



**Five Residential Units
Bryneithin, Dinas Powys**

Wildlife Protection Plan

April 2017

REPORT CONTENTS

1.0	INTRODUCTION	1
1.1	BRIEF	1
1.2	SITE DESCRIPTION	1
1.3	DEVELOPMENT PROPOSALS	1
1.4	FIELD SURVEY	2
1.5	REPORTING	2
2.0	DISCHARGE CONDITION 17.....	3
2.1	PLANS SHOWING DARK, VEGETATED FLIGHT CORRIDORS FOR BATS.....	3
2.2	DETAILS OF BIRD BOXES.....	4
2.3	GAPS UNDER FENCES.....	4
2.4	USE OF NATIVE SPECIES-RICH PLANTING SCHEME.....	5
2.5	NEWT FRIENDLY DRAINAGE	6
2.6	ADDITIONAL RECOMMENDED MEASURES.....	6
2.6.1	MANAGEMENT OF HABITATS FOR GREAT CRESTED NEWTS	6
2.6.2	GREAT CRESTED NEWT HIBERNACULA CREATION	7
2.6.3	HEDGEHOG HABITAT MANAGEMENT	7

PLANS

PLAN 1: PROPOSED PLAN

PLAN 2: WILDLIFE PROTECTION PLAN

PLAN 3: PROPOSED DEVELOPMENT PLAN

APPENDICES

APPENDIX 1: OPEN-FRONTED NEST BOX

APPENDIX 2: STANDARD HOLE NEST BOX

APPENDIX 3: SPARROW TERRACE

APPENDIX 4: ARTIFICIAL HIBERNACULA

APPENDIX 5: HEDGEROW PLANTING


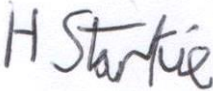


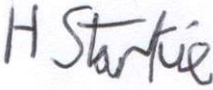

APPENDIX 6: HEDGEHOG SHELTER

APPENDIX 7: NEWT-FRIENDLY 'GULLY POT'

APPENDIX 8: AMPHIBIAN GULLY POT LADDER

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Document Verification Table

Five Residential Units, Bryneithin, Dinas Powys Wildlife Protection Plan				
Revision	Date	Prepared by	Checked by	Verified by
1.0	17 March 2017	Rory Jones MCIIEEM Ecologist 	Hal Starkie Ecologist 	Paul Hudson MCIIEEM Principal Ecologist 
2.0	07 April 2017	Rory Jones MCIIEEM Ecologist 	Hal Starkie Ecologist 	Paul Hudson MCIIEEM Principal Ecologist 

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1.0 Introduction

1.1 Brief

Acer Ecology Ltd was commissioned by Nigel Arnold Architect to produce a wildlife protection plan for a small plot of land at Bryneithin, St Andrew's Road, Dinas Powys, CF64 4AT (OS grid reference: ST 14648 71212) for the construction of five two-bedroom link houses and the use of a communal building (as an additional two-bedroom apartment with storage area and parking), under planning reference 2015/00954/FUL. The works form part of a wider retirement development that is currently under construction (2015/00954/FUL).

The site is located within the boundary of the Vale of Glamorgan Council. The location of the site is shown on Plan 1.

1.2 Site description

The proposed development site comprises a plot of land measuring approximately 0.08Ha, in the northern portion of a wider development site measuring approximately 0.45Ha. It is the site of the former Bryneithin Home for the Elderly, which has since been demolished. At the time of survey, the site was under construction, with the majority being composed of bare ground, building debris and construction features. The avenue of scattered broadleaved trees have been retained along the access road at the south of the site, while numerous other mature broadleaved and coniferous trees are present along the eastern and northern boundary. The immediate surroundings comprise Coed Twyncyn, an area of semi-natural broadleaved woodland adjacent to the northern boundary. The development site is enclosed on its western and eastern elevations by the grounds of St Andrew's Major Church in Wales primary school and Dinas Powys Bowling and Tennis Club respectively. The habitats within the school ground comprise a mosaic of amenity grassland, scattered scrub and scattered broadleaved trees. A small pond is present at the northern end of the school fields, adjacent to the woodland. St Andrew's Road forms the site's southern boundary. The wider landscape comprises the expanse of Coed Twyncyn and an area of rough grassland to the north. The village of Dinas Powys lies to the east, while the small suburb of Westra lies to the west. Dinas Powys Common and a patchwork of agricultural fields and mature hedgerows lies to the south.

1.3 Development proposals

The development proposals comprise the construction of a small retirement complex of two and three-storey linked cottages and flats with communal resident and guest facilities, parking and garden areas.

It forms part of a wider application for the erection of 18 residential units - six two-bedroom flats, five three-bed units and seven two-bed units. The properties would be comprised of three groups of linked properties, generally on a north-south axis, utilising the slope/ terracing within the site. There would be both communal and private garden space.

Parking spaces and a passing bay, together with associated access and turning areas are indicated within the layout.

Access would be via the existing tree lined avenue private drive, that served the former nursing home with visitor parking and passing area along part of its length. Lighting columns are proposed along the drive. However, no passive infrared (PIR) motion sensor security lighting will be used within the development.

1.4 Field Survey

The walkover survey was undertaken in good weather on the 16th March 2017 by Rory Jones MCIEEM¹.

