

Power Consulting Midlands Ltd

**Renewable Energy Plant at Woodham Rd. Barry
Ecological Assessment Prepared for
Sunrise Renewables (Barry) Ltd**

November 2014

1. Introduction

- 1.1 The Applicant, Sunrise Renewables (Barry) Limited, is developing a renewable energy plant based on an advanced conversion technology (ACT) at Woodham Road, Barry, CF63 4JE within the Port of Barry (the “**Project**”).
- 1.2 The principle of establishing a wood fuelled power plant at the Project site was established by planning permission reference 2008/01203/FUL, as approved by appeal reference APP/Z6950/A/09/2114605 on 2nd July 2010 (the “**2010 Permission**”).
- 1.3 Power Consulting Midlands Ltd (**PCML**) has been commissioned by the Applicant to review the ecological considerations pertaining to the site and consider the applicability of the RSK Carter Ecological Survey for *Althaea Hirsuta* (Rough Marsh Mallow) submitted in support of the 2010 Permission in the context of their re-application for a similar plant to be submitted in November 2014.
- 1.4 The RSK Carter Ecological Survey dated from 2009 (the “**2009 Report**”) is attached to the present report.
- 1.5 PCML considers that this review must address two fundamental issues :-
 - (1) Have conditions at the site changed materially in a way that would alter the ecology and consequently invalidate the conclusions in the 2009 Report?
 - (2) Is there currently any evidence of the presence of *Althaea Hirsuta* at the site.

2. Original Report Conclusions

- 2.1 The survey issued by RSK Carter dated 23rd January 2009 considers the suitability of the site as a habitat for a legally protected plant species, viz. *Althaea hirsuta* (Rough Marsh-mallow), which has been recorded in the ten-kilometre grid-square. It provides background information on the species (hereafter generally referred to as *Althaea*), describes the site and its vegetation, and evaluates the likelihood of *Althaea* being present.
- 2.2 Prior to the site visit, a brief desk-based data-search of published sources was carried out to obtain information on *Althaea hirsuta* (Rough Marsh-mallow).
- 2.3 The site was thoroughly searched for evidence of *Althaea* and the habitat and vegetation types were described.
- 2.4 The report concludes that the absence of *Althaea* cannot absolutely be ruled out from a January survey, and it is always possible that there might be dormant seeds that could germinate in the future. However, the failure to find *Althaea* or similar malvaceous species, considered together with the strongly ruderal character of the site and the lack of previous records, make it very unlikely that *Althaea hirsuta* (Rough Marsh-mallow) is present.

3. 2014 Site Visit and Further Search for Evidence of *Althaea*

3.1 Below two photographs taken during the 2008 survey are set out alongside recent photographs taken from approximately the same position during the site visit on 21st Nov 2014.

2014



2008



3.2 It can be seen that no material changes have taken place to the topography of the site and that the current ecology is visually consistent with that which existed at the site in 2008.

3.3 A thorough and systematic search of the site on 21st November 2014 was carried out and, consistent with the 2008 result, no evidence of the existence of *Althaea Hirsuta* was found. The search also revealed that the various species currently present at the site are consistent with those species recorded during the 2008 survey.

3.4 PCML can therefore confirm the findings of the 2009 report ie. that the failure to find *Althaea* or similar malvaceous species, considered together with the strongly ruderal character of the site and the lack of previous records, make it very unlikely that *Althaea hirsuta* (Rough Marsh-mallow) is present.

24 November 20

4. Photographs taken during the Survey on 21st November





**PROPOSED BIOMASS
POWER PLANT,
BARRY, SOUTH
WALES**

**SURVEY FOR
ALTHAEA HIRSUTA
(ROUGH MARSH-
MALLOW)**

**Prepared for Sunrise
Renewables**

January 2009

RSK GENERAL NOTES

Project No: P660003

Title: Proposed Biomass Power Plant, Barry, South Wales
Survey for Althaea Hirsuta (Rough Marsh-mallow)

Client: Sunrise Renewables

Issue Date: 23rd January 2009

Issuing Office: Manchester

Authorised by: Rob Domeney **Project Manager** **Date:** 23/12/08

Authorised by: Sarah Harmer **Project QA Rep** **Date:** 23/12/08

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This work has been undertaken in accordance with the Quality Management System of RSK Environment Ltd.

