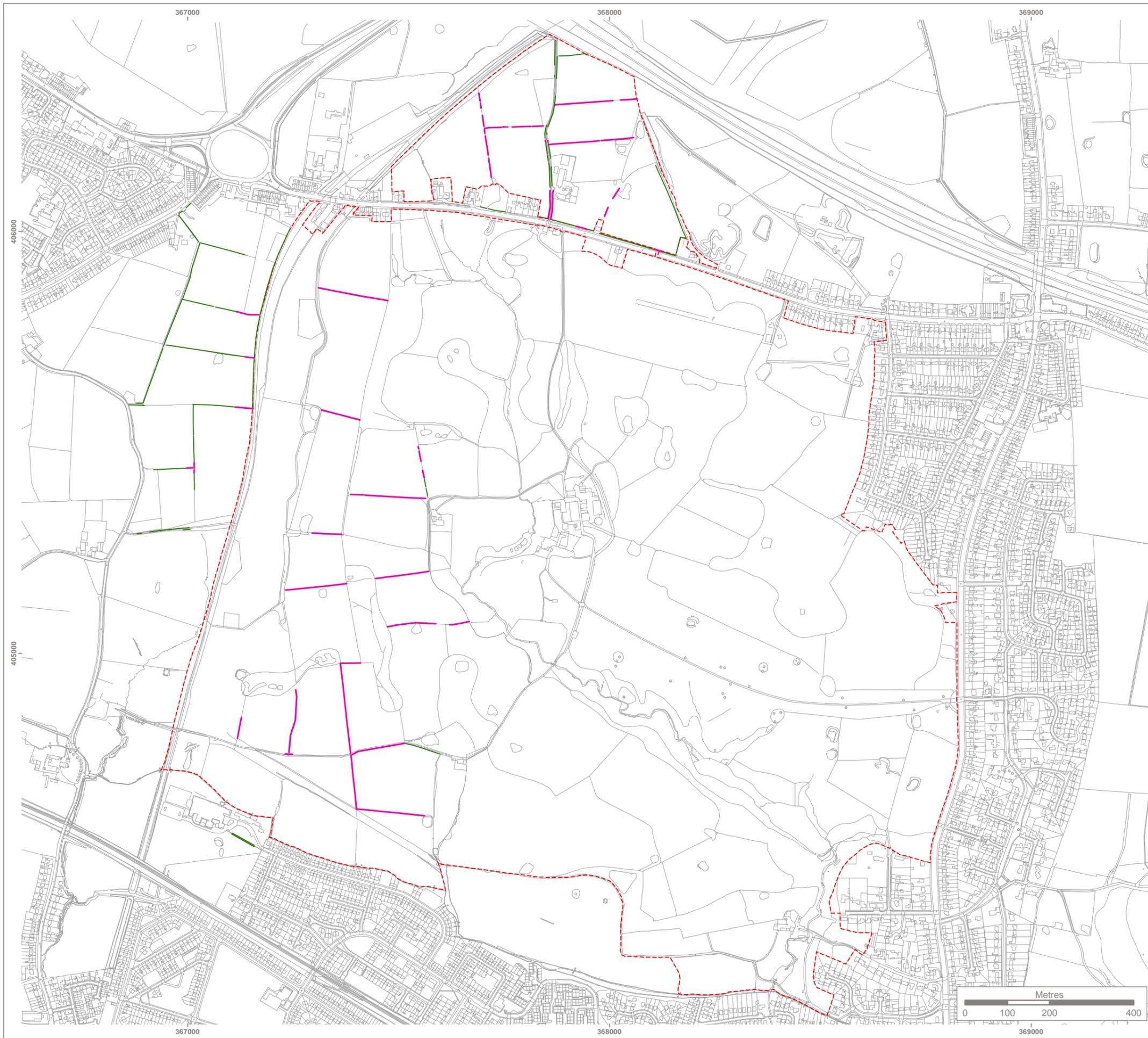
Genesis Centre, Birchwood Science Park, Warrington WA3 7BH  
 Tel 01925 844004 e-mail tep@tep.uk.com www.tep.uk.com

