

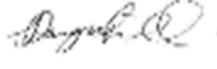
**DAVID CLEMENTS ECOLOGY LTD**

**LAND OFF PROSSER'S TERRACE, ABERCREGAN**

**BIODIVERSITY ENHANCEMENT STRATEGY &  
ECOSYSTEMS RESILIENCE ASSESSEMENT**

**MARCH 2020**

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|                          |                                |                                                                                    |            |
|--------------------------|--------------------------------|------------------------------------------------------------------------------------|------------|
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| <b>Version No./Stage</b> | V1                             | Final as issued.                                                                   |            |

## 1.0 INTRODUCTION

- 1.1 This report has been prepared by David Clements Ecology Ltd (DCE) on the instructions of Robert Bowen Planning & Development Ltd and refers to an area of land at Prosser's Terrace, Abercragan, Neath Port Talbot, South Wales. The parcel of land is situated in a suburban context within the area of Abercragan. The site is bounded to the north and west by roads and residential properties. A wooded river corridor lies immediately adjacent to the eastern boundary. Habitats within the site comprise tall ruderal vegetation, short perennial vegetation, bare ground and stone walls with features suitable for nesting birds, sheltering reptiles and amphibians (See Plan 1).
- 1.2 Planning permission is currently being sought for the creation of a single detached dwelling with a bicycle store. The Neath Port Talbot County Ecologist has highlighted the need for biodiversity enhancement measures and an ecosystems resilience assessment to support the planning application.
- 1.3 The purpose of the present document is to set out an assessment of the resilience of ecosystems present within the site and the impacts upon ecosystems within the immediate vicinity of the site, while also setting out various building and landscape design principles for the development which are intended to provide mitigation and enhancement for biodiversity and wildlife. These principles are in accordance with the Supplementary Planning Guidance (SPG) on biodiversity prepared by Neath Port Talbot County Borough Council (NPT 2018). Additionally, sensitive working methodologies and timings of proposed works are set out to mitigate impacts to protected species.

### ***Ecological Surveys***

- 1.4 A site walkover-survey was conducted on the 10<sup>th</sup> of March 2020 to confirm what habitats and protected species potential is present on the site. The Local Authority Ecologist stated that a Phase-1 survey of the site was not needed due to the limited value and extent of habitats within the site and the known previous land use history. Some features within the site, particularly two sections of an old stone wall, were considered to have nesting bird and reptile / amphibian hibernation potential. The site predominantly comprises bare ground. Montbretia, an invasive non-native plant species, listed on Schedule 9 of the Wildlife & Countryside Act 1981, is likely present within the south-west of the site (See Plan 1), however, confident identification was not possible due to the specimen being at an early growth stage, and not being in flower at the time of survey. Representative photographs can be found at the end of this report.

## 1.6 Potential Ecological Constraints

- 1.6.1 There is potential for impacts to the adjacent tributary of the River Afan during construction, potentially including the release of sediments and accidental spillages of pollutants (eg of oil and diesel), resulting in direct pollution of the watercourse. Both sedimentation and pollution, should they occur, would have an adverse effect on water quality of the watercourse, with knock-on impacts for the general ecology of the river and the species it supports both locally and downstream. The likelihood of these impacts

occurring are considered to be low as long as appropriate mitigation measures, are implemented to prevent this from occurring.

- 1.6.2 The development could potentially have adverse impacts on protected species, namely common reptiles and nesting birds. These species may utilise the voids within the old stone wall sections present within the site. These impacts are, however, readily amenable to mitigation.
- 1.6.3 The site likely supports montbretia (*Crocasmia* sp.; See Plan 1, Target Note 1), an invasive non-native species which is subject to statutory regulations aimed at limiting its spread, being listed on Schedule 9 of the amended Wildlife & Countryside Act 1981. Suitable mitigation is required to ensure no removal and/or spread of the plant occurs during the works.

