

**Land adjacent to Phoenix Way,  
Penllergaer, Swansea**  
BREEAM Ecology Report

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## Issuing office

17 Southward Lane | Langland | Swansea | SA3 4QE  
 T: 01792 363026 | W: www.bsg-ecology.com | E: info@bsg-ecology.com

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<b>Project</b>	BREEAM Ecology Report
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	<b>Name</b>	<b>Position</b>	<b>Date</b>
<b>Originated</b>	Owain Gabb	Director	13 November 2017
<b>Reviewed</b>	Steven Betts	Partner	13 November 2017
<b>Approved for issue to client</b>	Steven Betts	Partner	16 November 2017
<b>Issued to client</b>	Owain Gabb	Director	16 November 2017

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# 1 Introduction

## Background to commission

- 1.1 BSG Ecology has been commissioned by Moller PCI Ltd to undertake the ecological elements for a BREAM assessment for land adjacent to Phoenix Road, Penllergaer, Swansea.
- 1.2 The proposed development will be an industrial unit with office accommodation. This meets the criteria of a 'Simple Building' with regard to the BREEAM UK New Construction Manual 2014.
- 1.3 Car parking and servicing areas will be located immediately north, south and east of building. A water storage area and areas of landscaping, the largest of which will be to the west of the building, will make up the rest of the site.

## Site description

- 1.4 The site is located to the south of Phoenix Road, on the Garngoch Industrial Estate, Penllergaer. It has an approximate central Ordnance Survey Grid Reference of SS6077 9823 and is approximately 0.993 hectares in size. A site boundary is shown in **Figure 1**. Photographs are in **Section 6**.
- 1.5 The site is currently predominantly bare ground (earth). It was cleared of vegetation mid-October 2017. Prior to clearance, aerial imagery indicates approximately 75 % of the site was under dense scrub, with the remainder under grassland and ruderal vegetation (Google Inc, 2015). Historical aerial photographs show that scrub cover had substantially increased over a period of approximately ten years; before this the site was predominantly grassland. There is no indication from historical aerial imagery or Ordnance Survey maps of previous development other than an east-west culvert through the northern part of the site.
- 1.6 Land directly adjacent to the site, on its southern and eastern edges, also supports dense scrub habitats. A network of tracks is present indicating regular recreational use. Mynydd Garn Goch, an extensive area of open access land that supports a mosaic of grassland, heath, scrub and woodland habitats and which is subject to non-statutory designation (Mynydd Garn Goch Site of Importance for Nature Conservation [SINC]) is present to the south of the site.

## Aims of Study

- 1.7 BSG Ecology was commissioned by Moller PCI Ltd to complete ecological work to address the biodiversity elements of a BREEAM assessment (credits LE02 – LE04 under the BREEAM UK New Construction 2014 criteria). Credits are not available under LE05, as the development is a simple building.
- 1.8 The approach to and findings of the assessment are detailed within this report.

## 2 Ecological Characteristics of Site

### Field Survey

- 2.1 A site visit was undertaken by Anna Gundry MCIEEM on 3 November 2017.
- 2.2 The objective of the visit was to compile a botanical species list to inform the BREEAM assessment process.
- 2.3 Anna has a Post Graduate Diploma in Biological Recording, and an Honours Degree in Biology. She is an experienced botanist and has considerable experience of both development and conservation-related survey, having worked as both a consultant ecologist and as a botanist for the Institute of Grassland and Environmental Research.
- 2.4 As the site had been largely cleared, areas of stacked brush originating from the clearance, regenerating scrub and small areas of undisturbed turf within the site were surveyed. Surrounding habitats were also surveyed. This allowed a botanical species list to be compiled that was likely to reflect conditions on site prior to the clearance of vegetation.

### Habitats

- 2.5 A total of 24 plant species were recorded within the site, and a further 18 species in the surrounding area. A species list is provided in **Appendix 1**.
- 2.6 Review of aerial and Google Streetview imagery prior to the site visit indicated that before clearance much of the area was dominated by dense scrub. These images suggested that willows *Salix* spp., and broom *Cytisus* spp., were the dominant woody species, while birch *Betula* spp., occurred locally close to Phoenix Road.
- 2.7 The survey recorded regenerating and / or brashed alder *Alnus glutinosa*, broom, bramble *Rubus fruticosus* agg., and grey willow *Salix cinerea* on site, and goat willow *Salix caprea* in adjacent habitats. On the basis of the available information, it is likely that these species (and birch) will have made up the vegetation across approximately 75 % of the site prior to clearance.
- 2.8 The plant community associated with some undisturbed areas of turf featured species including black knapweed *Centaurea nigra*. Comparison of the plant community on site with that of adjacent areas indicated that it had a more neutral character than surrounding habitats (which appeared more acidic and / or wetter).
- 2.9 No non-native invasive plant species (as listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended)) were noted during the work. However, it would not be possible to conclude the absence of these species based on the survey, as much of the site was cleared back to bare earth.