1.5 Reporting

The following report aims to discharge conditions 17 of the planning decision, which states that:

Condition 18

Within 28 days of the date of this consent, a scheme for biodiversity protection and enhancement shall be submitted to, and approved in writing by the LPA. The plan shall be implemented as approved. The plan should include but not be limited to:

- 1. Plans showing dark, vegetated flight corridor for bats;*
- 2. Details of bird boxes;*
- 3. Gaps under fences;*
- 4. Use of native species-rich planting scheme; and*
- 5. Newt friendly drainage.*

The measures shall be implemented in accordance with the approved details prior to the beneficial occupation of the dwellings. Achieving this will enable the interests of ecology and protected species on the site and to be safeguarded, in doing so meeting the requirements of Policy ENV16 of the Unitary Development Plan.

¹ Rory is employed with Acer Ecology and is experienced in undertaking preliminary ecological appraisals. He graduated with a degree in Environmental Geoscience from Cardiff University and has 5 years' worth of postgraduate experience. He has undertaken extensive training in protected species assessment, phase 1 habitat surveys and botanical surveying. He holds Natural Resources Wales and Natural England licences for bats, great crested newts and barn owl. Further details of his experience and qualifications can be found at <http://http://bit.ly/1KSDv5I>.

2.0 Discharge condition 17

2.1 Plans Showing Dark, Vegetated Flight Corridors for Bats

At the time of the site walkover, the majority of the site had been previously cleared and was under active construction. It is therefore considered to be of negligible ecological value to foraging and roosting bats in its current state. However, the north and north-western boundary of the site comprises Coed Twyncyn, while lines of scattered broadleaved trees constitute the eastern and western boundaries. These linear features provide high quality habitat for commuting and/ or foraging bats when assessed against table 4.1 of the Bat Survey Guidance (Collins, 2016). Furthermore, the site is well connected to the wider landscape to the north, via the large copse of woodland and rough pasture. The northern and western borders of the site are subject to very little artificial lighting at night, thus further increasing their value for bats. While numerous flood lights are present within the bowling and tennis complex adjacent to the east, these lights are likely to be used infrequently during the spring and summer, therefore reducing their potential adverse impacts to bats.

It has been confirmed that there will be no passive infrared (PIR) motion sensor security lighting within the site. This will help to reduce indirect impacts to foraging and commuting bats by avoiding constant triggering by bat passes.

There is therefore potential for foraging and commuting bats to be indirectly affected by increases in artificial lighting at the periphery of the development. The implementation of a sensitive lighting strategy and plan that is incorporated in to the site design will therefore be essential to avoid such impacts. Furthermore, four of the scattered broadleaved trees in the southern portion of the construction site supported three bat boxes each (totally 12 boxes) (see Plan 2). The effectiveness of these boxes will largely depend upon the successful implementation of the lighting strategy set out below:

- Working hours during the construction and operational phases will be restricted to between the hours of 08.00 to 18.00. This will significantly reduce the likelihood of lighting impacts upon bats;
- Where practical on Health and Safety grounds, external lighting will be absent from the northern, western and eastern boundaries of the site, thus creating a 'dark corridor' to avoid causing disturbance to foraging and commuting bats (see Plan 2);
- The lighting design for the development will be of a 'bat-friendly' specification and kept to the minimum level which meets the needs of security and Health and Safety;
- Residential lighting will be installed at low-level only at the north-eastern and western site boundaries (i.e. no higher than eaves level) and directed downward (i.e. below the horizontal plane) and into the centre of the site. Front and side hoods/ shields or cowls will be installed to prevent upwards and horizontal light spill; and

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- Any newly installed lights will ideally be low intensity (i.e. circa 11 watts), glass glazed and the light source will either be compact fluorescent light sources fitted with appropriate UV filters, low pressure sodium bulbs or warm light LED bulbs. White lighting sources including mercury or metal halide, CPO and CDO (ceramic discharge metal-halide) bulbs which have a significant effect on bats will be avoided.

A recommended 'Lighting Plan' is shown on Plan 2.

2.2 Details of Bird Boxes

Bird nesting opportunities on site will be enhanced by the incorporation of bird boxes within the residential development site.

Five bird boxes will be erected upon suitable trees along the southern edge of Coed Twyncyn, or upon the retained mature trees at the periphery of the site. Alternatively, bird boxes could also be installed on the new dwellings, provided they are sited appropriately. They should be located in secluded positions, ideally within dense cover and at a minimum height of 4 metres (preferably 5 metres) from ground level, so that predators such as cats cannot reach them and they cannot be readily interfered with. The boxes should ideally be directed so that the entrance holes face away from prevailing weather conditions (i.e. entrance holes facing north-east or south-east). Specialised boxes that cater for specific bird species:

- Open-fronted – Open fronted nest boxes cater for a range of bird species, including robin, dunnock, wren, pied wagtail, redstart and flycatcher (see Appendix 1). Due to the more exposed nature of these nest boxes, it is especially important to ensure that they are located in dense cover in order to avoid the attention of potential predators. Suitable locations could be within ivy-covered trees, or within the area of broadleaved woodland itself;
- Standard boxes – An entrance hole of 32mm will attract species such as great, blue and coal tits, along with nuthatch, flycatchers and sparrows (see Appendix 2). These nest boxes can be sited in a wide range of locations throughout the site; or
- House sparrow terraces – House sparrows are sociable birds and prefer to nest in colonies. Appendix 3 shows a typical house sparrow terrace nest box, which allows up to three pairs to breed in proximity to each other. Several terrace nest boxes could be sited in the same location to encourage a large colony of this vulnerable species. The terraces should be fitted to the external walls of the buildings.

Recommended locations for the bird boxes can be found in Plan 2.