## 2.0 ECOSYSTEM RESILIENCE ASSESSMENT

| Development proposals                           |                                                                                                                                              | Ecosystem                    |                                               | Resilience Factors                                                                                                                                                             |                                                                                              |                                                                                               |              |
|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------------|
| Single dwelling with cycle store – Upland Wales |                                                                                                                                              | Broad Habitat Type           | Practical Habitat Unit                        | Diversity                                                                                                                                                                      | Extent                                                                                       | Condition                                                                                     | Connectivity |
| Risks                                           | Disturbance to subterranean communities.                                                                                                     | Species-poor Brownfield Site | Bare ground with marginal ruderal vegetation. | Total loss likely – enhancement measures and replacement of species-poor habitat with species-rich habitat will result in the increase of future biodiversity within the site. | 100% loss of extent; will be replaced by biodiverse habitats and other enhancement measures. | Poor. Dominated by bare ground with very limited floral diversity. Likely Montbretia present. | -            |
|                                                 | Destruction of potential nesting bird and hibernating herptile habitat.                                                                      |                              |                                               |                                                                                                                                                                                |                                                                                              |                                                                                               |              |
|                                                 | Pollution entering neighbouring water course and perturbing ecosystems downstream during development.                                        |                              |                                               |                                                                                                                                                                                |                                                                                              |                                                                                               |              |
|                                                 | Accidental spread of invasive non-native plant species into the wider environment and thus decreasing future biodiversity in the local area. |                              |                                               |                                                                                                                                                                                |                                                                                              |                                                                                               |              |
| Opportunities                                   | Habitat creation and enhancement; conversion of bare ground into high value wildlife areas (See Biodiversity Enhancement Strategy below).    |                              |                                               |                                                                                                                                                                                |                                                                                              |                                                                                               |              |

## 2.0 WILDLIFE PROTECTION PLAN

### *Nesting birds*

- 2.4 Demolition of the old stone wall sections (See Plan 1) should avoid the bird-nesting season which runs approximately from March to August inclusive. Owing to the constraint of potential reptiles using the feature (see below) ideally these works should be undertaken in September and October to avoid bird nesting and hibernating reptiles. If it is not practical to undertake stone wall demolition works outside of the nesting season, the works must be preceded by a check for any bird-nesting activity, and where any such activity is found, work will be suspended until the current nesting cycle has been completed. **This is a statutory requirement.**

### *Reptiles & Amphibians*

- 2.5 The old stone wall sections (See Plan 1) have potential for sheltering and hibernating reptiles and amphibians. If these structures need be dismantled, it is recommended that this activity be carried out, outside the hibernation period (i.e. November to March).

## 3.0 BIODIVERSITY ENHANCEMENT STRATEGY

### *Habitat Creation & Enhancement*

- 3.1 Plants used within the planting scheme for the development should be native ‘wild’ species of local provenance, in order to maximise their future ecological value (See Plan 2), particularly for pollinators, including bees, butterflies and moths (see Appendix 1 for examples).
- 3.2 Open / landscaped areas, and new road verges, will incorporate wildflower seed mixes into their planting schemes (See Plan 2). Appropriate native species are suggested at Appendix 1.
- 3.3 Suitable surfaces (especially flat-roofed areas) of the new development should be considered for implementation of green wall and green roof technologies. Advice and design guidance is available via websites such as Living Roofs (<https://livingroofs.org/>).

### *Bat Boxes*

- 3.4 Bat boxes should be incorporated into the design of the new development and mounted upon the southern elevation of the building. These boxes should be of ‘woodcrete’ construction, or similar, rather than timber (e.g. Schwegler boxes) and should be installed at least 4m above ground level in locations where they are not accessible either to unauthorised persons or household pets such as cats. Bat boxes should not be placed in locations where the entrances will be illuminated at night. Suitable examples are shown at Appendix 2. See Plan 2 for the location of the bat box.

### ***Bird Boxes***

- 3.5 To compensate for the loss of potential bird nesting habitat, bird boxes should be erected on the building. The boxes could be of a design which is primarily aimed at declining synanthropic bird species, such as house sparrow and starling. General-purpose bird boxes (i.e. 'tit-type' entry-hole and open-fronted 'robin-type') may also be provided. See Plan 2 for the location of the bird boxes.
- 3.6 Bird boxes should be sited at eaves height or higher; they can be sited directly under the eaves, away from windows and doors, on northern/ western elevations.
- 3.7 The bird boxes will be of appropriate durable (eg 'woodcrete') designs and will either be built into the external walls or installed under the eaves of the new building in locations where they have good access to adjacent habitats, minimal disturbance, and will cause least inconvenience to the house occupants (eg away from windows, doors and parking areas etc). Examples of suitable boxes are provided at Appendix 2.