### Faunal Species

- 2.10 No fauna of note was recorded during the site visit.
- 2.11 The conditions prior to clearance (dense scrub dominant and small pockets of neutral grassland and ruderal habitats) are unlikely to have resulted in the site being favourable to reptiles (which are likely to occur in nearby areas of open habitats).
- 2.12 The damp, relatively flat nature of the site indicates that it was unlikely to have supported badger setts prior to clearance.
- 2.13 Birds are likely to have nested in the scrub, but breeding will have been over prior to site clearance in mid-October 2017.

- 2.14 Other protected species are considered unlikely to occur.

**Limitations to the Work**

- 2.15 The survey was undertaken by a very experienced botanist. The largely cleared nature of the site and the timing of the survey will have resulted in some plant species being missed. Some others (best identified to species level when in flower) could be identified to Genus level only.
- 2.16 However, some reasonable assumptions with regard to the plant community of the open areas of the site pre-clearance have been made, and it appears unlikely this has affected characterisation of the scrub habitats that dominated the site prior to its clearance.

### 3 BREEAM Assessment

#### Introduction

- 3.1 The following sections of this report provide an assessment of the development site in relation to BREEAM UK New Construction 2014 criteria LE02-LE04. This report advises the number of credits that can be achieved for each criterion when assessed in accordance with the guidance. An outline site design (Drawing Number 1622.PLO1C) produced by Stephen Waldron Architects, and area measurements (concerning the extent of hard and soft landscaping) provided by the client team have been used to inform the assessment process.

#### Credentials of the Suitably Qualified Ecologist

- 3.2 The ecological assessment has been undertaken by a Suitably Qualified Ecologist (SQE), as defined and required by BREEAM guidance.
- 3.3 Anna Gundry MCIEEM, the SQE, holds a degree in Biology and a Post Graduate Diploma in Biological Recording, and is a practising ecologist with over fifteen years' professional experience. She is a full member of the Institute of Chartered Ecology and Environmental Management (CIEEM) and, as such, is bound by its professional code of conduct and subject to peer review.
- 3.4 The assessment therefore meets the necessary requirements to validate awarding Land Use and Ecology Credits.

#### Land Use and Ecology Criteria for Assessment

- 3.5 There are four ecological criteria associated with BREEAM UK New Construction 2014 which generate credits that relate directly to ecology. Of these, LE05 does not apply to simple buildings. The requirements of Criteria LE02-LE04 are set out in Table 1 below.

Table 1: Ecological Criteria & Credits

Criterion	Description of requirements	Available credits
LE02 – Ecological Value of the Site and Protection of Ecological Features	<p>Aim: To encourage development on land that already has limited value to wildlife and to protect existing ecological features from substantial damage during site preparation and completion of construction works.</p> <p>Credit Criteria: requires a suitably qualified ecologist to confirm that the land and surrounding site is of 'low ecological value' within an ecological assessment report, based on a site survey.</p> <p>All existing features of ecological value within and surrounding the construction zone and site boundary are adequately protected from damage during clearance, site preparation and construction activities. In all cases the contractor is required to construct ecological protection prior to site construction or preparation works.</p>	2

<p>LE03 – Minimising Impact on Existing Site Ecology</p>	<p>Aim: To minimise the impact of a building development on existing site ecology.</p> <p>Credit Criteria: requires a suitably qualified ecologist to calculate the overall change in habitat types between pre-developed site and proposed state. Credits will be awarded according to the significance in the change of ecological value as follows:</p> <p>1 credit - requires evidence to demonstrate the change in ecological value of the site as a result of development is minimal; the change in plant species is between zero and minus nine.</p> <p>2 credits - requires evidence to demonstrate the change in ecological value of the site as a result of development, is equal to, or greater than, zero species (i.e. no negative change).</p>	<p>2</p>
<p>LE04 – Enhancing Site Ecology</p>	<p>Aim: To encourage actions taken to enhance the ecological value of the site as a result of development.</p> <p>Credit Criteria:</p> <p>1 credit – requires the design team/client to appoint an expert 'local' ecologist and to use a variety of sources of information to inform the adoption of locally relevant ecological measures that will enhance the ecological value of the site. These may include planting of native species attractive to wildlife, adoption of good horticultural practice and installation of bird / bat / insect boxes at appropriate locations within the site</p>	<p>1</p>

