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Liverpool Golf Limited
c/o Mr Keith Maher
Tippett House
Smithills Dean Road
Bolton
BL1 7NX

Date: 18/09/15

For the attention of: Keith Maher

Dear Keith,

Re: Protected Species Assessment; Great Crested Newt / Reptiles: Land at Liverpool Golf Limited.

Further to the above, I have pleasure in providing the details of our survey and assessment of the above site.

1.1 Introduction & Reasons for Survey:

PENNINE Ecological were commissioned by Mr Keith Maher to undertake an assessment in respect of potential great crested newt / reptile issues at the above site.

This assessment follows a site survey and report undertaken by Arbtech on April 8th 2015. The Arbtech report should be referred to for further information in relation to all other aspects of the sites ecology.

The survey is required to inform a planning application for the construction of an earth bund approximately 10m wide and 2m in height located on existing mown amenity grassland around the existing margins of the driving range. In addition the proposals include raising an area of rough ground by approximately 2m to create a putting area and associated greens.

The earth mounds and infill area will be created from importation of inert materials and spoil / soil which will be seeded, (*see Proposals Sketch Map on following page, provided by the client*).

The Arbtech April 2015 report has recommended that in order to proceed with this work a great crested newt survey of a pond, approximately 105m south east of the site is required. This is because the pond lies within the terrestrial range of the species.

In addition Arbtech recommend a reptile survey of the cross-hatched area (*see plan on following page*) of the site.

1.2 Location:

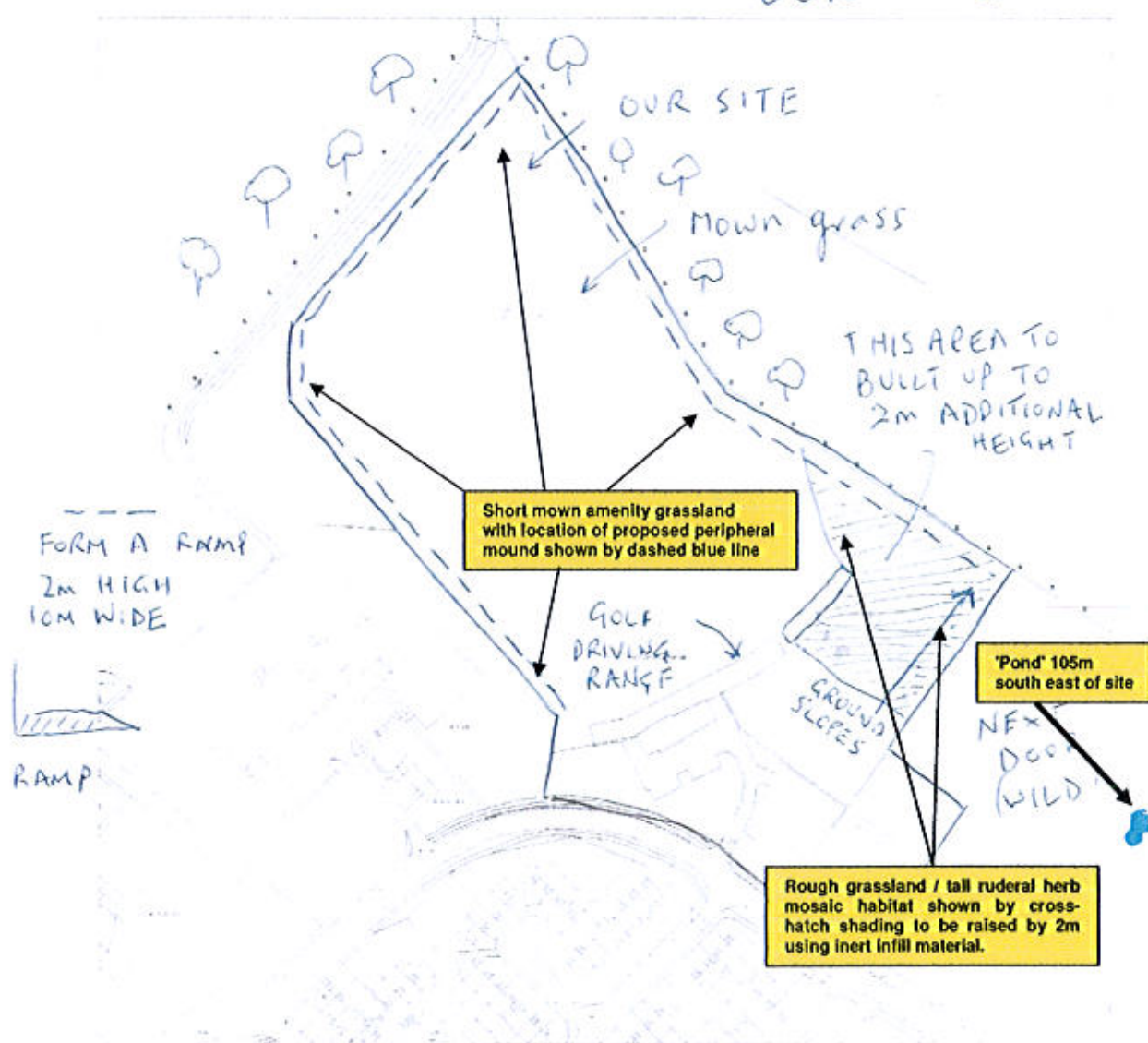
The site is located on the eastern urban edge of Liverpool at Netherly, off Caldwell Drive. National Grid Reference: S J444 888 The site location is shown on the sketch below. See also site photographs at the end of this letter