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1 INTRODUCTION

1.1 Purpose of the Report

This report details a survey of a land-parcel at Barry Docks (OS Grid Reference ST 126 676) to assess its suitability for a legally protected plant species, viz. *Althaea hirsuta* (Rough Marsh-mallow), which has been recorded in the ten-kilometre grid-square. It provides background information on the species (hereafter generally referred to as *Althaea*), describes the site and its vegetation, and evaluates the likelihood of *Althaea* being present.

The survey was commissioned by Sunrise Renewables Ltd and carried out by a botanist from RSK Carter Ecological Ltd on 12th January 2009.

1.2 Site Context

The site comprises a roughly rectangular parcel of derelict land on the north side of Barry Docks bordered by Woodham Road and David Davies Road to the west and south, and areas of derelict land to the east and north (containing hard standing and rough grassland with scattered scrub). A strip of grassland and a railway line separate the site from the wet dock to the south and there is a row of commercial buildings to the west. The wider landscape features a mixture of industrial and post-industrial habitats including a large expanse of newly colonising grassland on derelict land to the west.

1.3 Contents of the Report

This report is set out as follows:

- *Section 1* provides introductory material;
- *Section 2* describes the desk-study and survey methods;
- *Section 3* presents and discusses the results;
- *Section 4* gives references;
- *Section 5 (Appendix A)* gives a plant species list; and
- *Section 6 (Appendix B)* contains plates.

Plant nomenclature in this report follows Stace (1997). Plant names in the text are given with scientific names first, followed by the English name in brackets. Doubtful identifications are preceded by 'cf.' placed before the specific epithet where the plant is very probably the species indicated, but it is impossible to distinguish it from similar members of the genus with certainty.

2***METHODS*****2.1*****Background Data Search and Site Visit***

Prior to the site visit, a brief desk-based data-search of published sources was carried out to obtain information on *Althaea hirsuta* (Rough Marsh-mallow).

The site was thoroughly searched for evidence of *Althaea* and the habitat and vegetation types were described. Vascular plant species were listed (*Appendix A*). Subjective estimates of their relative abundance were added using a modified DAFOR scale, which ranks species according to their relative abundance in a given parcel of land as follows: d – dominant, a – abundant, f – frequent, o – occasional, r – rare. In addition, the following prefixes are used: l – locally, v – very. The terms ‘abundant’ and ‘rare’ are used by convention, and apply only to relative-abundance within the recorded area. It does not mean that species are ‘rare’ in the general sense.

January is a poor time of year for most botanical recording purposes. Some species are minimally in evidence as leaves only, and some can be identified from the previous year’s dead remains. But - leaving aside trees, shrubs and large winter-green perennials - many species are not in evidence at all, and whether leaves and dead remains adequate for identification are to be found at a given location is for many species a matter of serendipity. Where these signs are to be found, the presence of a species can often be confirmed, but absence is generally impossible to prove. In January 2009 all this was to some extent exacerbated by cold and frosty weather in the preceding six weeks (as it hastens deterioration of remains and delays development of leaves).

This means that the species list (*Appendix A*) cannot be regarded as exhaustive; many more species would be found in a summer survey. It does, however, adequately indicate the character of the vegetation. The *Althaea* itself normally behaves as a summer- or autumn-germinating winter-annual (*Section 3*), and it is therefore reasonable to expect that leaves would be in evidence in mid-winter. A January survey cannot absolutely prove absence of the *Althaea*, but the likelihood is that if it were present then it could in fact be found.