**LE02 Ecological Value of Land and Protection of Ecological Features**

- 3.6 This section of the BREEAM assessment describes key features associated with the site in order to assess whether the construction zone is defined as land of low ecological value, and to ensure that all existing features of ecological value will be adequately protected from damage during the site preparation and construction works.
- 3.7 The *construction zone* is defined as the land which comprises the construction work area, its associated infrastructure and any temporary site storage areas.

**Summary of Ecological Value of Land within the Construction Zone**

- 3.8 *One credit: Land within the construction zone is defined as land of low ecological value using either the BREEAM checklist or by a SQE who has identified the land to be of low ecological value within a report based on a site survey.*
- 3.9 At the time of clearance the site appears to have been dominated by common scrub species (mainly willow, broom and birch species) associated with damp ground. Pockets of ruderal vegetation and neutral grassland made up the remainder of the area.
- 3.10 The potential for the site to support protected species prior to its development is low, albeit a range of common breeding birds would have been expected to be present. Section 2 of this report describes the characteristics of the habitats within the site in further detail.
- 3.11 Due to the limited extent of the site, and the domination of scrub species within it, it is considered that the site is of low ecological value.

3.12 One credit can be awarded.

#### Protection of Ecological Features

3.13 *One credit: all existing features of ecological value within and surrounding the construction zone and site boundary are adequately protected from damage during clearance, site preparation or construction activities.*

3.14 The habitats within the site were of low ecological value. No ecological features within the site merited specific protection during site clearance, which was undertaken at the end of the summer / early autumn (and it therefore unlikely to have affected breeding birds).

3.15 Within 100 m of the site there is one ecological feature that requires protection (as defined by the BREEAM (2014) guidance and evidenced by its designated status), Mynydd Garn Goch SINC. The SINC is immediately south of the site, and is designated for its "*Molinia grassland, marshy grassland, scrub, bracken, neutral grassland, acid grassland, lichen/bryophyte heath and ponds.*" There is a wet area in the south-western corner of the site that is likely to have been a pond in the past. Other land on the edge of the SINC was noted as being scrub dominated, but generally wetter in character than the site, and crossed by several paths that appear to be regularly used by dog walkers.

3.16 Clearance works were restricted to the site, and no impacts on adjacent areas occurred.

3.17 A second credit can therefore be awarded.

#### Summary with regard to LE02

##### **Assessment of ecological value of Site / protection of ecological features**

LE02	Ecological Value of Site and Protection of Ecological Features	<p>A suitably qualified ecologist has confirmed that the habitats within the construction zone are of negligible ecological value.</p> <p>There are no Ecological features within the site that would merit protection measures during site clearance, preparation or construction works.</p> <p>Nearby areas of Mynydd Garn Goch SINC are unlikely to have been impacted by site clearance works.</p>	<p>Credit Score</p> <p style="text-align: center;"><b>2</b></p>
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#### LE03 Mitigating Ecological Impact

3.18 This section assesses the likely change in the ecological value of the development site based on a calculation of the difference in the number of botanical species per area of plot type before and after the development. The BREEAM LE03/LE04 calculator has been used in this calculation.

3.19 The number of species considered to be present prior to construction commencing is based on the species lists compiled by Anna Gundrey during the site visit in early November 2017 (and presented in full in Appendix 1).

3.20 Based on the results of the survey and analysis of aerial imagery, it appears reasonable to assume that six woody species made up the plant community across 75 % of the area, and that patches of ruderal and grassland habitats supported an additional 29 species (the 20 species noted as being present on site and half of the species recorded from adjacent but more varied nearby habitats).