Project: **Hulton Park, Westhoughton**

Title: **ES Volume 3b A: Appendix 10.3(a) - Grassland Loss**

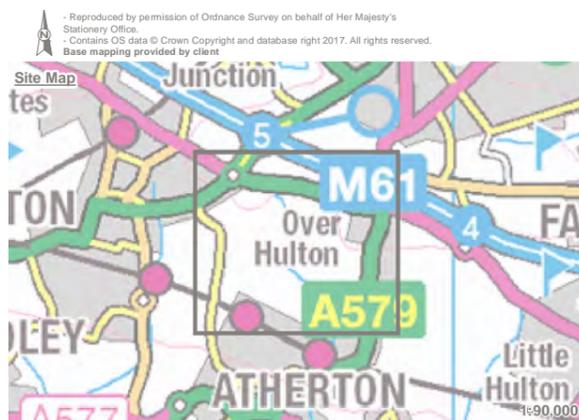
Drawing Number: **G5136.035A**

Drawn	Checked	Approved	Scale	Date
CM	DCS	DCS	1:9,000 @ A3	01/02/2017



**KEY**

- Proposed Development Site
- Hedgerow Removed 2,908m
- Hedgerow



	<b>THE ENVIRONMENT PARTNERSHIP</b>	Drawn    Approved    Date

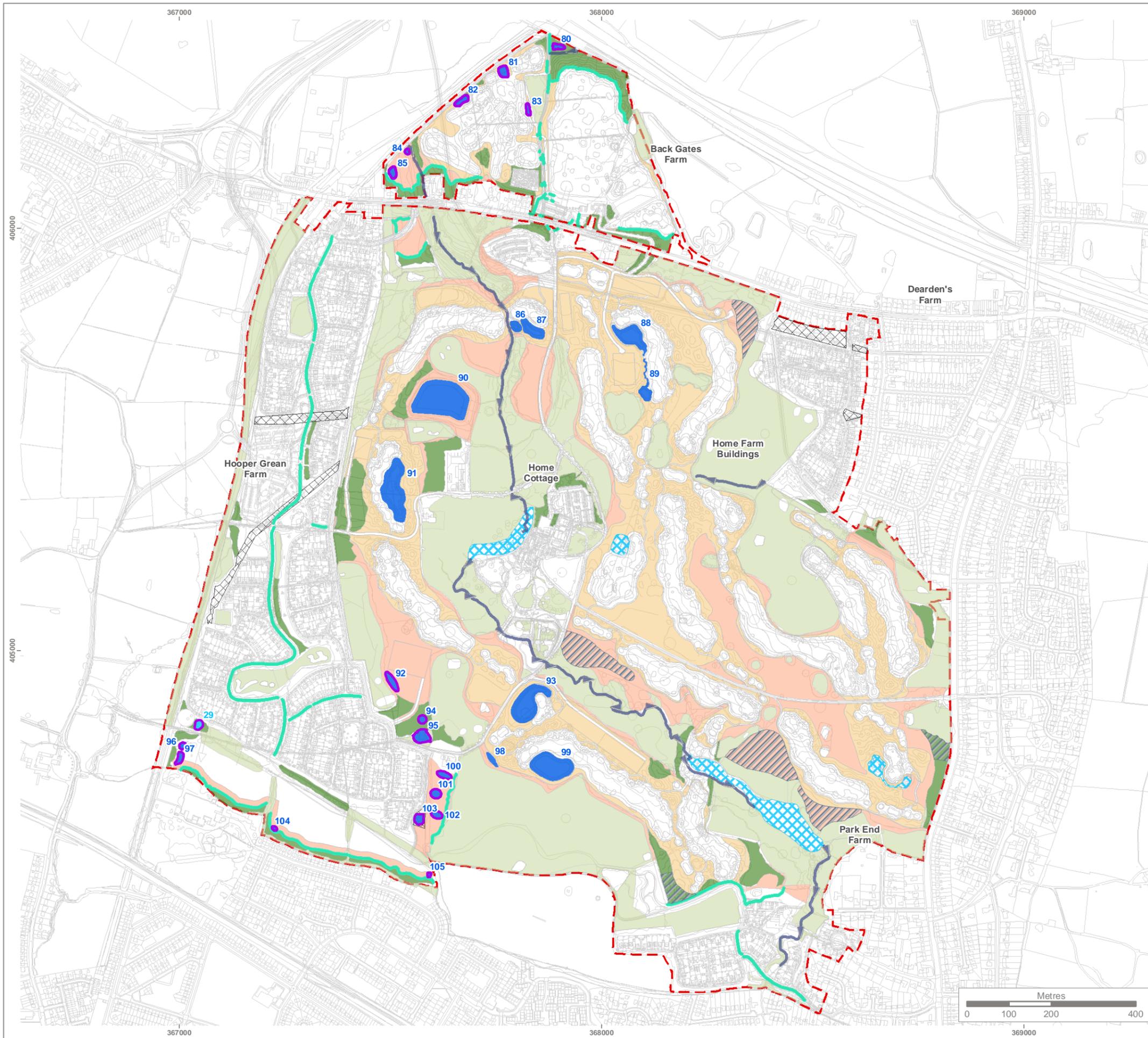
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Project  
**Hulton Park, Westhoughton**

Title  
**ES Volume 3b: Appendix 10.4 - Hedges Lost and Retained**

Drawing Number  
**G5136.036**

Drawn	Checked	Approved	Scale	Date
CM	DCS	DCS	1:9,000 @ A3	01/02/2017



**KEY**

- Proposed Development Site
- Existing Habitats**
- Woodland (67.56ha)
- Running Water
- Habitat Creation**
- Wildflower Conservation Grassland (24.17ha)
- Far Rough (33.44ha)
- New Woodland Planting (10.47ha)
- Reinstated Pond 29 (0.03ha)
- Indicative Location of Pond Creation 2026-2040 (3.5ha)
- GCN Mitigation Pond (0.68ha)
- New Hedgerow Planting (4,335m)

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 Base mapping provided by client.

Rev	Description	Drawn	Approved	Date

**THE ENVIRONMENT PARTNERSHIP**

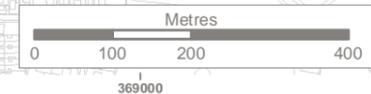
Genesis Centre, Birchwood Science Park, Warrington WA3 7BH  
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Project  
**Hulton Park, GCN Management Strategy**

Title  
**GCN Habitat Creation**

Drawing Number  
**G6741.07.003**

Drawn	Checked	Approved	Scale	Date
MK	DB	DS	1:9,000 @ A3	27/01/2017







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