



LANDSCAPE MANAGEMENT PLAN

FAZAKERLEY WWTW

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1 INTRODUCTION

Arcus Consultancy Services Limited (Arcus) was commissioned by United Utilities to prepare a Landscape Management Plan (LMP) to discharge Planning Condition 21 ('the Condition') of the consent for an onshore wind turbine measuring 78 metres (m) in height to blade tip (Application No. 14F / 1296). Liverpool City Council ('the Council') granted planning permission for the Development on 9th December 2014 subject to a condition requiring a scheme for bat habitat mitigation and enhancement be submitted to the Council prior to the First Export Date. The Condition states:

"Prior to the First Export Date, a scheme for bat habitat mitigation and enhancement shall be submitted to the Local Planning Authority for approval in writing. The mitigation and enhancement measures shall be carried out in accordance with the approved scheme."

Reason: In the interests of biodiversity."

This LMP sets out the details of the measures that will be implemented to meet the requirements of the Condition. The Report is accompanied by Figure 1 'Landscape Management and Maintenance Plan' (Appendix A) which shows areas where the measures will be implemented.

2 THE DEVELOPMENT

The Development is located within Fazakerley Wastewater Treatment Works (WwTW) ('the site') in the northeast of Liverpool. To the north and south of the site lie residential areas. To the east is a retail park and to the west there is woodland and ponds between the site and Lower Lane and to the west of Lower Lane there are recreational grounds and open space. The Development consists of the following elements:

- A single wind turbine 78 m in height to blade tip;
- Wind turbine foundations;
- An electricity substation with a gross floor area of no more than 40 m²; and
- A construction compound no larger than 1,000 m².

The Development will be located to the east of linear filtration beds and to the south of circular treatment lagoons. To the east of the Development there is an open area of scrub and grassland and to the south is an area of woodland and grassland with settlement lagoons.

3 EXISTING VEGETATION AND VEGETATION MANAGEMENT

A large proportion of the undeveloped area of the site is either woodland / scrub or grassland.

Woodland is deciduous and well established in the east and south of the site and immediately to the west between the site and Lower Lane. There are some narrow belts of trees, small groups and individual trees throughout the site. Tall, rough grassland with bramble scrub has become established in the central part of the site immediately to the east of the Development and to the east of the large ditch that passes north-south through the eastern part of the site.

The woodland within the site is dense in places forming a close knit canopy with little or no herbaceous ground cover such as the area immediately to the south of the Development. Where trees are taller and more widely spaced there is a mix of grassland and scrub e.g. to the northeast of the ditch in the eastern part of the site.

The tall, rough grassland with bramble scrub has been left unmanaged and during summer forms a dense ground cover across the central and northern parts of the site.

Grassland areas around the filtration / settlement beds, lagoons and buildings within the site is mown to a short sward by a tractor mower with steeper slopes around the settlement beds in the north of the site mown using a pedestrian mower. The steep slopes around the filtration beds immediately to the west of the Development and parallel to the western boundary of the site are left unmanaged and allowed to grow long.

4 CHARACTERISTICS OF BAT ACTIVITY

The Development has the potential to result in collision between bats and the wind turbine blades as they rotate during operation. The Environmental Assessment Report¹ (EAR) prepared by Hyder Consulting ('Hyder') therefore included an assessment of the potential effects of the Development upon species of bats.

The EAR indicates that bat activity is fairly constant across the site with a slight increase in activity at the western end of the site in close proximity to the coal filtration beds. The EAR identified the bat activity as relating to foraging bats due to the fact that the site supports an abundance of flying insect fauna. The bat survey work undertaken by Hyder indicated that bat activity consisted predominantly of low level flight behaviour at height of 10 m or less above ground level below the level of the rotor sweep

A second report by Hyder² indicated that there is no swarming or hibernating bat activity at the site which could give rise to an increase in bat activity. The report identified local concentrations of foraging bats in sheltered locations which it considers is typical of the foraging behaviour of pipistrelles which select such sheltered locations as they attract the highest insect densities.

The EAR and the Bat Swarming Report indicate that the foraging activity of bats occurs predominantly at low heights above ground and in sheltered locations at the site. The abundance of flying insect fauna makes the site attractive to foraging bats.