3.21 It has been assumed that the more extensive areas of grassland to the west and south-east of the proposed Moller PCI building (as shown on Figure 1), and totalling approximately 4482 m<sup>2</sup> in size will be sown with an Emorsgate EM4 Meadow Mixture for Clay Soils<sup>1</sup>. This contains 24 species,

<sup>1</sup> <https://wildseed.co.uk/mixtures/view/5>

including some of those known to occur on site presently (such as black knapweed, bird's-foot trefoil *Lotus corniculatus* and red clover *Trifolium pratense*).

- 3.22 It is assumed that the water storage area will be surrounded by earth banks and hedged on its southern, eastern and western sides to prevent direct public access from adjacent common land. Hedging species should include hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa* and holly *Ilex aquifolium*; all provide berries and cover for foraging and breeding birds, and are typical of the Swansea / Gower area.
- 3.23 While it is anticipated that there will be some ornamental planting of trees and shrubs around the periphery of the site, it is also recommended that the planting strategy includes rowan *Sorbus aucuparia* and oak *Quercus robur* due to their natural occurrence in the wider area, and their biodiversity value. Thirty-four individual trees are shown on Drawing 1622.PLOIA (the indicative site design), and it has been assumed that at least six tree species will be included in the planting plan.

### Calculations

Calculation of the Ecological Value of the Site before Development				
Plot type (in Landscape Type: urban mosaic)	Area of plot type	x	Species number	Species x area of plot type
Dense Scrub	7,443.75 m <sup>2</sup>		6	44,662.50
Ruderal / neutral grassland mosaic	2,481.75 m <sup>2</sup>		29	71,970.75
(1) Total Site Area = 9,925.00 m <sup>2</sup>			(2) Total $\sum$ species x area = 116,633.25	
Species per plot type before development				
Total $\sum$ species x area of plot type/total Site area = 116,633.25 / 9,925.00 = 11.75				

Calculation of the Ecological Value of the Site after Development				
Plot type (in Landscape Type: urban mosaic)	Area of plot type	x	Species number	Species x area of plot type
Shrub/perennials	150.00 m <sup>2</sup> <sup>2</sup>		3	450.00
Neutral grassland (meadow)	4,482.00 m <sup>2</sup>		24	107,568.00
Amenity grassland	667.50 m <sup>2</sup>		3	2,002.50
Pond (allow to naturally vegetate)	580.00 m <sup>2</sup>		0	0
Hardstanding / buildings	4,184.00 m <sup>2</sup>		0	0
Trees	34 trees		6	816 <sup>3</sup>
(1) Total Site Area = 9,925.00 m <sup>2</sup> <sup>4</sup>			(2) Total $\sum$ species x area = 110,156.50	
Species per plot type after development:				
Total $\sum$ species x area of plot type/total Site area = 110,836.50 / 9,925.00 = 11.17				

<sup>2</sup> It has been assumed that there will be approximately 50 m of hedgerow planted around the water storage area, and that this will be 3 m wide.

<sup>3</sup> Assumes the crown of each tree will cover 4 m<sup>2</sup> in extent.

<sup>4</sup> The area of plot type totals do not add up to 9,925 m<sup>2</sup>. It has been assumed that the trees will not result in loss of grassland (at least until these become well established), while no attempt has been made to account for the extent of semi-natural scrub by adjusting the extent of the pond. Making minor adjustments to these areas has a very limited effect on the calculator.

**Calculation of Change in Ecological Value of Site:**

Change in species per plot type:
Species per plot type after development – Species per plot type before development
11.17-11.75 = -0.58

**Assessment of change in ecological value**

LE03	Mitigating Ecological Impact	A small-scale negative change will occur of - 0.58 (to 2 decimal places). One credit can be achieved.	Credit score <b>1</b>
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3.24 It is anticipated that there will be a formal planting scheme dominated by amenity grassland and ornamental shrubs in the area to the north and south of the site entrance. For the purposes of the calculation it has been assumed that e.g. Medallion turf supplied by Rowlawn will be laid. This is a species-poor mix of two fescue and one rye grass cultivar. There would be very limited biodiversity value in seeding these areas with a conservation mix due to their extent.

**LE04 Enhancing Site Ecology**

3.25 Following the BREEAM UK New Construction 2014 guidance, the intrinsic ecological value of the construction zone has been assessed as being low. It is considered that implementation of the general recommendations set out in this section will enhance the ecological value of the site.