### ***Bee Walls***

- 3.8 'Bee-walls' comprising low constructions of various materials, which are suitable for burrowing into or occupation by breeding and sheltering solitary bees and wasps, should be created in suitable sunlit locations, preferably near to good nectar sources (See Plan 2). Various designs are available or can be created, some examples are shown at Appendix 3.

### ***Fauna Access Gaps***

- 3.9 Where fencing is to be erected on the site, panels will be provided with fauna access gaps at the base which are sufficient to allow passage by small mammals such as hedgehog (i.e. 130mm wide by 130mm long square) or a continuous gap at the base of the fence of 130mm tall. At least one access gap is required in every run of fence, with at least one in each garden. The number and location of faunal access gaps should be advised in liaison with an ecologist once a fencing plan has been comprised. If any garden walls are incorporated into the new development, they should also have 130mm<sup>2</sup> gaps at the base.

### ***Site Lighting & Dark Corridors***

- 3.10 Measures will be taken to minimise light pollution to reduce any impact on nocturnal fauna such as bats and moths. The lighting design for the developed site will be in accordance with the guidance provided by the Bat Conservation Trust (BCT 2018). There will be no lamp posts on the site. Appropriate ground-facing, energy saving lighting will be used, on timers. There will be no light spillage into the landscaped areas, so trees and hedgerows on the site will not be affected, allowing dark corridors to be maintained for nocturnal wildlife.

#### 4.0 REFERENCES

**Bat Conservation Trust (BCT 2018)** *Bats and Artificial lighting in the UK, Bats and the Built Environment series. Guidance note 08/18.* Bat Conservation Trust, London.

**Natural Resources Wales (NRW 2016)** *State of Natural Resources Report (SoNaRR): Assessment of the Sustainable Management of Natural Resources.* Chapter 4: Resilient Ecosystems.

**Neath Port Talbot County Borough Council (NPT 2018)** *Local Development Plan, 2011-2026: Biodiversity and Geodiversity, Supplementary Planning Guidance.* May 2018.

## APPENDIX 1: SUITABLE PLANTING SPECIES

### Semi-Natural Grasslands

New and re-spread topsoils will be lightly harrowed and raked to create a moderately fine tilth. No fertiliser will be added to any of these areas. Areas will be seeded either by hand (broadcasting) or using a light tractor-mounted spinner or drill with drills at 5cm centres, 5mm maximum depth, immediately after preparation which should ideally occur in late summer (ie Aug-Sep). The seed rate will be 4g/m<sup>2</sup> (ie 40kg/ha).

The seed mixture in new soil areas will comprise an 80:20 mix of native grass to native wildflower seed. Species will be as follows:

| Species                                           | % of<br>Total<br>by<br>weight | Notes                                                                                                                                                                |
|---------------------------------------------------|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Grasses</b>                                    |                               |                                                                                                                                                                      |
| <i>Agrostis capillaris</i>                        | 30                            | Note: <u>Not</u> <i>Agrostis castellana</i><br>Low fertility strains only, eg 'Arletta', 'Tracenta' from 2010 STRI Seed Guide                                        |
| <i>Cynosurus cristatus</i>                        | 20                            |                                                                                                                                                                      |
| <i>Festuca rubra</i> spp <i>rubra</i> ; OR: )     | 20                            | Low fertility strains only, eg 'Boreal', 'Franklin'                                                                                                                  |
| <i>Festuca rubra</i> spp <i>commutata</i> ; OR: ) |                               | Low fertility strains only, eg 'Agram', 'Banner', 'Koket', 'Wintergreen'<br>(or eg 'Lifalla', 'Raymond', 'Wilma' from 2010 STRI Guide)                               |
| <i>Festuca rubra</i> spp <i>litoralis</i> )       |                               | Low fertility strains only, eg 'Dawson', 'Logro', 'Merlin', 'Oriflame'<br>(or eg 'Lovisa', 'Bornado', 'Garance' from 2010 STRI Guide)                                |
| <i>Anthoxanthum odoratum</i>                      | 5                             |                                                                                                                                                                      |
| <i>Alopecurus pratensis</i>                       | 5                             |                                                                                                                                                                      |
| <b>Wildflowers</b>                                |                               |                                                                                                                                                                      |
| <i>Achillea millefolium</i> )                     | 20                            | Any six species (minimum) in equal quantities,<br>to a maximum of 15 species. Fodder species (eg legumes)<br>to be supplied as low fertility non-fodder strains only |
| <i>Centaurea nigra</i> )                          |                               |                                                                                                                                                                      |
| <i>Hypochoeris radicata</i> )                     |                               |                                                                                                                                                                      |
| <i>Hypericum perforatum</i> )                     |                               |                                                                                                                                                                      |
| <i>Lathyrus pratense</i> )                        |                               |                                                                                                                                                                      |
| <i>Leontodon autumnalis</i> )                     |                               |                                                                                                                                                                      |
| <i>Leucanthemum vulgare</i> )                     |                               |                                                                                                                                                                      |
| <i>Lotus corniculatus</i> )                       |                               |                                                                                                                                                                      |
| <i>Luzula campestris</i> )                        |                               |                                                                                                                                                                      |
| <i>Plantago lanceolata</i> )                      |                               |                                                                                                                                                                      |
| <i>Medicago lupulina</i> )                        |                               |                                                                                                                                                                      |
| <i>Plantago lanceolata</i> )                      |                               |                                                                                                                                                                      |
| <i>Potentilla anserina</i> )                      |                               |                                                                                                                                                                      |
| <i>Primula vulgaris</i> )                         |                               |                                                                                                                                                                      |
| <i>Prunella vulgaris</i> )                        |                               |                                                                                                                                                                      |
| <i>Ranunculus acris</i> )                         |                               |                                                                                                                                                                      |
| <i>Rhinanthus minor</i> )                         |                               |                                                                                                                                                                      |
| <i>Trifolium campestre</i> )                      |                               |                                                                                                                                                                      |
| <i>Trifolium dubium</i> )                         |                               |                                                                                                                                                                      |
| <i>Trifolium pratense</i> )                       |                               |                                                                                                                                                                      |
| <i>Veronica chamaedrys</i> )                      |                               |                                                                                                                                                                      |
| <i>Vicia cracca</i> )                             |                               |                                                                                                                                                                      |
| <i>Vicia sativa</i> )                             |                               |                                                                                                                                                                      |
| <i>Vicia sepium</i> )                             |                               |                                                                                                                                                                      |

Where a given species listed above is not available a suitable alternative should be agreed with the supervising ecologist.

All seed material should be of Welsh, or at least UK, native origin. Seed suppliers should be signatories to the *Flora Locale* Code of Practice for collectors, growers and suppliers of native plants and seed.

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Initial grass mowing should take place at 6-8 weeks after sowing, with the arisings collected and disposed of off-site. This should be repeated at two-monthly intervals, with the last cut being made in October.

In the second year after sowing and in subsequent years, the grass should be mown twice per annum, comprising a first cut to 50mm in April with a second cut to 100mm in September. All arisings should be collected and removed from the site for disposal.

### Trees and Shrubs

All planting stock will be of native species which are indigenous to the region and will be of Welsh, or at least UK, provenance.

