global environmental solutions

Parc Adfer
Energy Reclamation Facility

Ecological Management Plan

August 2014
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1.0 INTRODUCTION

1.1 Background

WTI UK Limited. (WTI) is proposing to develop an Energy Recovery Facility (ERF) at Deeside Industrial Park, Deeside, Flintshire. An Ecological Impact Assessment (EcIA) has been undertaken in respect of the proposed development and the findings of the EcIA have been reported as part of an Environmental Statement (ES)[1].

This Ecological Management Plan (EcMP) has been produced in order to provide a framework for the recommended mitigation and enhancement measures for the Valued Ecological Receptors at the site, guide their implementation, and provide a basis for a post-construction monitoring programme. This document is designed to be a working manual for the management of the site, to be reviewed on a three-yearly basis in response to the findings of scheduled management visits.

1.2 Location, Boundaries & Tenure

The Parc Adfer application site is centred on Ordnance Survey Grid Reference SJ310715. The triangular site is bordered to the north by a dual-carriageway; the east by a railway line; the south by a power station; and the west by Weighbridge Road. Surrounding land-uses include a paper mill to the west, Deeside Industrial Park to the east, and a steel works to the south-west. The extent of the application site is defined on Drawing PA 2/2 in the ES, and described in full in Chapter 2 of the ES.

The application site is currently owned and managed by Flintshire County Council; once the development commences, the site would be controlled and managed by WTI.

1.3 Valued Ecological Receptors

The EcIA identified the following Valued Ecological Receptors (VERs) at the Parc Adfer site:

- approximately 3 hectares (ha) of open mosaic habitat (OMH), a Section 42 NERC Act (2006) habitat of principal importance[2].
- A terrestrial invertebrate assemblage considered to be of district value; and
- a 'good' population of common lizard.

Full details for each of these are contained within the EcIA and are not repeated here.

1.4 Roles & Management Responsibilities

Ultimate responsibility for implementation of this EcMP lies with the future site owners and occupiers, WTI.

Annual visits are to be conducted by appropriately qualified ecologists employed by WTI or the organisation responsible for site maintenance at that time.

[1] SLR Consulting Limited (August 2014) *403.04079.00006 Parc Adfer Energy Recovery Facility Environmental Statement*. Chapter 11.

[2] JNCC. *UK Biodiversity Action Plan; Priority Habitat Descriptions*. BRIG (ed. Ant Maddock) 2008. (Updated Dec 2011)

2.0 MANAGEMENT OBJECTIVES

The identified VERs will be negatively impacted by the proposal, which requires clearance of vegetation from the entire site prior to building construction and landscaping. The objectives below aim to minimise impacts and to assist in swift habitat creation and recolonisation of the site by the VERs.

There are currently two variants of the development proposals, either of which may be selected for progression. The first involves all waste material being transported to Parc Afer by road, and the second involves the construction of a rail-head for waste transfer by train. The construction of the rail-head would involve additional infrastructure and reduced area available for landscaping. Where this option would have an impact on the management prescriptions, this is identified in the text below.

The objectives, listed below, are iterative and may be updated in the future following management plan reviews:

1. To minimise the impact of site clearance on the terrestrial invertebrate assemblage and reptile population through appropriate mitigation;

2. Creation and long-term management of 9,300 m^2 of open mosaic habitat for the non-rail option, and 6,650m^2 for the rail option. The OMH should be developed then maintained in a state considered to be of good quality, based on the following criteria:

    a. Sward height no greater than 40cm;

    b. 10 to 50% bare ground;

    c. Maintenance of a mosaic structure, with bare ground plus at least two of the following habitats within 75m of the bare ground patch: ruderal vegetation, or flower-rich grassland, or inundation vegetation, or ephemeral/short perennial.