2.3 Gaps Under Fences

Any security fencing at the northern, eastern and western perimeters of the site and any garden boundary fences within the site should be erected in such a way that leaves multiple and frequent gaps

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of at least 15cm diameter at the base. This will allow great crested newts and hedgehogs to move freely across the site and into neighbouring habitats.

2.4 Use of Native Species-Rich Planting Scheme

The landscaping soft scheme for the site should include habitat enhancements for birds through the provision of shrubs or trees that bear berries or nuts. Native trees and shrubs that are indigenous to the region will be utilised, and any new plantings of native species should be of UK provenance.

Suitable species for use in any new tree or shrub planting include holly (*Ilex aquifolium*), common hawthorn (*Crataegus monogyna*), wild cherry (*Prunus avium*), rowan (*Sorbus aucuparia*) and guelder rose (*Viburnum opulus*). Alternatively, plant species that provide a rich source of nectar could be used. Suitable species include flowering herbs such as lavender (*Lavendula spp*) and violets (*Viola spp*), and shrubs such as flowering currant (*Ribes sanguineum*), privet (*Ligustrum vulgare*), forsythia (*Forsythia spp*), dogwood (*Cornus sanguinea*), berberis (*Berberis spp*), pyracantha (*Pyracantha sp*) and ceanothus (*Ceanothus sp*).

In addition to the areas set aside for wild flowers, the areas of grass seed lawn will ideally be planted with a wildlife-friendly seed mix. Part of the retained area will be set-aside for the planting of a wildflower meadow.

A species list that is provided by the Gwent Wildlife Trust will provide a mix of regional origin, thus supporting the long-term conservation of the species within the mix. This mix alone will be sowed. This mix of species is indicative of MG5 hay meadow. Species include; common knapweed, oxeye daisy, bird's foot trefoil, cowslip, common eyebright, common sorrel, field wood rush, yellow rattle (if sown October) and grass species such as sweet vernal, common bent and red fescue. A species mix will be provided by Emorsgate Seeds.

Ground preparation and sowing will need to take place in April or October. The most successful way to establish wild flowers and grasses from seed is to sow into a clean seedbed that has been first cleared of all weeds and other vegetation and then cultivated to produce optimum conditions for germination. The precise measurements of areas allocated to grass and flower planting is yet to be finalised. However, the sowing rate is 2-4g/m². This should be used as a guide when purchasing the seed mixture.

The area of semi-improved grassland can be enhanced by adopting appropriate meadow management techniques, thus making it more valuable to invertebrates and therefore birds, bats and reptiles. To ensure the success of the seedlings, planting will be carried out manually and carefully. Planting is recommended to be undertaken during the autumn to allow seedling roots to establish over the winter and have a greater chance of competing with the existing sward in the spring and summer.

Subsequent aftercare and site management will be required. The grassland habitat should ideally be mown in autumn as this timing allows plants to flower and set seed which will not only increase the floristic diversity of the site, but will also benefit invertebrates that require nectar sources and roosting

locations during the spring and summer. Ideally, the sward should be cut to a height of about 8 to 10cm. Different areas of grassland should be mown on rotation in every second year in late summer (September), by hand or with small-scale mowing machine (i.e only half of grassland area will be cut each year). The uncut areas will be cut the following year so that the grassland areas are cut at least once every two years. Arisings should then be collected and removed from site.

The use of herbicides, pesticides and artificial fertilisers on site should generally be avoided, although pernicious weeds may need to be spot-treated with herbicide.

It is recommended that native species-rich hedgerows are planted, instead of the ornamental shrub hedgerows currently proposed. This will enhance the ecological value of the site for nesting birds, foraging/ commuting bats, great crested newts, reptiles and hedgehogs. The hedgerow will be planted upon completion of construction works. Species chosen must be of native provenance. Detailed specifications for hedgerow planting are given in Appendix 5.

2.5 **Newt Friendly Drainage**

A combination of French drains and the existing drainage structure are proposed for the site. Where raised curbs or French drain covers are employed, precautionary measures will be employed to ensure that great crested newts do not become trapped, as set out below:

- Where possible, roadside and pedestrian kerbs will lie flush to the ground (effectively creating flat kerbs), therefore reducing the numbers of barriers to newt migration across the site;
- Newt-friendly 'Gully Pot's will be installed where French drain covers are placed alongside raised kerbs. This involves inseting the kerb stones away from the drain covers, so that any newts traversing a route along the raised curb will be directed around the drain cover, thus greatly reducing the risk of them falling and becoming trapped (see Appendix 7); and
- Amphibian 'Gully Pot Ladders' will be installed within the drains, which will provide a tactile sloped surface that amphibians can climb up, therefore enabling them to escape the drain.

2.6 **Additional Recommended Measures**

2.6.1 **Management of Habitats for Great Crested Newts**

If the areas of grassland or shrubbery (or any other terrestrial habitat of value to newts) will be subject to cutting or clearance, species deterrence measures will be undertaken to encourage and compel individual great crested newts or resting hedgehogs that may be present to migrate away voluntarily from the works area and into the surrounding countryside. Appropriate measures will include the following:

- Clearance of vegetation will be undertaken in a piecemeal fashion, proceeding outwards towards the site boundary;

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- Clearance will be spread over several hours to allow great crested newts time to disperse out of the immediate works area into safe habitats at the site periphery;
- Potential refugia such as spoil heaps, logs, discarded timber, and large rocks etc. will be carefully lifted and removed from the area to be cleared;
- Arisings should be removed immediately from site;
- Dense vegetation in the area to be cleared will initially be strimmed or brush cut to a height of about 30cm, so as to reduce their attractiveness for amphibians and other wildlife. This will be undertaken 24 hours in advance of the clearance work. Strimmed vegetation will be raked to the edge of the works area. Any newts or hedgehogs will be allowed to vacate the works area voluntarily, or will be carefully collected and removed to safety;
- Immediately prior to the commencement of works (i.e. 24-48 hours ahead), the area to be cleared should be strimmed a second time, cutting the vegetation as low as possible with the cut vegetation being raked away; and
- Any excavations associated with development should either be closed at night or fitted with escape ramps to help animals escape.