Planting will be carried out using 600mm bare-rooted transplants (1+1) planted at 150mm centres in two staggered (ie offset) rows 250mm apart, in spiral plastic guards (rabbit/vole protection). Standard tree aftercare will be applied.

| <b>Canopy Species</b>        |                 | <b>%age</b>                 |
|------------------------------|-----------------|-----------------------------|
| <i>Crataegus monogyna</i>    | Common hawthorn | 30                          |
| <i>Prunus spinosa</i>        | Blackthorn      | 20                          |
| <i>Corylus avellana</i>      | Hazel           | 20                          |
| <i>Acer campestre</i>        | Field maple     | )                           |
| <i>Cornus sanguinea</i>      | Dogwood         | )                           |
| <i>Fraxinus excelsior</i>    | Ash             | )                           |
| <i>Ilex aquifolium</i>       | Holly           | )                           |
| <i>Prunus avium</i>          | Wild cherry     | )                           |
| <i>Quercus robur</i>         | Pedunculate oak | ) 30                        |
| <i>Rosa canina</i>           | Common dog-rose | )                           |
| <i>Salix caprea</i>          | Goat willow     | )                           |
| <i>Salix cinerea</i>         | Grey willow     | )                           |
| <i>Sorbus aucuparia</i>      | Rowan           | )                           |
| <i>Viburnum opulus</i>       | Guelder rose    | )                           |
| <b>Climbers</b>              |                 |                             |
| <i>Clematis vitalba</i>      | Traveller's-joy | ) Alternate at 3m intervals |
| <i>Lonicera periclymenum</i> | Honeysuckle     | )                           |
| <i>Solanum dulcamara</i>     | Bittersweet     | )                           |
| <i>Tamus communis</i>        | Black bryony    | )                           |

## APPENDIX 2: BAT & BIRD BOXES

### EXAMPLES OF BOXES FOR SYNANTHROPIC BIRD SPECIES



Schwegler 1SP House Sparrow Terrace



Schwegler 1BFN Integrated Starling Box



Vivara Woodstone House Martin Cups



Vivara Woodstone Swallow Cup



Schwegler 11 House Martin Cups



Ibstock 2 Integrated Swift Box



Ecosurv Integrated Swift Box



Vivara Woodstone Integrated House Sparrow Box



Vivara Woodstone Integrated Swift Box



Vivara Woodstone Under-Eave Swift Box

EXAMPLES OF NON-INTEGRATED BIRD BOXES FOR TREES AND BUILDINGS

Suspended Designs



Schwegler 1B  
General box



Schwegler 2H open-front  
'robin' box



Schwegler 5  
'large owl' box



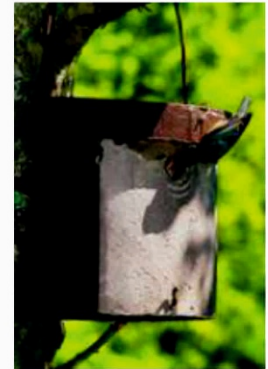
Schwegler 1CGA  
'small owl' box



Schwegler 20  
'starling' box



Schwegler 28 'kestrel' box



Schwegler 5KL 'nuthatch' box

Surface-mounted Designs



Schwegler 1MR general box



Vivara Pro open-front  
'robin' box



Vivara Pro ova open-front  
'robin' box



Vivara Pro 'starling' box



Vivara Pro 28/32mm  
general box



Vivara Pro 28/32mm  
oval general box

**EXAMPLES OF SURFACE-MOUNTED BAT BOXES**

**Tree-mounted boxes**



Schwegler 2F General Box



Schwegler 1FD Nursery Box



Schwegler 1FS Nursery Box (Large)



Schwegler 1FW Winter Box  
(Very large box)



Schwegler 2FN  
Noctule Box



Schwegler 2F DFP  
Daubenton's Bat Box



Miramar General Box

**Tree or building-mounted boxes**



Schwegler 1FF General Box



Schwegler 1FQ Decorative Box



Schwegler 1FFH General Box



Vivara Woodstone Low Profile Box



NHBS Cavity Box  
(Brown Long-Eared Bat Box)



NHBS Crevice Box

APPENDIX 3: BEE-WALLS



Examples of bee-walls



**SITE PHOTOS (MARCH 2020)**



North-west corner of the site, facing south-east.



Highlighting predominant bare ground interior, facing south-east.



Adjacent tributary of the River Afan just off the eastern site boundary.



Small patch of tall ruderal vegetation in the south of the site, facing south.



Internal void within stone-wall on the south-west site boundary.



Likely Montbretia emerging from bare ground along the eastern site boundary.