3. The re-establishment and maintenance of a terrestrial invertebrate assemblage of district level value or better and including: at least two of the three S42 lepidopteran species (dingy skippy, shaded broad-bar, and latticed heath) and four of the seven notable invertebrates (H*ippodamia variegata, Pipizella virens, Triglyphus primus, Dioxyna bidentis, Siphonella oscinina, Coenosia verralli,* and *Mintho rufiventria*);

4. The re-establishment and maintenance of a good population of common lizard (as determined by the standard survey protocol);

5. To enhance the habitat diversity of the site, where this does not conflict with Objective 1. This will be achieved by creating an amphibian breeding pond and other wetland habitats associated with the surface water drainage scheme, including 2,550m^2 of reedbed and 36,600m^2 of wildflower grassland. In particular the management plan will aim to contribute to the achievement of the LBAP Action Plan targets for brownfield land, the creation of high quality wildlife ponds, bat and reptile populations;

6. To install ten bird boxes attractive of varying type; and

7. To enhance the opportunities provided by the site for foraging and roosting bats by installing eight general purpose bat roosting boxes, the creation of woodland blocks within the landscaping, and the creation of wetland habitats.

3.0 MANAGEMENT PRESCRIPTIONS

Management prescriptions are provided in the three tables below, which broadly relate to site clearance, construction and operation, as follows:

- Table 2 sets out the tasks necessary prior to the start of works to achieve the objectives listed above.
- Table 3 lists the management prescriptions that are required to create the new areas of OMH and other habitats during the development process, and also lists the actions required at this stage to enhance the conservation value of the final development.
- Table 4 lists the tasks required to ensure successful establishment of the newly created habitats, with re-colonisation by the invertebrate, reptile, and amphibian populations. The table also lists management prescriptions to ensure that the OMH is maintained in optimal condition for the invertebrate and reptile populations, and that natural succession into weeds and scrub is halted.

Following the completion of each management visit or action taken, a short report will be prepared by the Ecologist and submitted to WTI so that a record of actions taken and their success can be maintained. An annual summary report will be submitted to Flintshire County Council to ensure compliance.

Table 2
Tasks to be undertaken prior to the start of site stripping or ground preparation

Action	Notes	Timing	Responsibility	Staffing
1. Harvest bee orchids from site and plant in nursery beds.	Prior to site stripping the bee orchids recorded in the southern part of the site should be located, marked and translocated to nursery beds in a safe location for the duration of the development process.	Prior to site preparation and construction traffic entering site. Easiest to identify in spring when in flower.	WTI	Ecologist
2. Time site stripping to cause minimum damage to invertebrate populations.	Schedule the start of site stripping to coincide with late summer, when most invertebrates are in active and mobile stages of the life cycle, as opposed to hibernating or less mobile larval stages.	Late summer, prior to site preparation and construction traffic entering site.	WTI	Site Manager
3. Translocate reptiles and amphibians from the development footprint.	Produce a reptile translocation program that will clear the site of reptiles prior to the start of development, and have it approved by the Local Authority. In accordance with best practice, this will require fencing the site off with reptile fencing, using pit fall traps and refuges with daily clearance, and the reptiles and amphibians caught being placed outside the boundaries of the site in appropriate habitat. This can be undertaken between April and September inclusive (weather dependent).	Prior to site preparation and construction traffic entering site.	WTI	Ecologist

Action	Notes	Timing	Responsibility	Staffing
4. Design of a bat friendly external lighting scheme.	External lighting on buildings, roads and footpaths should be designed to avoid light spill onto the hedgerows, wildlife area and public open space. Guidance on lighting in relation to bats can be obtained from the Bat Conservation Trust[3].	Prior to the start of site works	WTI	M&E Engineer & Ecologist
5. Check for nesting birds, if clearance undertaken between March and September (inclusive).	The nests of all species of bird are afforded legal protection whilst in use or being built. It is recommended that the site is cleared outside the bird nesting season (the nesting season is generally considered to run between March and August inclusive) or, if this is not possible, immediately prior to site stripping all areas of hedgerow, scrub, grassland and trees scheduled for removal should be checked for bird nests by an appropriately qualified person. Should any nests be found, work should cease within 10m of the nest.	Immediately prior to site stripping, if this is conducted between March and September	WTI	Ecologist
6. Protect retained trees and hedgerows	All lengths of hedgerow that are to be retained and enhanced, and all mature trees being retained, should be protected in accordance with BS5837:2012 Trees in Design, Demolition and Construction: Recommendations	Prior to site preparation and construction traffic entering site.	WTI	Site Manager

[3] http://www.bats.org.uk/data/files/bats_and_lighting_in_the_uk__final_version_version_3_may_09.pdf