**Key recommendations**

**Grassland Management**

- 3.26 The meadow (neutral grassland) should be established and initially managed by:
- Removing encroaching weed species.
  - Preparation of the soil to produce a medium tilth and firm surface.
  - Sowing at an appropriate time of year (typically spring or autumn).
  - Cutting regularly to a height of 40-60 mm in the first year of establishment (avoiding cuts in spring and early summer), and removal of arisings. This will control annual weeds and help maintain balance between faster growing grasses and slower developing wild flowers.
  - Carefully dig out or spot treat any residual perennial weeds such as docks.
- 3.27 Following establishment, in the second and subsequent years, a (main) summer hay cut in combination with autumn mowing should be undertaken. The grassland should not be cut between spring and August. In August it should be cut (the hay cut) to 50 mm using a petrol strimmer or tractor. The hay should be allowed to lie and shed seed for up to a week before being removed from site. Repeat cuts should be taken to maintain the sward at 50 mm through the autumn and winter.
- 3.28 It is recommended that a contractor with experience of semi-natural grassland management is enlisted to prepare and sow the grassland and to produce and implement a grassland cutting regime to maximise the biodiversity value of the area.

**Water Storage Area**

- 3.29 The function of the water storage area will be to take run off from the roof of the new building and from adjacent areas of hard standing. It will be created in a waterlogged depression towards the south-western site boundary.
- 3.30 The pond has the potential to provide biodiversity enhancement through:
- Acting as part of the networks of ponds within the Mynydd Garn Goch SINC to provide a resource for a range of species, but particularly amphibians and invertebrates.
  - Sensitive design of the storage area. Wildlife ponds should have shallow, sloping sides (less than 1:5 and preferably nearer to 1:20) and should be designed to have the maximum amount of ‘shallows’ possible, as these are the most productive areas for plants and invertebrates. ‘Shallows’ have a water depth of between 1cm and 10cm. Deeper areas are useful in order to prevent marginal plants becoming dominant across an entire waterbody, and in order to prolong the life of the pond (as they take longer to silt up). A water depth of 30cm or more tends to prevent marginal plants taking root, and submergent plants therefore dominate.
  - Avoiding planting scrub on all four sides (i.e. not planting on the northern edge) to avoid shading over time (resulting in reduced plant and invertebrate diversity).
  - Avoiding the introduction of fish. Fish species will typically predate invertebrates and the young of amphibians.
  - Allowing the feature to vegetate naturally. If planting is undertaken, there should be care not to introduce non-native invasive species (some of which remain available through garden centres and other outlets).
- 3.31 It is recommended that a contractor with experience of wildlife pond establishment is enlisted to prepare and landscape the pond area and to undertake annual checks to determine if de-silting or vegetation management is required. The contractor should also give consideration to public safety in pond design.

**Assessment of ecological enhancement**

3.32 Relevant enhancements have been identified. These are detailed in Section 4 of this report.

LE04	Ecological Enhancement	<p>An expert ‘local’ ecologist has been appointed who has advised on a range of appropriate environmental measures for the site.</p> <p>These include planting of native species attractive to wildlife, adoption of management techniques aimed at maintaining botanical (and associated biodiversity interest), and design of ponds to maximize biodiversity value.</p> <p>Erection of bird and bat boxes has not been proposed at this stage. As the site matures it will provide good nesting and foraging potential for birds without the need for boxing. Bat boxing is similarly unlikely to result in real enhancement.</p>	<p>Credit Score</p> <p style="text-align: center;"><b>1</b></p>
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## 4 Summary of BREEAM Ecology Credits

4.1 The likely number of ecological credits that can be achieved has been assessed in accordance with the BREEAM UK New Construction 2014 criteria, and is summarised in the table below.

<b>Criterion</b>	<b>Likely Credit Score</b>
LE02 – Ecological value of land and protection of ecological features	2 out of 2
LE03 – Mitigating ecological impact	1 out of 2
LE04 – Enhancing site ecology	1 out of 1
<b>TOTAL</b>	<b>4 out of 5</b>

## 5 Photographs

<b>Looking north-west across site</b>	<b>Looking west – along southern edge of site</b>
	
<b>Dry culvert running parallel with Phoenix Way</b>	<b>South-western corner of site</b>
	