2.6.2 Great Crested Newt Hibernacula Creation

A single artificial bank or 'hibernacula' should be created in an area of rank grassland at the northern edge of the site (adjacent to the woodland edge) (see Plan 2). It will ideally measure approximately 5m in length, 0.5m in width and 0.4m in height. It will be comprised of bricks, stone and/ or timber left over from construction or during site preparation. The bank will be orientated so it runs from east to west. The southern side of the bank will be finished with topsoil and seeded with a neutral wild flower mix. Alternatively, the features could be left to re-seed naturally. The northern side will be left with the rubble exposed to allow newts to enter cavities within the bank.

Appendix 4 provides a visual representation of these artificial hibernacula.

2.6.3 Hedgehog Habitat Management

Hedgehogs are considered likely to forage within the site.

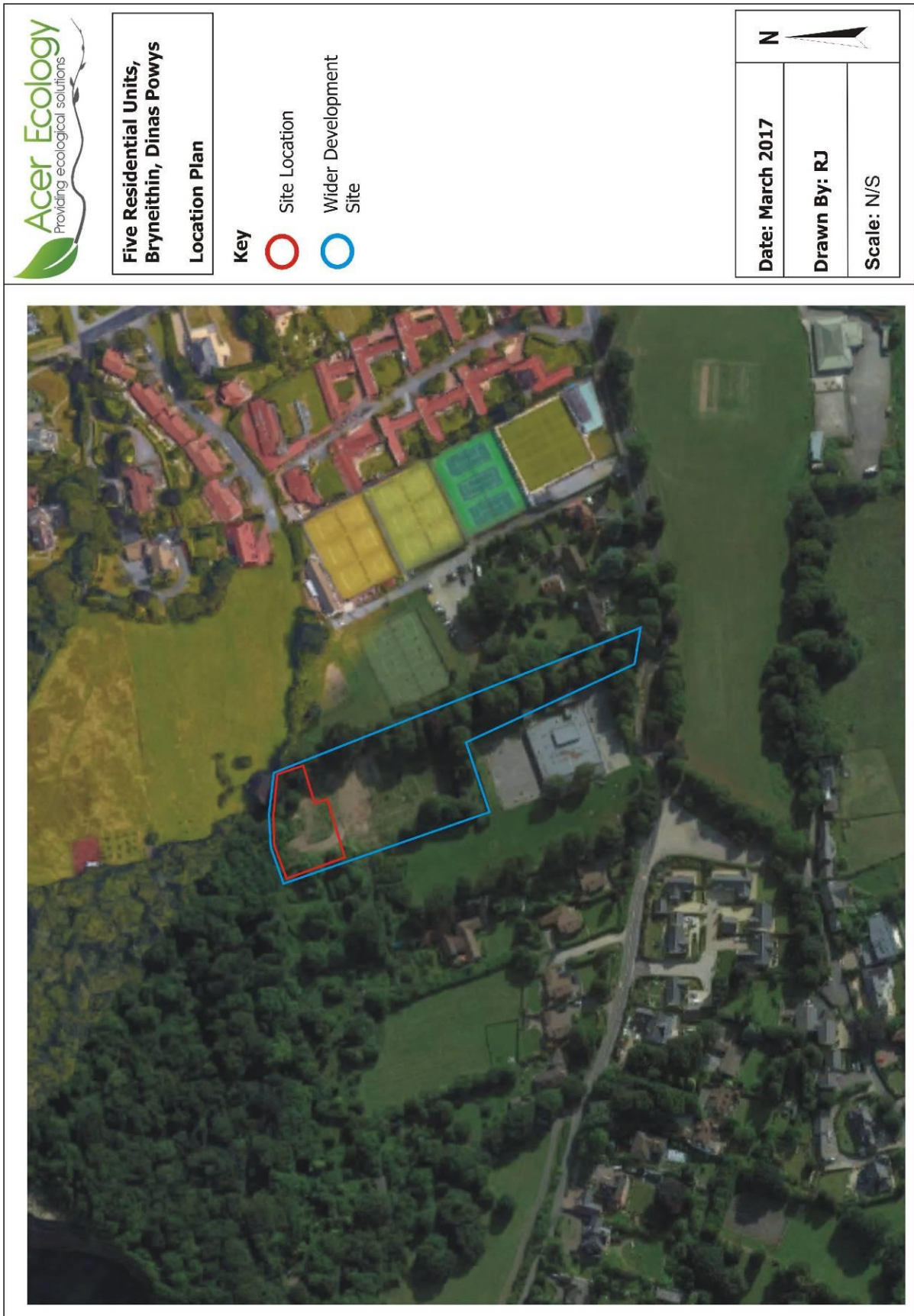
The following hedgehog friendly features could be considered for incorporation into the final design of the development:

- "Wild corners", patches of long, natural vegetation could be left;
- Log piles to provide a secure site for use by breeding and hibernating hedgehogs. These should be cited in longer vegetation;
- The use of hedgerows instead of fences;
- The implementation of the gaps under fences, set out in Section 2.3;