Action	Notes	Timing	Responsibility	Staffing
7. Pre-commencement confirmation that all required works are completed.	Prior to the start of site stripping the site manager should confirm and record that: all the above measures have been completed.	Immediately prior to site stripping.	WTI	Site Manager

Table 3
Management prescriptions required during development

Action	Notes	Timing	Responsibility	Staffing
1. Creation of 9,300m^2 (or 6,650m^2 for rail option) of OMH	As early in the development process as possible, the OMH areas should be planted in accordance with the landscaping proposals (Drawing PA3/1 and PA 3/2, refer to Chapter 3 of the ES), including invertebrate food plants and the bee orchids returned	As early as possible during the construction process.	WTI	Landscape Architect

Action	Notes	Timing	Responsibility	Staffing
2. Monitor reptile/amphibian exclusion fencing	Daily monitoring of exclusion fencing, with damage to be repaired within 24 hours.	Daily throughout construction	WTI	Site Manager
3. Construct amphibian breeding pond	Construct and plant amphibian breeding pond within surface water drainage scheme. Planting should use non-invasive species of local origin.	As early as possible during the construction process	WTI	Landscape architect/ hydrologist
4. Construct two hibernacula	Construct two reptile and amphibian hibernacula in accordance with the specification at English Nature (2001). One located near to the pond and the second in a sheltered location within the OMH planting as directed by Ecologist.	Year 1	WTI	Site Manager / Ecologist.
5. Removal of reptile/amphibian exclusion fence	Removal of exclusion fence on completion of external construction works to allow recolonisation of site by reptiles and amphibians.	On completion of construction	WTI	Site Manager
6. Reptile/ amphibian friendly drainage design	All drainage gully pots should be of herpetofauna friendly design, allowing any animals that fall into the drains to be able to escape.	Year 1	WTI	Site Manager
7. Installation of eight bat boxes.	Eight general purpose bat roosting boxes should be fixed to mature trees that are being retained within the development site, or to unlit areas of the building(s). The location of the bat boxes should be selected in accordance with a suitably qualified ecologist and should represent a range of microclimates. The bat boxes selected should be made of woodcrete or a similar long-lasting substance, not softwood, for example the Schwegler 2F (General Purpose) bat box.	Year 1	WTI	WTI & Ecologist

Action	Notes	Timing	Responsibility	Staffing
8. Monitoring of bat boxes.	Dependent upon the duration of the development timetable, it may be necessary to monitor the bat boxes before the completion of construction. If this is the case, the bat boxes should be inspected by an appropriately qualified ecologist every three years.	Every 3 years	WTI	Ecologist
9. Installation of ten bird boxes.	Ten bird boxes should be installed on mature trees around the site as soon as possible after the start of construction. These should include five boxes suitable for small passerines (with 26mm entrance hole), four boxes suitable for larger passerines (with 32mm entrance hole), and one open-fronted robin box. The boxes should be woodcrete or similar long-lasting material, not softwood. The box locations should be selected under direction of an ecologist. Examples of such boxes can be found at http://www.nhbs.com/bird_boxes_eqcat_426.html and http://www.wildlifeshop.co.uk/acatalog/Woodcrete_boxes.html (N.B. these are examples of boxes only, not recommendations for suppliers).	Year 1	WTI	WTI and Ecologist
10. Monitoring of bird boxes.	Dependent upon the duration of the development timetable, it may be necessary to monitor the bird boxes before the completion of construction. If this is the case, the bird boxes should be inspected by an appropriately qualified ecologist every three years.	Every 3 years	WTI	Ecologist