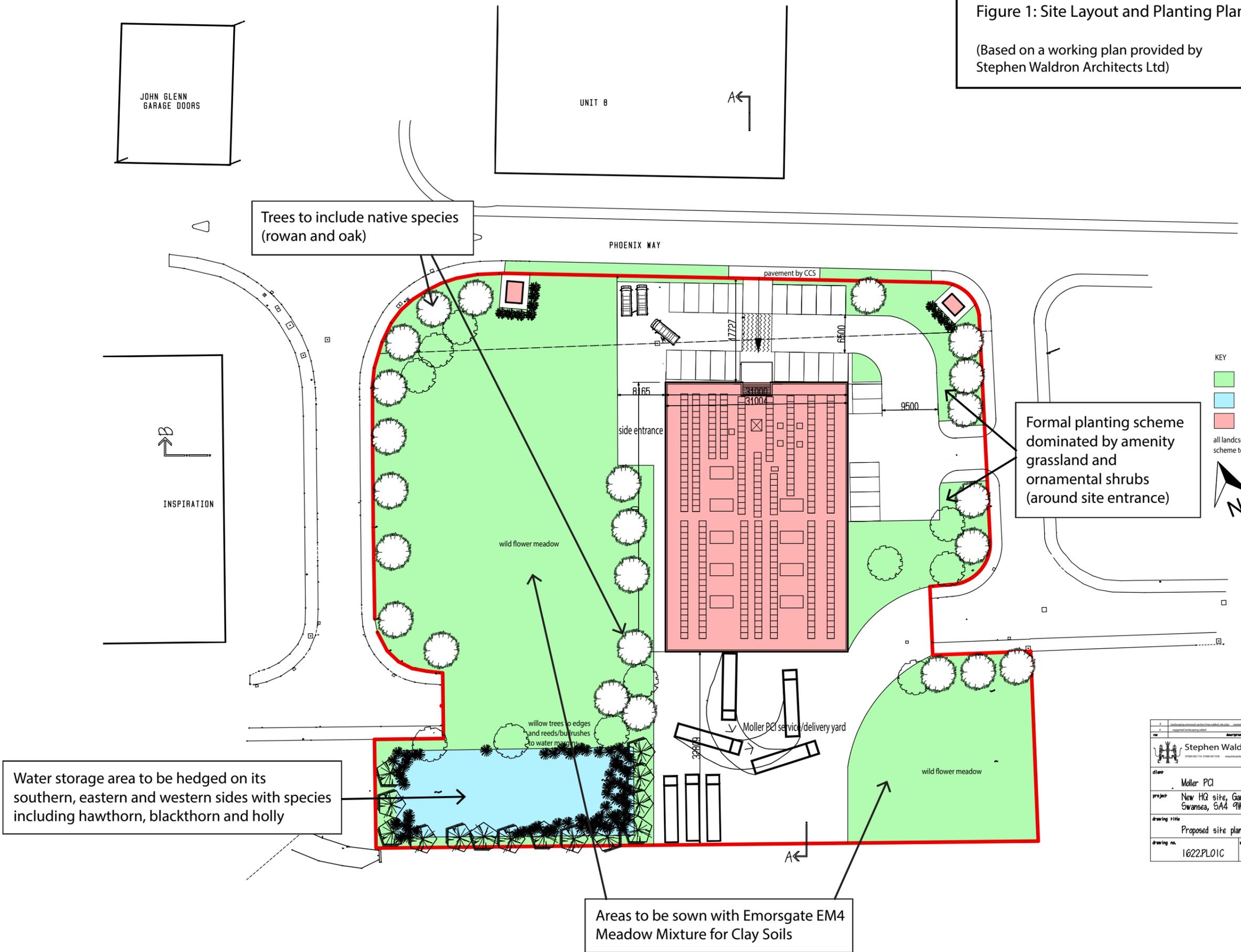
<b>Sample patch within site</b>	<b>Sample patch on edge of site</b>
 A photograph showing a sample patch within the site. The ground is covered with a dense layer of dry, brown twigs and branches. There are some green plants and a small blue object (possibly a marker) visible among the debris.	 A photograph showing a sample patch on the edge of the site. The ground is dark and muddy, with a small puddle of water. There is a dense growth of tall, dry, yellowish-brown grasses and some green plants.
<b>Sample patch on edge of site</b>	<b>Cleared trees/scrub</b>
 A photograph showing a sample patch on the edge of the site. The ground is covered with a dense growth of tall, green grasses and some green plants. There are some white markers visible among the vegetation.	 A photograph showing a cleared area of trees and scrub. The ground is dark and muddy, with some green moss or algae growing on it. There are some piles of cut branches and debris in the background.