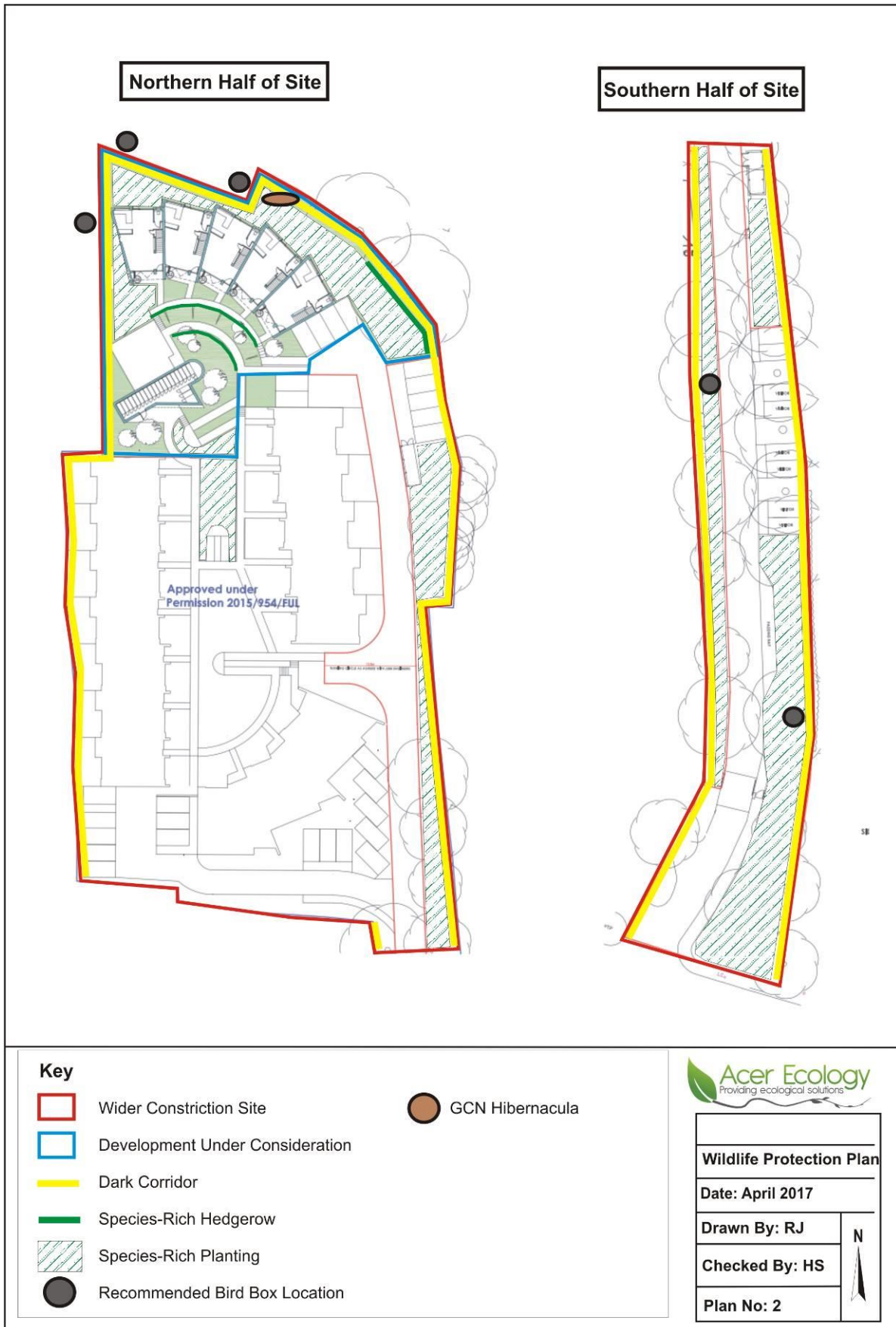
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- The use of pesticides including slug pellets, herbicides and insecticides should be avoided; and
- A hedgehog shelter will be installed in an area of rank vegetation or at the base of scrub adjacent to the woodland edge in the north of the site (see Plan 2 and Appendix 6).