Action	Notes	Timing	Responsibility	Staffing
11. Toolbox talk for site staff	At commencement of the site development works, all site staff should be given a toolbox talk including items related to the protection of the ecological features. This should include: 1. Maintenance of the hedge and tree protective fencing; 2. Maintenance of the reptile and amphibian fencing; and 3. To cease work within 10m of any bird nest that is in use or being built during the construction period, and contact an appropriately qualified ecologist for advice.	Immediately prior to commencement	WTI	Site Manager/Ecologist
12. Establishment of habitats	All remaining habitats should be created and planted in accordance with the landscape proposals, using native species, of local provenance where possible.	Year 1	WTI	Landscape architect
13. Monitoring of habitat establishment	Dependent on the development timetable, it may be necessary to commence monitoring of the establishment of the created habitats prior to the completion of construction. The habitats should be monitored annually to ensure they are establishing correctly. Failed trees should be replaced and appropriate corrective measures taken to ensure correct establishment of the OMH, grassland and wetland areas, if required.	Annually	WTI	Landscape Management
14. Annual Monitoring Review	An annual review of the progress against the Ecological Management Plan should be conducted, with the objectives and completion of the management prescriptions being appraised. Any amendments required should be noted and agreed with the Council, and a copy of the review should be submitted to the Council.	Annually, year end.	WTI	Project Manager/ Ecologist

Table 4
Management prescriptions required post development

Action	Notes	Timing	Responsibility	Staffing
1. Monitoring of OMH establishment	Monitor establishment of OMH on an annual basis and undertake any necessary remedial actions for the habitat to meet the description of "good quality" provided earlier.	Annually	WTI	Landscape Architect / Ecologist
2. Maintenance of OMH	As monitoring surveys recommend, maintenance of the OMH should be undertaken. This may require cutting or ground disturbance of sections as required.	As required (likely to be every 5 years)	WTI	Landscape Management.
3. Monitor establishment of the terrestrial invertebrate assemblage	Terrestrial invertebrate survey undertaken during summer months Recommendations for habitat management made and undertaken as required.	Every 3 years from completion of construction	WTI	Ecologist
4. Monitor reptile re-establishment	7 visit reptile survey undertaken during spring in accordance with published guidance. Recommendations for habitat management made and undertaken as required.	Every 3 years from completion of construction	WTI	Ecologist
5. Monitor establishment of amphibian breeding pond habitat.	Monitor and record the establishment of the amphibian pond habitat and make recommendations for habitat management as required in order to maintain: 50% to 80% aquatic and emergent vegetation cover; exclusion of invasive non-native species; and good biological water quality able to support a diverse aquatic invertebrate assemblage.	Annually from completion for first five years, then every 3 years.	WTI	Ecologist
6. Monitor condition of hibernacula	Monitor condition of the hibernacula and make recommendations for repair as required to permit access by reptiles and amphibians.	Every 3 years from completion of construction	WTI	Ecologist

Action	Notes	Timing	Responsibility	Staffing
7. Monitoring of bat boxes	The bat boxes should be inspected during autumn by an appropriately qualified ecologist every three years. Damaged or missing bat boxes should be replaced.	Every 3 years from installation.	WTI	Ecologist
8. Monitoring of bird boxes	The bird boxes should be inspected in autumn by an appropriately qualified ecologist every three. Damaged or missing bird boxes should be replaced.	Every 3 years from installation.	WTI	Ecologist
9. Monitoring of habitat establishment.	Monitor and record the establishment of the site habitats in accordance with the landscape management scheme and make recommendations for habitat management as required. The wildflower grassland should be maintained with an open sward approximately 30 to 40cm high with tussocks covering no more than 30% of the area. Cuts should be scheduled for autumn, after the wildflowers have set seed.	In summer, annually for the first 5 years, then every 3 years.	WTI	Ecologist
10. Monitoring Review	A review of the progress against the Ecological Management Plan should be conducted annually for the first five years from construction completion, then every three years, with the objectives and completion of the management prescriptions being appraised. Any amendments required should be noted and agreed with the Council, and a copy of the review should be submitted to the Council.	At year end, annually for the first 5 years, then every 3 years.	WTI	Project Manager

4.0 CLOSURE

This report has been prepared by SLR Consulting Limited with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it by agreement with the client. Information reported herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid.