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OUR SITE



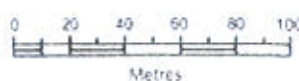
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1.3 Survey Constraints:

The site was surveyed on 18th September 2015. There were no constraints to the ecological assessment of the site. Access was possible to all areas including the off-site pond area 105m to the south east.

1.4 Site Status:

The desk top study undertaken by Arbtech reveals that the site has no statutory / non-statutory wildlife status or designation.

The full details of the desk top study are included in the data search provided by Merseyside Biobank.

In terms of great crested newt the nearest records to this site are approximately 1.3km south west at Lee Valley Golf Club where two ponds supported medium size populations in 2007. A pond approximately 1.5km south west of the site also supported a medium population of the species in 2004.

There are no records of reptiles on the data search from within a 2km radius of the site.

1.5 Survey Results / Evaluation / Recommendations:

(For location of features reference should be made to the plan on the previous page and site photographs at the end of this letter.)

Great Crested Newts:

The great crested newt (*Triturus cristatus*) is comprehensively protected under European legislation.

Evaluation: Great Crested Newts:

The nearest pond to the site is approximately 105m to the south east of the nearest area of impact associated with the proposed works. This is well within the terrestrial range of the species. There are no other ponds within 250m of the site.

Survey Methodology:

Habitat Suitability Index (HSI):

The pond was visited during the survey and assessed using the HSI methodology as follows;

It is possible to assess whether the species is likely to be present in a pond or waterbody. One survey method that can be used to assist in this evaluation is the **Habitat Suitability Index (HSI)**. In addition to this method the experience of the ecologist and particular site circumstances can be used to assess the likely presence or absence of the species. It must be noted however that the HSI survey method is no substitute for a standard 'Presence or Absence Survey'.

The HSI survey method was applied to the pond to the south east of the site and is summarised as follows:

The great crested newt Habitat Suitability Index (HSI) is quantitative measure of habitat quality (*source: Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000)*). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). Herpetological Journal 10 (4), 143-155). The HSI is number between 0 and 1, derived from an assessment of ten habitat variables known to influence the presence of newts. An HSI of 1 is optimal habitat (*high probability of occurrence*), while an HSI of 0 is very poor habitat (*minimal probability of occurrence*). The HSI is calculated on a single pond basis, but takes into account surrounding terrestrial habitat and local pond density.

The following text in italics is an extract from the methodology:

'Use and limitations of HSI :

The HSI for great crested newts is a measure of habitat suitability. It is not a substitute for newt surveys. In general, ponds with high HSI scores are more likely to support great crested newts than those with low scores. However, the system is not sufficiently precise to allow the conclusion that any particular pond with a high score will support newts, or that any pond with a low score will not do so.

There is also a positive correlation between HSI scores and the numbers of great crested newts observed in ponds. So, in general, high HSI scores are likely to be associated with greater numbers of great crested newts. However, the relationship is not sufficiently strong to allow predictions to be made about the numbers of newts in any particular pond.

HSI scoring can be useful in:

- *Evaluating the general suitability of a sample of ponds for great crested newts*
- *Comparing general suitability of ponds across different areas*
- *Evaluating the suitability of receptor ponds in a proposed mitigation scheme.'*

Oldham *et al* (2000).