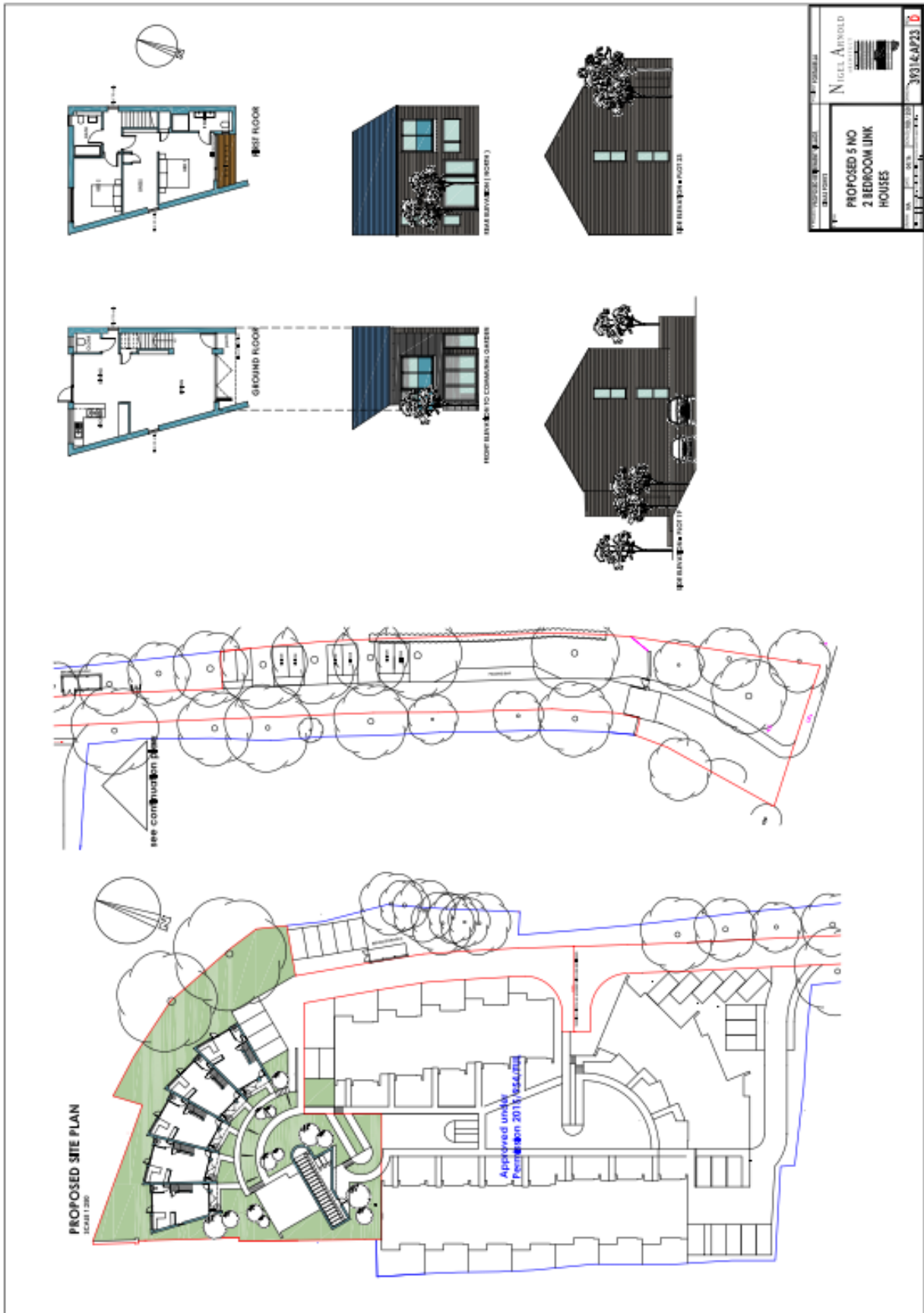
Plan 1: Location Plan



Plan 2: Wildlife Protection Plan



Plan 3: Proposed Development Plan



Appendix 1: Open-Fronted Nest Box

This traditional design has proved to be highly effective in attracting robins, as well as other small species such as black redstart, spotted flycatcher and wren. It is designed to be installed on the walls of houses, barns, garden sheds or other buildings and should be hung so that the entrance is to one side (at an angle of 90° to the wall). The front panel can be easily removed for cleaning.

Please do not hang this type of box on a conspicuous tree or bush because small predators can enter through the unprotected opening. By hanging on a wall, predators won't be able to reach the box. Alternatively hide the box in ivy, honeysuckle or other climbing plants.



Appendix 2: Standard Hole Nest Box

The nest box can be attached to the tree or wall using an aluminium nail or by hanging over a branch and is made from Woodcrete to ensure that it lasts for decades. The front panel is removable for inspection and cleaning.



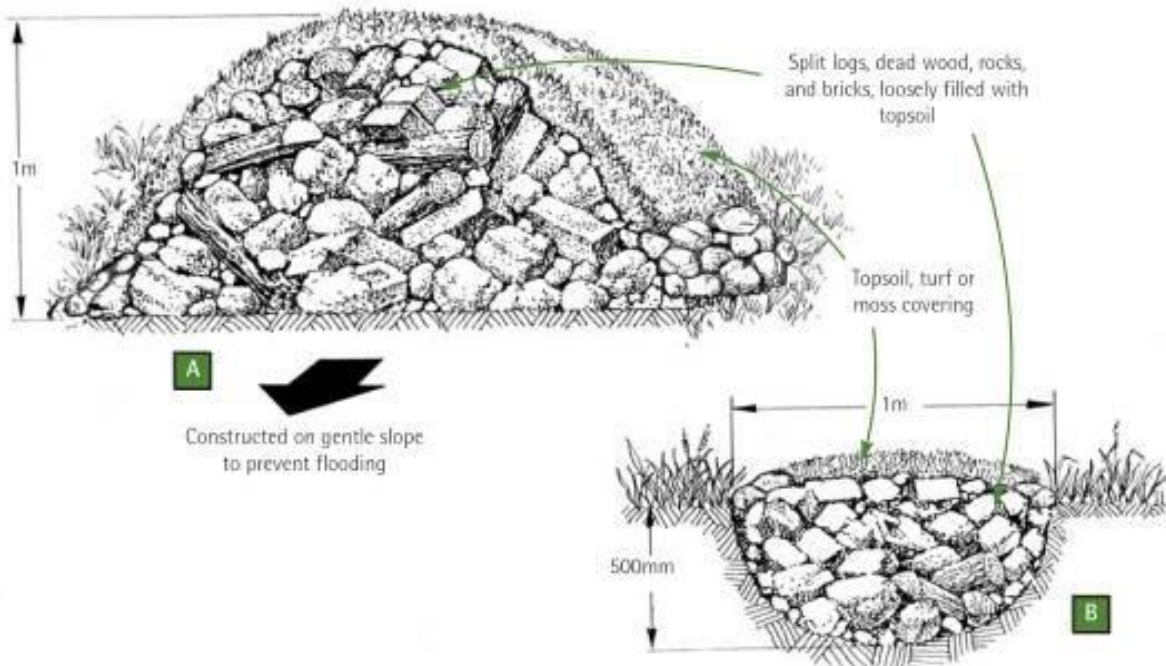
Appendix 3: House Sparrow Terrace

Sparrows are social birds and like to nest in company. This terrace provides ideal nesting opportunities for three families. The terrace can be fixed on to the surface of a suitable wall or incorporated into the wall. It is suitable for all types of houses in built-up areas, and on industrial and agricultural buildings such as barns, sheds and factories. Due to its weight (15kg), it is not suitable for fences or garden sheds.