3

RESULTS AND EVALUATION

3.1

Background information on Althaea hirsuta (Rough Marsh-mallow)

Althaea hirsuta (Rough Marsh-mallow) is listed on *Schedule 8* of the *Wildlife and Countryside Act 1981* giving it legal protection in England and Wales against intentional picking, uprooting and destruction. It was listed as 'Endangered' in Wigginton (1999), but it is not listed as threatened in the most recent IUCN Red List (Cheffings & Farrell 2005).

Althaea is an annual, or rarely biennial, herb with erect to decumbent stems up to 60 cm; it is coarsely hairy (hispid) and has shallowly lobed (palmate) lower leaves, and deeply divided upper leaves, all with 3-5 lobes (Stace 1997). The flowers are lilac in colour and have five petals 12 to 16 mm in length. In general appearance, it resembles other British species of the Malvaceae such as *Malva moschata* (Musk Mallow).

Althaea behaves mainly as a winter annual in Britain (rarely as a summer annual in wet seasons), flowering from May to early July and setting seed in July and August (Wigginton 1999). It is a poor competitor and requires bare soil for germination and seedling establishment. If conditions are right, germination may follow shortly after seed-set so that identifiable plants are likely to be in evidence by January.

Althaea is considered by many to be an introduced species in Britain, e.g. Stace (1997), Pearman *et al* (2002). However, in Oxfordshire, Somerset and especially in Kent (where it has been known since 1792) it occurs in open, semi-natural vegetation on dry calcareous soils (especially on south-facing slopes), which suggests that it may be native there. From Wigginton (1999) it seems that it usually occurs with at least some distinctly calcicolous associates, either grassland plants or arable weeds, and not with species typical of strongly ruderal or brown-field sites. However, this author does not really discuss the more casual occurrences of *Althaea*.

It also occurs as a casual on waste ground, and as such has been recorded from scattered localities, mostly in southern England and Wales. The most recent county Flora for Glamorgan (Wade *et al*. 1994) listed no recent records, but it has since been recorded from the 10 km square covering Barry Docks (Pearman *et al* 2002).

3.2 *Field Survey Results*

No evidence of *Althaea hirsuta* (Rough Marsh-mallow) was recorded. Species recorded from the site are listed in *Table 1* in *Appendix A*.

The site largely comprises bare soil or concrete without vegetation. Much of the ground is heavily rutted by vehicles and there is an abundance of fly-tipped rubbish throughout (*Plate 1* in *Appendix B*). Vegetation is confined to scattered, semi-ruderal scrub and grassland along the boundary fences, in the north-east corner, and more particularly at the southern end of the site.

The scattered scrub along the boundary fences mainly consists of *Buddleja davidii* (Butterfly-bush), although there are smaller amounts of *Rosa* species (a Rose) and *Rubus fruticosus* agg. (Bramble). There are small patches of rough grassland with a more or less closed sward alongside scrub in the north-eastern corner of the site and on the verge of David Davies Road. These are dominated by coarse grasses such as *Elytrigia repens* (Common Couch) and also feature the tall umbellifer *Pastinaca sativa* (Wild Parsnip).

The only substantial area of vegetation is at the southern end of the site, where it consists of open, semi-ruderal grassland colonising a substrate of spoil, gravel and concrete (*Plate 2* in *Appendix B*). The sparse sward includes the grasses *Agrostis stolonifera* (Creeping Bent) and *Festuca rubra* (Red Fescue) together with a range of herbs typical of disturbed sites such as *Daucus carota* (Wild Carrot), *Medicago lupulina* (Black Medick), *Senecio erucifolius* (Hoary Ragwort) and *Tripleurospermum inodorum* (Scentless Mayweed). Tall ruderals and garden escapes are also frequent, especially on piles of spoil, and include *Conyza* species (a Fleabane), *Hirschfeldia incana* (Hoary Mustard) and a species of *Salvia* or *Teucrium*.