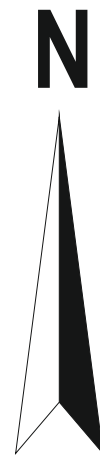
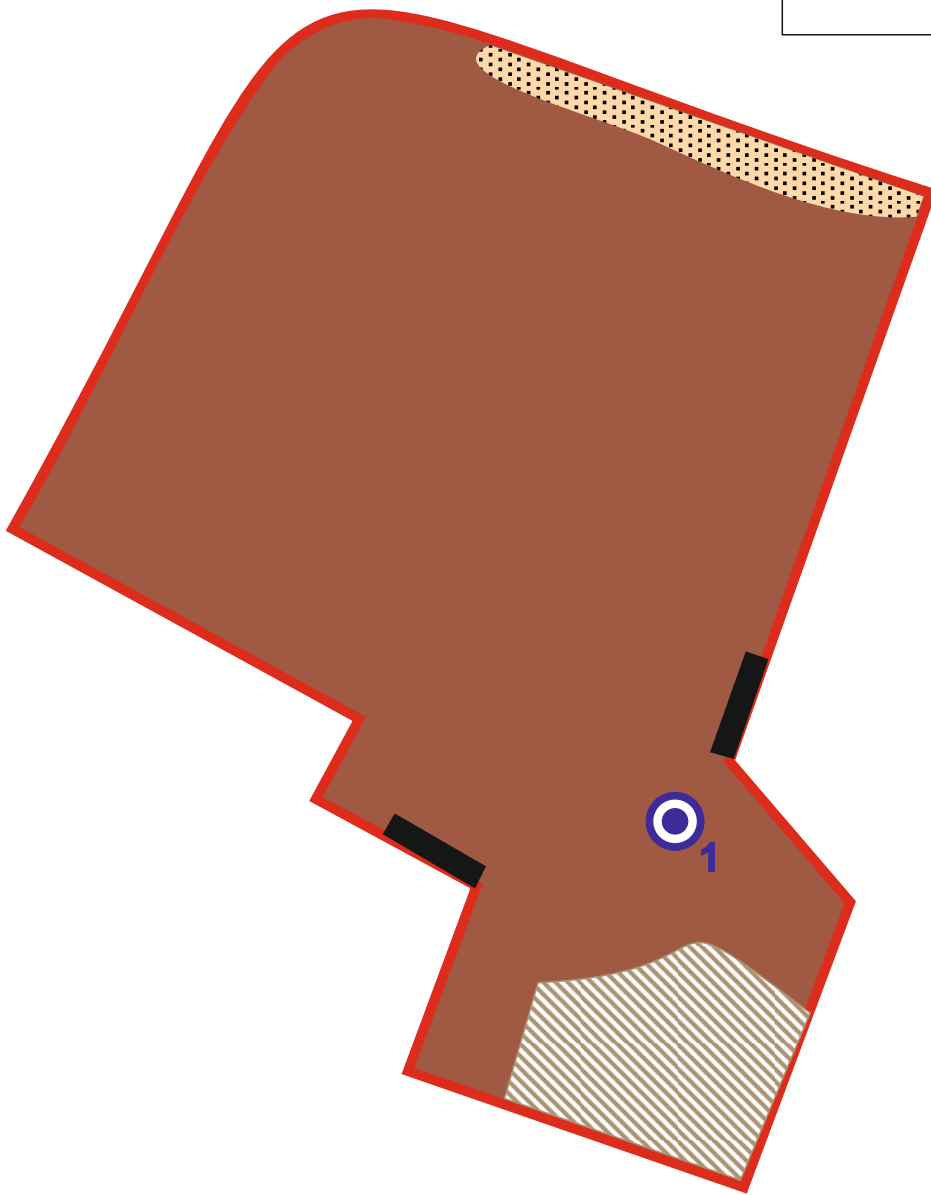
**Land at Prosser's Terrace, Abercragan**