5 PROPOSED MANAGEMENT AND MAINTENANCE MEASURES

The proposed management and maintenance measures aim to reduce the amount of suitable habitat for foraging bats in areas near the Development and increase it in other parts of the site further from the Development.

Given the existing distribution of vegetation within the site and the current management and maintenance regime the measures described in Section 5.1 to 5.3.3 and shown in Table 1 and Figure 1 in Appendix 1 are proposed.

5.1 Woodland Management

The area of scrub and woodland to the south of the Development that runs parallel to the southern filter beds will be trimmed back to create an open area. The open area will be less likely to provide shelter for flying insect fauna and is likely to be less attractive to bats as a foraging area. Scrub and trees would not be allowed to recolonise the open area which would be left unmanaged and likely to be colonised by tall ruderals.

5.2 Scrub Clearance

Two areas of tall grassland and scrub to the east and northeast of the Development will be cleared. These two areas will be strimmed or mown 3 or 4 times each year to create a lower sward that is less suitable for insect fauna.

¹Hyder Consulting, 2014, Fazakerley WwTW Wind Turbine Environmental Assessment Report

² Hyder Consulting, 2014, Fazakerley WwTW Wind Turbine Swarming and Hibernating Bat Survey Report

5.3 Grassland Management

The existing regime of grassland management has created large areas of amenity grassland that is frequently mown on the margins of which are areas of unmanaged grassland where grasses are allowed to grow tall.

The LMP proposes changing the mowing regime at the site to more frequent mowing in the areas nearest the Development and less frequent mowing in areas further from the Development.

5.3.1 Grassland Management – Frequent Mowing

The grassland within the areas shown on Figure 1 will be maintained as a short sward of between 50 mm and 75 mm in height. The short sward will be less favourable to flying insect fauna and therefore foraging bats will be less likely to utilise these areas.

The grassland on the slopes beside the filter beds and settlement ponds must be mown or strimmed to maintain a short sward. The grass in these areas is currently not mown thereby creating a more favourable habitat for insects.

5.3.2 Grassland Management – Infrequent Mowing

The grassland within these areas shown on Figure 1 will be mown or strimmed once a year in August or September. This will allow grass to grow and provide a more favourable habitat for insects and foraging bats are more likely to utilise such areas. The areas are distributed to provide connectivity with existing woodland and tree belts and the ditch running through the eastern part of the site.

5.3.3 Grassland Management – Meadow Strips

The grassland within these areas will be maintained to create a meadow by rotational mowing in September of the first year followed by June and September of the second year followed by June of the third year and so on. A 4 m wide area between the strips will be mown to a short sward as described in 5.3.1 to create a sheltered 'avenue'.

Table 1: Management and Maintenance Measures

Reference Number	Activity	No of units
5.1	Woodland management	5,998 m ²
5.2	Scrub clearance and management	4,345 m ²
5.3.1	Grassland management – frequent mowing	15,078 m ²
5.3.2	Grassland management – infrequent mowing	4,240 m ²
5.3.3	Grassland management – meadow strips	943 m ²

APPENDIX A – FIGURE 1 LANDSCAPE MANAGEMENT AND PLAN



Plot Date : 17 July 2015 15:51:23
File Name G:\PROJECTS\1929 FAZAKERLEY OWNERS ENGINEERING\CAD_DATA\01-WORKING\01_01-DRAWINGS\FAZA-DR-P-3000

Project Title FAZAKERLEY WASTE WATER TREATMENT WORKS WIND TURBINE	Drawing Title FIGURE 1 LANDSCAPE MANAGEMENT PLAN	Purpose of issue PRELIMINARY				THIS DOCUMENT HAS BEEN PREPARED IN ACCORDANCE WITH THE SCOPE OF ARCUS' APPOINTMENT WITH ITS CLIENT AND IS SUBJECT TO THE TERMS OF THAT APPOINTMENT. ARCUS ACCEPTS NO LIABILITY FOR ANY USE OF THIS DOCUMENT OTHER THAN BY ITS CLIENT AND ONLY FOR THE PURPOSES FOR WHICH IT WAS PREPARED AND PROVIDED	Arcus Consultancy Services 7th Floor 145 St. Vincent Street Glasgow, G2 5JF Tel: +44 (0)141 221 9997 Fax: +44 (0)141 221 5610 www.arcusconsulting.co.uk		
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