3.3 *Discussion*

The strongly ruderal character of this site makes it an unlikely place for *Althaea hirsuta* (Rough Marsh-mallow). If it were present then it could only be so as a passing casual. It is generally accepted that little nature conservation value attaches to such casual occurrences of rare species in atypically ruderal sites (as compared to that attaching to them in semi-natural sites). However, to the best of our understanding, that does not derogate from the legal protection attaching to *Althaea*, which would be just as protected as a casual in this site as it would be as a permanent denizen in a semi-natural site, except in so far as mitigation for development, *e.g.* transplantation, might be much easier to agree with planning authorities and Countryside Council for Wales.

The species list for the site is typical for a disturbed, more-or-less eutrophic, and neutral to perhaps marginally calcareous ruderal site. Though the substrates contain some calcareous materials, *e.g.* concrete, mortar from building rubble, this is not very distinctly reflected in the species list, there being no strong calcicoles except for the woody climber *Clematis vitalba* (Traveller's Joy). Species such as *Centranthus ruber* (Red Valerian), *Daucus carota* ssp. *carota* (Wild Carrot), *Foeniculum vulgare* (Fennel), *Fragaria vesca* (Wild Strawberry) and *Pastinaca sativa* (Wild Parsnip) are suggestive of very mildly calcicolous tendencies in the flora, but the great majority of the species listed are widespread on normal ruderal sites across lowland Britain. For vegetation suitable for *Althaea* the species list is not encouraging, but neither is it prohibitive; the species named above could just be congeners of *Althaea*.

The greater part of the site has been so disturbed by vehicles (or by some other previous use) that it supports no vegetation at all, while the rather limited areas of scrub and rough grassland can be discounted as potential habitat for *Althaea* because it would not persist amongst the closed vegetation.

By contrast, the area at the southern end of the site appears to provide good conditions for the germination and establishment of *Althaea*. The vegetation is open and the substrate is free-draining, relatively infertile and perhaps mildly calcareous. Furthermore, similar early-successional grassland not surveyed in surrounding sites could perhaps support *Althaea*, and in that case might act as a seed-source for *Althaea*.

Althaea mainly behaves as a winter annual, and on the balance of probabilities it ought to be in evidence in January, though spring germination (and thence summer annual behaviour) is not unknown in Britain. No *Althaea* or superficially similar species of the Malvaceae were recorded in this survey. Because of the limited area of suitable habitat, it is very unlikely that even poorly-developed specimens would have been missed if they were present.

For the reasons explained above, the absence of *Althaea* cannot absolutely be ruled out from a January survey, and it is always possible that there might be dormant seeds that could germinate in the future. But the failure to find *Althaea* or similar malvaceous species, considered together with the strongly ruderal character of the site and the lack of previous records, make it very unlikely that *Althaea hirsuta* (Rough Marsh-mallow) is present.

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APPENDIX A – SPECIES LIST*Table 1. Vascular plant species recorded from the site on 12/01/2009.*