Categorisation of HSI scores:

Lee Brady has developed a system for using HSI scores to define pond suitability for great crested newts on a categorical scale:

HSI		Pond suitability
<0.5	=	poor
0.5 – 0.59	=	below average
0.6 – 0.69	=	average
0.7 – 0.79	=	good
> 0.8	=	excellent

HSI Survey Results: Pond 105m south east of the proposed development site:

Habitat Suitability Index	Pond Score: 8/04/15 (Arbtech)	Pond Score: 18/09/15 (PENNINE Ecological)
SI1 Location Optimal: 1 Marginal: 0.5 Unsuitable: 0.01	1	1
*SI2 Pond Area Graph reading:	0.4	0.4
SI3 Pond Drying Never: 0.9 Rarely: 1.0 Sometimes: 0.5 Annually: 0.1	0.9	0.1
**SI4 Water Quality Good: 1 Moderate: 0.67 Poor: 0.33 Bad: 0.01	0.67	**0.33 / 0.67
SI5 Shade Graph reading:	0.8	0.2
SI6 Fowl Absent: 1 Minor: 0.67 Major: 0.01	0.67	1
SI7 Fish Absent: 1 Possible: 0.67 Minor: 0.33 Major: 0.01	0.67	1
SI8 Ponds Graph reading:	0.1	0.1
SI9 Terrestrial Habitat Good: 1 Moderate: 0.67 Poor: 0.33 None: 0.01	1	1
***SI10 Macrophytes Graph reading:	0.9	***0.35 / 0.9
HSI Score	0.7 (Good)	0.39 / 0.47 (Poor)
	This score is incorrect and should be 0.62 'Average' based on the data recorded by Arbtech	

***SI2 Pond Area:** Note the pond was dry at the time of survey, the pond surface area has been estimated based on field evidence indicating areas that are subject to seasonal inundation and using the same area figure recorded by Arbtech in April 2015.

****SI4 Water Quality:** Note the pond was dry at the time of survey. However the 'pond' is 100% shaded with very little evidence of historic or current aquatic vegetation. Based on our extensive experience of pond surveys, shallow heavily shaded ponds such as this invariably score 'Poor' (0.33 low invertebrate diversity). However since the pond was dry during the September survey we have included the April score of 'Moderate' (0.67) from the Arbtech April 2015 survey to show its influence on the HSI score .

*****SI10 Macrophytes:** Note the pond was dry at the time of survey. However the 'pond' is 100% shaded with very little evidence of historic or current aquatic vegetation. Since the pond was dry during the September survey we have included the April score of (0.9) from the Arbtech April 2015 survey to show its influence on the HSI score .

Based on our September survey, the waterbody scores a minimum of **0.39** and using the Arbtech scores for water quality and macrophyte scores a maximum of **0.47** on the HSI scoring system. This equates to **'Poor suitability'** for GCN.

There are further discrepancies between our survey and the Arbtech survey, these are as follows;

SI3 Pond Drying:

The Arbtech survey scores the pond as 'Never drying'. This is clearly not the case since the pond was dry in September 2015 following typical average summer rainfall totals. Furthermore in April the areas of water in the pond were estimated to be only approximately 6 inches deep (*pers. comm Keith Maher*). We consider that the pond is likely to have been dry by the end of June / July. This degree of drying at this time of year would prevent successful development of newt larvae should they be present. Furthermore heavily shaded ponds result in cooler water temperatures which slows the development of newt larvae.

SI5 Shade:

The Arbtech survey scores the pond as approximately 70% shaded (0.8). However this is clearly not the case. The pond is 100% shaded by very dense Osier and willow growth forming dense thick growth around all pond margins and within the seasonally inundated areas. As stated above heavily shaded ponds result in cooler water temperatures which slows the development of newt larvae.

SI10 Macrophytes

There was very little evidence of historic or current aquatic vegetation during the September survey. The only species recorded were amphibious bistort and reed canary-grass estimated to be around 10% cover of the seasonally inundated area. The Arbtech score of 60% (0.9) cover in April seems unusual, we can only assume that they have included aerial tree cover.

HSI Survey Conclusions:

The Arbtech April survey scored the pond as having 'Good suitability' (0.7) for great crested newts, however based on their own data this score should be 'Average' (0.62), furthermore this is at the lower end of the 'Average' score threshold. However a number of scoring criteria have been inaccurately assessed in our opinion.

Our survey scores the pond as having **'Poor suitability'** (0.39 - 0.47) for the species which we believe is accurate.

The pond supports seasonal shallow water and is heavily shaded with very little aquatic vegetation. In addition field evidence indicates that the pond dries out annually in the summer months.

In conclusion we do not consider that this pond is a viable breeding location for great crested newts.