<p><b><i>Phragmites</i> pond – just beyond south-western site boundary</b></p>	<p><b>Grass and scrub off-site to south-east</b></p>
	
<p><b><i>Molinia</i> and dense gorse scrub off-site to east and south</b></p>	<p><b>Areas of short boggy vegetation with <i>Carex flacca</i> off-site to east</b></p>
	

## **6 Figures**

(overleaf)

9927 Penllergaer BREEAM  
 Figure 1: Site Layout and Planting Plan  
 (Based on a working plan provided by  
 Stephen Waldron Architects Ltd)



- KEY
- grass areas
  - water storage tank
  - proposed buildings
- all landscaping is indicative; full scheme to be prepared



Stephen Waldron Architects Ltd	
drawn	Moller PCI
project	New HQ site, Garngoch Business Village Swansea, SA4 9WF
drawing title	Proposed site plan
drawing no.	1622.PLO1C
scale	1:250 @ A1
date	12.10.17
signed	SNBW

Areas to be sown with Emorsgate EM4 Meadow Mixture for Clay Soils

Water storage area to be hedged on its southern, eastern and western sides with species including hawthorn, blackthorn and holly

Formal planting scheme dominated by amenity grassland and ornamental shrubs (around site entrance)

Trees to include native species (rowan and oak)

## 7 Appendices

### Appendix 1. Botanical Species List

Garngoch Industrial Estate, Penllergaer BREEAM Plant Species list			
		Site	Additional species off-site
<b>Graminoids</b>			
<i>Agrostis stolonifera</i>	Creeping bent	1	
<i>Anthoxanthum odoratum</i>	Sweet vernal-grass		1
<i>Arrhenatherum elatius</i>	False oat-grass	1	
<i>Carex flacca</i>	Glaucus sedge		1
<i>Carex pendula</i>	Pendulous sedge		1
<i>Dactylis glomerata</i>	Cock's-foot	1	
<i>Elytrigia repens</i>	Couch	1	
<i>Festuca rubra</i>	Red fescue	1	
<i>Holcus lanatus</i>	Yorkshire fog	1	
<i>Juncus effusus</i>	Soft rush		1
<i>Juncus inflexus</i>	Hard rush		1
<i>Lolium perenne</i>	Perennial ryegrass		1
<i>Molinia caerulea</i>	Purple moor-grass		1
<b>Forbs</b>			
<i>Artemisia vulgaris</i>	Mugwort		1
<i>Centaurea nigra</i>	Common knapweed	1	
<i>Cirsium arvense</i>	Creeping thistle		1
<i>Cirsium palustre</i>	Marsh thistle		1
<i>Dactylorhiza sp.</i>	Orchid		1
<i>Dipsacus fullonum</i>	Teasel	1	
<i>Epilobium hirsutum</i>	Great willowherb		1
<i>Eupatorium cannabinum</i>	Hemp agrimony		1
<i>Geranium molle</i>	Dove's-foot cranesbill	1	
<i>Heracleum sphondylium</i>	Hogweed	1	
<i>Lotus corniculatus</i>	Bird's-foot trefoil	1	
<i>Oenothera sp.</i>	Evening-primrose	1	
<i>Plantago lanceolata</i>	Ribwort plantain	1	
<i>Potentilla anserina</i>	Silverweed		1
<i>Potentilla reptans</i>	Creeping cinquefoil		1
<i>Prunella vulgaris</i>	Selfheal	1	
<i>Pulicaria dysenterica</i>	Fleabane		1
<i>Ranunculus acris</i>	Meadow buttercup	1	
<i>Taraxacum officinale agg.</i>	Dandelion	1	
<i>Trifolium pratense</i>	Red clover	1	
<i>Tussilago farfara</i>	Colt'sfoot	1	
<i>Ulex europaeus</i>	Gorse	1	
<i>Viola sp.</i>	Violet	1	

1=Present

<b>Woody species</b>			
<i>Acer pseudoplatanus</i>	Sycamore		1
<i>Alnus glutinosa</i>	Alder	1	
<i>Cytisus sp.</i>	Broom	1	
<i>Rubus fruticosus agg.</i>	Bramble	1	
<i>Salix caprea</i>	Goat willow		1
<i>Salix cinerea</i>	Grey willow	1	
		24	18