**Plan 1: Habitats & Vegetation**

DCE 1084

NTS

March 2020



**Key**



Tall Ruderal



Ephemeral/Short Perennial



Bare Ground



Stone Wall with Voids



Target Note



Likely Montbretia

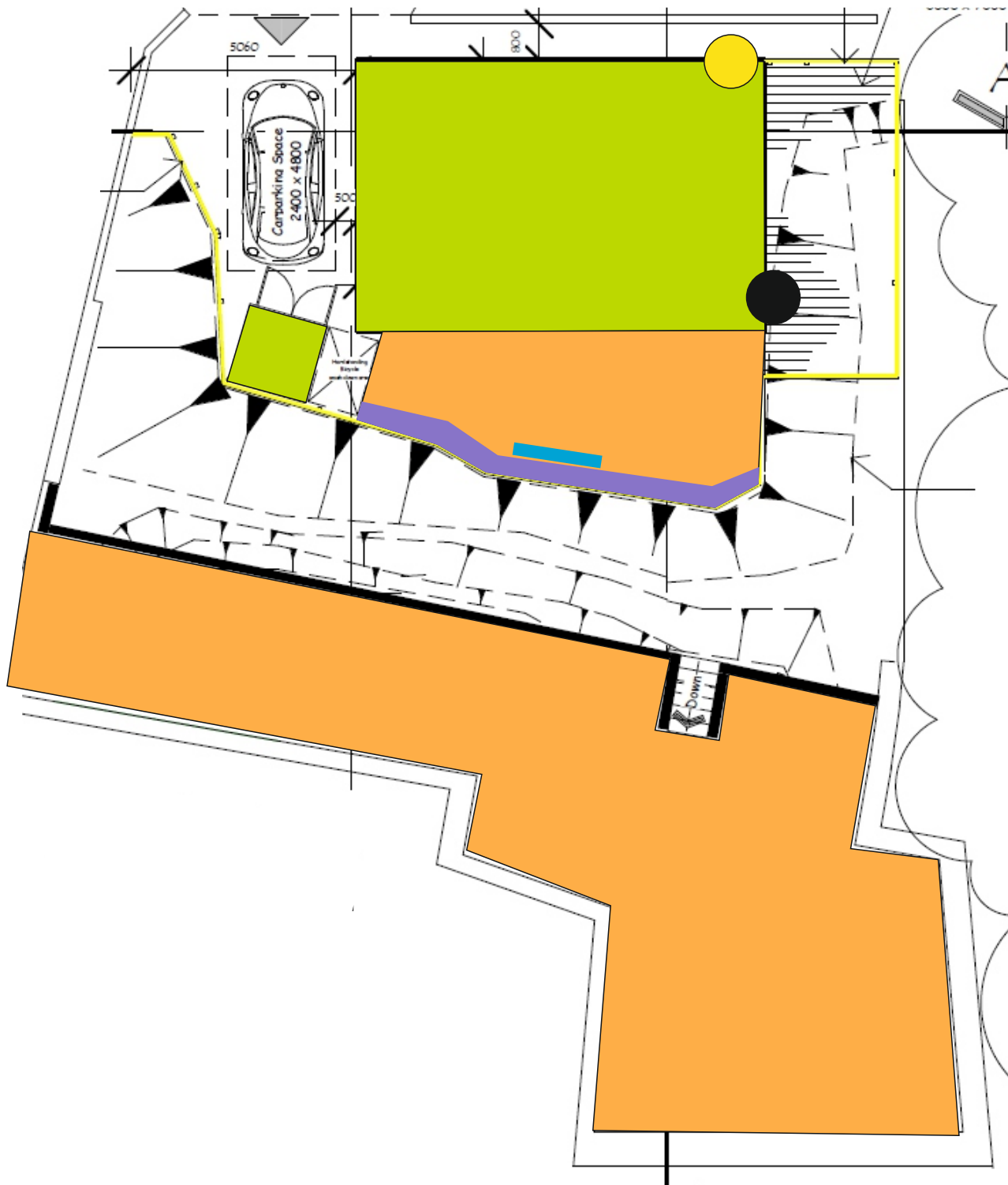
**Land at Prosser's Terrace, Abercragan**

**Plan 2: Biodiversity Enhancement Measures**

DCE 1084

NTS

March 2020



- Species- Rich Neutral Grassland
- Green Roof
- Wild Flower Pollinator Bed
- Bee Wall
- Bird Box
- Bat Box