Other Factors:

Even if the pond supported great crested newts, the area of land affected that could potentially support the species (*refuge / overwintering habitat*) is only 0.4844 hectares in size. Using Natural England's Rapid Risk Assessment tool results in a Green result 'Offence highly unlikely'. See extract below;

13			
14	It is critical that, even if you decide not to apply for a licence, you ensure that any development takes account of		
15	potential newt dispersal. Where great crested newts are present, landuse in that area must ensure there is		
16	adequate connectivity. Retaining and improving connectivity will often involve no licensable activities.		
17			
18	Component	Likely effect (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	Notional offence probability score
19			
20			
21	Great crested newt breeding pond(s)	No effect	0
22	Land within 100m of any breeding pond(s)	No effect	0
23	Land 100-250m from any breeding	0.1 - 0.5 ha lost or damaged	0.1
24	Land >250m from any breeding pond(s)	No effect	0
25	Individual great crested newts	No effect	0
26		Maximum:	0.1
27	Rapid risk assessment result:	GREEN: OFFENCE HIGHLY UNLIKELY	
28			
29	Guidance on risk assessment result categories		
30	"Green: offence highly unlikely" indicates that the development activities are of such a type, scale and		
31	location that it is highly unlikely any offence would be committed should the development proceed. Therefore,		
32	no licence would be required. However, bearing in mind that this is a generic assessment, you should carefully		
33	examine your specific plans to ensure this is a sound conclusion, and take precautions (see Non-licensed		
34	avoidance measures tool) to avoid offences if appropriate. It is likely that any residual offences would have		
35	negligible impact on conservation status, and enforcement of such breaches is unlikely to be in the public		
36	interest.		
37			

The pond has an abundance of high quality terrestrial habitat within 100m of the pond which completely encircle it in all directions. This includes; mature woodland, scrub, rough grassland with banks and uneven ground and dense stands of tall ruderal herb. These habitats will create a 'terrestrial sponge' effect in terms of attracting amphibians. ¹Research has shown that where extensive terrestrial habitats surround great crested newt breeding sites, then the vast majority of the population is 'contained' within 100m of the waterbody.

Based on our extensive experience of amphibian ecology and licensing we consider that there is no risk to great crested newts or other amphibians as a result of this development.

There are considered no requirements for further surveys, or pre-cautionary measures in respect of protected amphibian species.

However in the highly unlikely event that great crested newt is found during the work, then all work will stop immediately and further advice will be sought from the acting ecologist.

¹ English Nature Research Report 575 (2004); *An evaluation of the effectiveness of great crested newt Triturus cristatus mitigation projects in England, 1990 – 2001.* (PENNINE Ecological were contributors to this study).

Great Crested Newt Conclusions:

Therefore in terms of great crested newt this issue does not form any obstacle in terms of determination of the planning application at this site.

No further action is recommended in relation to this species at this site.

Reptiles:

All species are protected under amendments to the Wildlife and Countryside Act 1981 against killing or injury, and are additionally Species of Principal Importance in England under the Natural Environment and Rural Communities Act 2006.

The April 2015 Arbtech report has recommended a reptile survey of part of the site affected by the proposed importation of infill material to raise the ground levels by approximately 2m (*shown by cross-hatch on the sketch on page 2 of this letter*).

The area of land affected (*cross-hatched area*) comprises a mosaic of immature open grassland habitats and tall ruderal herb with some small debris piles of building materials and general waste. The debris on site is not of sufficient size/depth to provide overwintering sites. There are areas of short perennial vegetation, bare earth, tall grassland and tall ruderal herb. There is no scrub or tree / shade cover within this area.

Conversely the adjacent land to the south east and along the north eastern boundary (*tree shelter belt*) supports a mosaic of mature and short grassland communities on uneven topography, scattered and dense scrub with peripheral woodland shelter belts along the north eastern boundary with Childwall Golf Course. These off site habitats provide optimal reptile habitat conditions should they be present, with considerable variation in shade, aspect and micro-climate.

Whilst the site could potentially provide basking opportunities for reptiles if present, compared to adjacent habitats they are far less suitable for reptiles due to their generally open and exposed nature.

If reptiles are present in the area we consider it far more likely that they would be associated with the optimum off site habitats to the south east.

It is also noted that the data search fails to provide any reptile records within 2km of the site. Whilst this is not a confirmation of absence it suggests that if present in the area reptiles are sparsely distributed in this part of Merseyside.

Reptiles Conclusions:

In light of the above we consider the likely presence of reptiles on the proposed development site to be very low. This is based on several factors including;

- Relatively recent vegetation removal and a lack of structural diversity / shade.
- Presence of optimal reptile habitat off-site
- Absence of any reptile records from within 2km radii of the site.