a) Shrubs and woody climbers	
<i>Buddleja davidii</i> (Butterfly-bush)	f
<i>Clematis vitalba</i> (Traveller's-joy)	r
<i>Rosa</i> species (a Rose)	r
<i>Rubus fruticosus</i> agg. (Bramble)	lf
<i>Salix cinerea</i> (Grey Willow)	vr
<i>Sambucus nigra</i> (Elder)	vr
b) Herbaceous species	
<i>Agrostis stolonifera</i> (Creeping Bent)	la
<i>Anagallis arvensis</i> (Scarlet Pimpernel)	vr
<i>Arrhenatherum elatius</i> (False Oat-grass)	r
<i>Artemisia vulgaris</i> (Mugwort)	r
<i>Bromus hordeaceus</i> (Soft-brome)	r
<i>Cardamine hirsuta</i> (Hairy Bitter-cress)	r
<i>Centranthus ruber</i> (Red Valerian)	r
<i>Chamerion angustifolium</i> (Rosebay Willowherb)	vr
<i>Cirsium arvense</i> (Creeping Thistle)	r
<i>Cirsium vulgare</i> (Spear Thistle)	vr
<i>Conyza</i> species (a Fleabane)	o
<i>Dactylis glomerata</i> (Cock's-foot)	vr
<i>Daucus carota</i> (Wild Carrot)	o
<i>Dipsacus fullonum</i> (Teasel)	vr
<i>Dryopteris filix-mas</i> (Male-fern)	vr
<i>Elytrigia repens</i> (Common Couch)	la
<i>Epilobium ciliatum</i> (American Willowherb)	r
<i>Epilobium parviflorum</i> (Hoary Willowherb)	vr
<i>Eupatorium cannabinum</i> (Hemp-agrimony)	r
<i>Festuca rubra</i> (Red Fescue)	o
<i>Foeniculum vulgare</i> (Fennel)	vr
<i>Fragaria vesca</i> (Wild Strawberry)	vr
<i>Galium aparine</i> (Cleavers)	vr
<i>Galium mollugo</i> (Hedge Bedstraw)	r
<i>Geranium dissectum</i> (Cut-leaved Crane's-bill)	vr
<i>Geranium lucidum</i> (Shining Crane's-bill)	vr
<i>Geranium robertianum</i> (Herb-Robert)	r
<i>Geranium rotundifolium</i> (Round-leaved Crane's-bill)	r
<i>Hirschfeldia incana</i> (Hoary Mustard)	f
<i>Hypericum humifusum</i> (Trailing St John's-wort)	r
<i>Leucanthemum vulgare</i> (Oxeye Daisy)	r
<i>Linaria vulgaris</i> (Common Toadflax)	r
<i>Lotus corniculatus</i> (Common Bird's-foot-trefoil)	r
<i>Medicago lupulina</i> (Black Medick)	o
<i>Melilotus</i> species (a Melilot)	r
<i>Myosotis sylvatica</i> (Wood Forget-me-not)	vr
<i>Oenothera</i> species (an Evening-primrose)	r

<i>Pastinaca sativa</i> (Wild Parsnip)	vlf
<i>Picris echioides</i> (Bristly Oxtongue)	r
<i>Picris hieracioides</i> (Hawkweed Oxtongue)	r
<i>Plantago lanceolata</i> (Ribwort Plantain)	r
<i>Poa annua</i> (Annual Meadow-grass)	r
<i>Potentilla reptans</i> (Creeping Cinquefoil)	vr
<i>Prunella vulgaris</i> (Selfheal)	vr
<i>Pulicaria dysenterica</i> (Common Fleabane)	vr
<i>Ranunculus repens</i> (Creeping Buttercup)	vlf
<i>Reseda luteola</i> (Weld)	r
<i>Rumex crispus</i> (Curled Dock)	r
<i>Rumex obtusifolius</i> (Broad-leaved Dock)	r
<i>Salvia</i> or <i>Teucrium</i> species (a Clary or Sage)	lf
<i>Senecio erucifolius</i> (Hoary Ragwort)	o
<i>Senecio jacobaea</i> (Common Ragwort)	r
<i>Senecio vulgaris</i> (Groundsel)	vr
<i>Sonchus oleraceus</i> (Smooth Sow-thistle)	vr
<i>Sisymbrium officinale</i> (Hedge Mustard)	r
<i>Taraxacum</i> sect. <i>Ruderalia</i> (Common Dandelion)	r
<i>Trifolium medium</i> (Zigzag Clover)	vr
<i>Trifolium pratense</i> (Red Clover)	vr
<i>Trifolium repens</i> (White Clover)	r
<i>Tripleurospermum inodorum</i> (Scentless Mayweed)	o
<i>Vicia sativa</i> (Common Vetch)	r

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APPENDIX B – PHOTOGRAPHS



Plate 1. Looking from west to east across the site.



Plate 2. Open semi-ruderal grassland colonising the southern corner of the site.