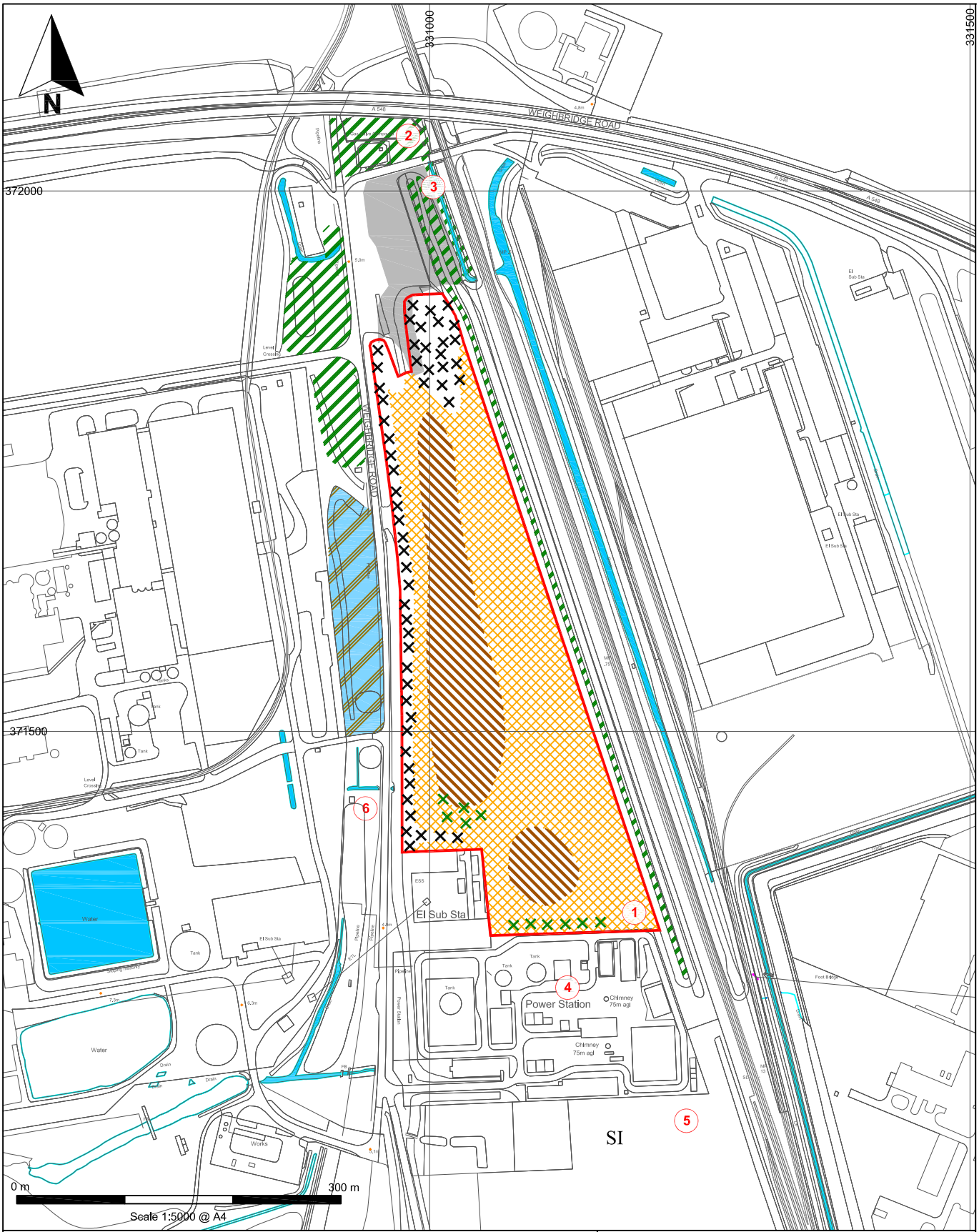
This report is for the exclusive use of WTI.; no warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the client and others in respect of any matters outside the agreed scope of the work.

DRAWINGS

DRAWING 1: HABITAT PLAN

(Produced by AMEC October 2012 and reviewed SLR 2014)



Key

- Site boundary
- Broadleaved plantation woodland
- Unimproved grassland
- SI — Poor semi-improved grassland
- Tall ruderal vegetation
- Ephemeral/short perennial vegetation
- Scattered scrub
- Waterbody
- Swamp
- Hardstanding
- 1 — Target note

North Wales (Deeside) Residual Waste Treatment Project
Deeside Baseline Ecological Surveys

Figure 4
Phase 1 Habitat Survey

October 2012
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APPENDIX 1

Appendix 1 of this report is a copy of the Baseline Ecological Survey Data
Please see Appendix 11/1