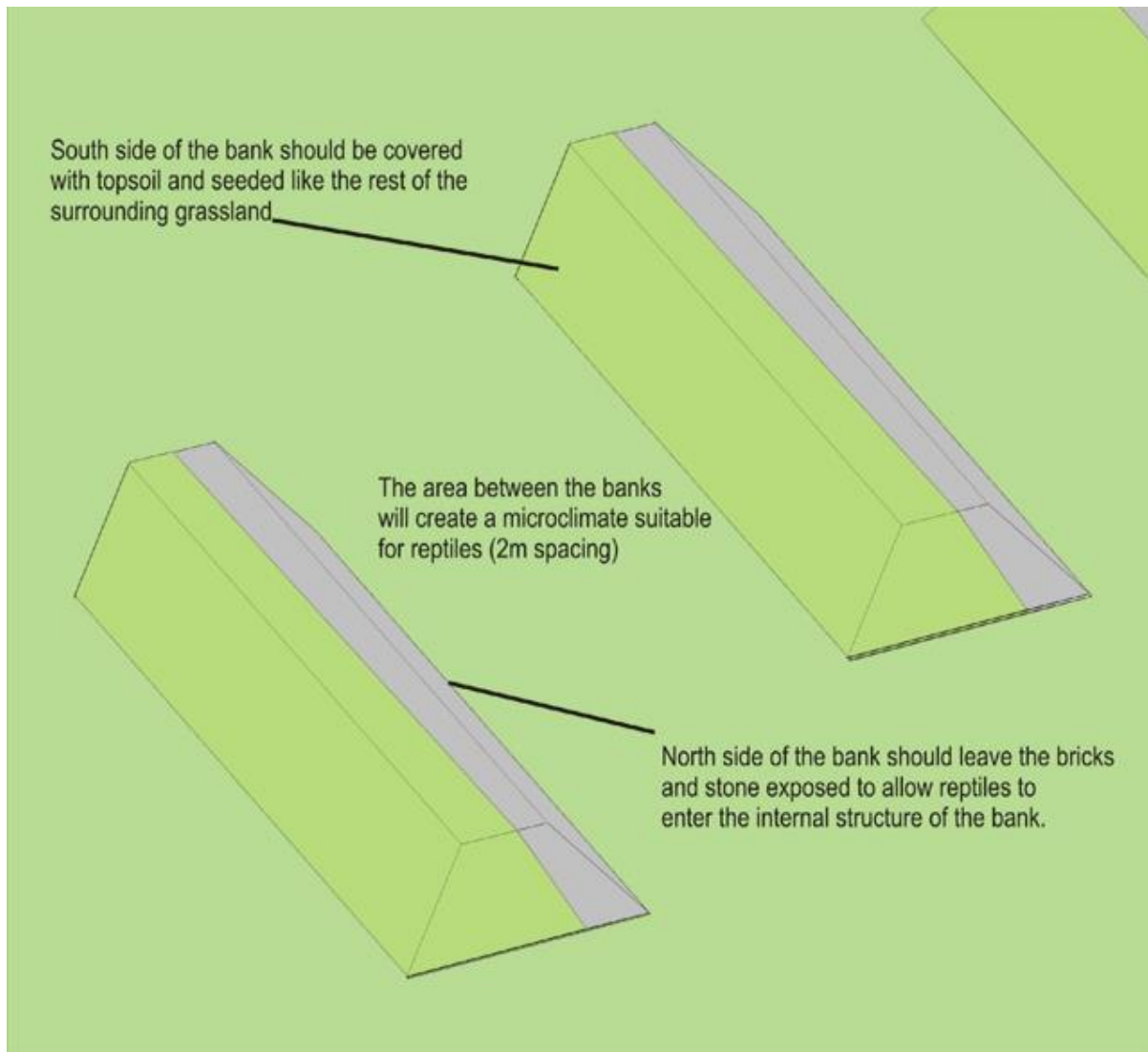
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Appendix 4: Artificial Hibernacula



Note: A – Impermeable Soils. B – Free Draining

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Note: Portions of southern face could be left bare to create bee banks (See Section 5.3.11 and Appendix 17).

Appendix 5: Hedgerow Planting

Hedgerows planted in a double staggered row tend to be better for wildlife as they are wider and provide more shelter and habitat. It is recommended that the rows are spaced 50cm apart and that 4-6 plants are planted per metre. Planting should be staggered so that a plant in the second row is mid-way between plants in the first row.

Ground Preparation

The ground should be prepared thoroughly in advance with planting undertaken into bare soil. Planted trees should be fitted with shrub guards.

Shrub and Tree Guards

If rabbits occur in the area all plants should be protected. If individual protection is considered the most appropriate option spiral guards should be used for the hedge plants and 600mm tree shelters for the individual trees.

Planting season

Hedging plants are usually supplied bare-rooted. This restricts the planting season to the winter months, when the roots are dormant. The best time to plant a new hedge is therefore from November to March.

Proposed Species

- Hazel (*Corylus avellana*) 40%
- Common hawthorn (*Crataegus monogyna*) 20%
- Blackthorn (*Prunus spinosa*) 10%
- Holly (*Ilex aquifolium*) 10%
- Field Maple (*Acer campestre*) 5%
- Pedunculate oak (*Quercus robur*) 5%
- Silver birch (*Betula pendula*) 5%
- Dogwood (*Cornus sanguineus*) 5%

Additional climbers/shrubs will be planted in the hedgerow at a ratio of 1 plant per 10 metres: Species to be included are honeysuckle (*Lonicera periclymenum*), guelder rose (*Viburnum opulus*) and dog-rose (*Rosa canina* agg).

Maintenance

Light regular trimming of the hedgerows is recommended in the early years to encourage dense, bushy growth which is favourable to wildlife.

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Some weed control may be needed in the first two to three years. The most common ways of controlling weeds are mulches, herbicides and cutting. A mulch is a layer of material laid over the surface of the ground to suppress weed growth and retain moisture.

Once established the hedgerow should be cut every 2-3 years. Cutting should be undertaken during October to March and outside of the bird nesting season.

Additional watering is considered unlikely to be required but may be necessary if the first two summers after planting if there are sustained dry conditions.

Any plants which die in the first few years should be replaced to prevent gaps developing and to maintain the continuity of the hedge line.

At year 7, consideration could be given to laying the hedge to encourage thick future growth.

Appendix 6: Hedgehog Shelter

This nestbox has been designed and ultimately tested extensively with great success over a period of 12 months by the Hedgehog Preservation Society and their hedgehog "carers", whose help is much appreciated. The final nest design has also been approved by Dr. Pat Morris of London University who has contributed to it's development.

Features:

- * Fully built-in tunnel with 5" square access for even the largest hedgehog to avoid unwanted visitors.
- * Raised 'step' at entrance to enable the box to be partly buried.
- * Totally safe nesting area well away from the tunnel entrance.
- * Lower roof to enable the hedgehog to build a snug nest.
- * Specially designed inbuilt "unblockable" ventilation to provide just the right temperature and humidity without draughts.
- * Totally removable roof for easy inspection and cleaning.
- * Drainage holes in the base of the Hedgehog Nestbox to help any excess water which may enter the box during times of heavy rain to dissipate.
- * Underfloor runners letting air to the underside of the box but allowing the box to be pushed easily into place in undergrowth, etc.
- * Reinforced and strengthened corners making a sturdy nestbox.
- * One compact unit easy to position.



Appendix 7: Newt-Friendly Gully Pot

'Newt friendly' gully pot

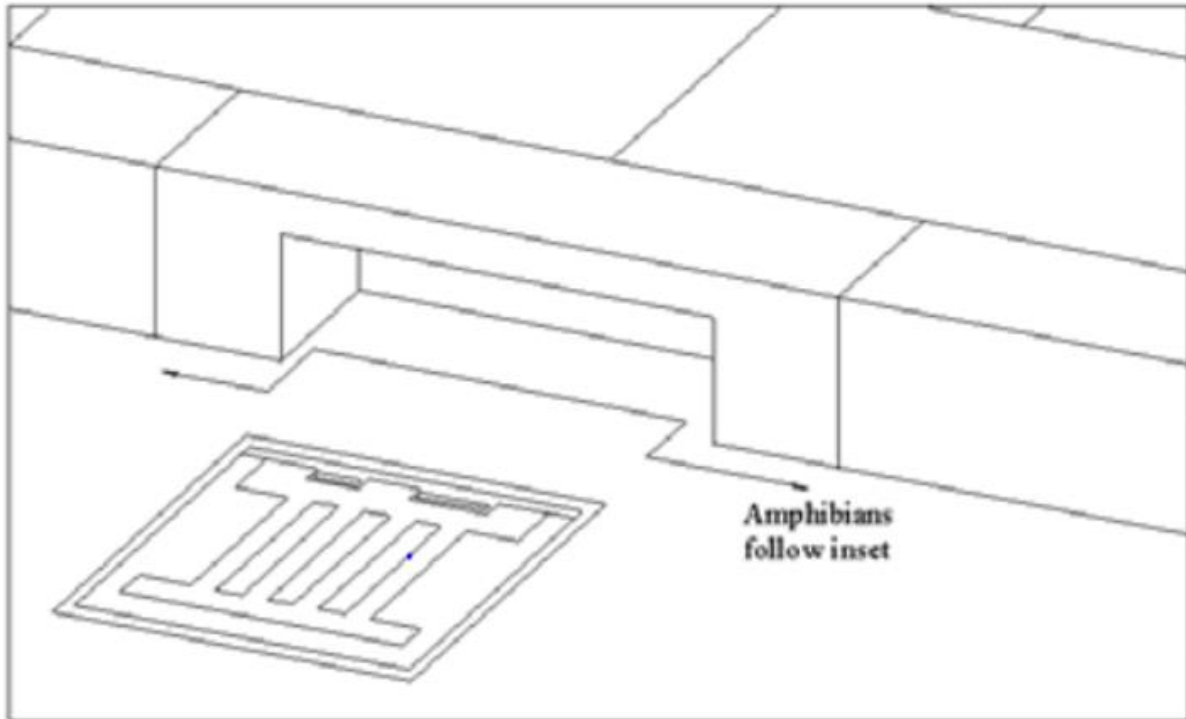


Figure 6 *Inset kerb stones greatly reduce gully pot trapping of amphibians*



Appendix 8: Amphibian Gully Pot Ladder

