TAYLOR WIMPEY UK

# LAND AT SWANBRIDGE ROAD, SULLY

## MITIGATION METHOD STATEMENT - GREAT CRESTED NEWT

16 September 2016


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## BACKGROUND AND SUPPORTING INFORMATION

### A Executive Summary

Soltys Brewster Ecology were commissioned by Taylor Wimpey UK to prepare a method statement Great Crested Newt for a parcel of land at Swanbridge Road, Sully (grid reference ST 1611 6843) which is proposed for residential development. During surveys undertaken in 2012/ 2013 the presence of Great Crested Newt *Triturus cristatus* was confirmed in a pond c.70m north of the site boundary.

The site is situated to the east of the village of Sully and is surrounded by existing residential development to the west, with Swanbridge Road separating the site from agricultural land to the east and improved grassland to the north. The improved grassland fields immediately adjacent to the north of the site have a resolution to grant outline planning permission for residential development (application reference 2013/01279/OUT) and a Great Crested Newt Method Statement has been agreed with NRW and the Local Authority as part of the planning application process for this site (Soltys Brewster Ecology, 2015). The current site includes the northern portion of a larger arable field surrounded by species-poor hedgerows.

Targeted surveys for newts were undertaken at the pond between April and May 2013 and these surveys identified a peak count of 8 adults. Due to access constraints the surveys have not been updated and although the habitat conditions have not changed since the 2013 surveys were undertaken, the presence of a slightly larger, medium sized population has been assumed on a precautionary basis for the purpose of the current application. Of the habitats on site, terrestrial habitats most suitable to support Great Crested Newt include the boundary hedgerows, with the arable land considered sub-optimal habitat.

The proposed development works at the site - subject to receipt of planning approval from the local authority (Vale of Glamorgan Council) - will involve site clearance prior to development and some long-term loss of potential terrestrial habitat within the works footprint which could pose a risk to Great Crested Newt. Given the absence of any impact to breeding (pond) habitats, and with retention and enhancement of terrestrial habitat in close proximity to the off-site breeding pond and creation of a new pond, the risk of an effect on Favourable Conservation Status (FCS) is considered to be minimal with the adoption of appropriate avoidance and mitigation measures.

This Method Statement sets out further details of the nature of the proposed works and the associated measures to avoid/minimise any potential for incidental killing or injury of Great Crested Newt. The Method Statement is intended to provide the Local Planning Authority and Natural Resources Wales (NRW) with sufficient information to satisfy the legal requirements associated with consideration of European Protected Species (EPS) as part of the planning and derogation licensing process.

## B Introduction

### B.1 Background to activity/development

Residential development is proposed on a parcel of land west of Swanbridge Road, near Sully (grid ref ST 1611 6843, see indicative masterplan in Section C.4). The presence of Great Crested Newt eggs was confirmed in a pond c.70m north of the current site boundary during a survey undertaken in March 2012. Dedicated amphibian surveys were subsequently undertaken in 2013 which identified a peak count of 8 adults. Due to access constraints the surveys have not been updated and although the habitat conditions have not changed since the 2013 surveys were undertaken, the presence of a slightly larger, medium sized population has been assumed on a precautionary basis for the purpose of the current application. Existing hedgerows at the site within close proximity to the pond (principally the northern boundary hedgerow) represent a potential terrestrial habitat resource for Great Crested Newts, with the arable land generally considered to be sub-optimal terrestrial habitat.

The proposed residential development will result in the loss of arable along with short sections of hedgerow habitat which, in the absence of mitigation, could pose a risk to Great Crested Newts present at the site.

It should be noted this method statement is based on the Indicative Masterplan (see plan in Section C.4) and assumes commencement of construction of site clearance/ construction from spring/summer 2018. Actual timing of works on site will be dependent upon receipt of planning permission. As such the timings and methods identified within this document may be subject to revision as part of a licence application post planning consent. Any revised method statement will be submitted as part of the licence application to NRW and will require approval from NRW as part of this process.

This method statement considers the development within the current application boundary only. A separate method statement has been produced and agreed with NRW and the Local Authority for the proposed development of the site immediately north of the current site (Soltys Brewster Ecology, 2015).

B.2 Full details of proposed works on site that are to be covered by the licence

This Method Statement sets out measures intended to avoid or minimise the risk of incidental killing or injury to Great Crested Newts that may be present within terrestrial habitat at the proposed development site. The structure and layout of this document is consistent with that of a Natural Resources Wales (NRW) derogation licence. In the event that planning consent for the development was granted, an application for such a licence will be required prior to commencement of site works. All of the measures described within the current Method Statement will be incorporated into the derogation licence.

The proposed residential development at the site could result in killing or injury of individual animals and damage or destruction of terrestrial resting places (refuges) of Great Crested Newts within the proposed works footprint (see masterplan in Section C.4).

Transfer of any animals discovered within the works footprint to retained/created terrestrial habitat in the north eastern area of the site on a phase by phase basis. No impacts on aquatic breeding habitat will arise as a result of the works and impacts to terrestrial habitat will be mitigated through the enhancement of habitat in retained areas through provision a new pond, creation of alternative refugia (stone-pile, log-pile and hibernacula habitat), scrub/ hedgerow planting and long-term favourable management.

Clearance of any hedgerow sections which require removal (i.e. for highways/ pedestrian access) will be undertaken to ground level using hand tools (chain saws or strimmers) between September and February to avoid the breeding bird season. The remaining grassland vegetation will be cut to ground level between December and February and arisings removed from the works footprint using a vehicle mounted mower (vehicle use based on limited likelihood of amphibians being present in grassland over winter hibernation period).

Following vegetation clearance a temporary amphibian exclusion fence[1] and pitfall traps (at 5-10m spacing) will be installed around the internal boundary of the development phase and installation will be preceded by a hand search of any potential refugia along the fence-line. Pitfall traps will be opened in spring once night time temperatures are consistently above 5°C and checked daily (before 11am) with trapping undertaken in parallel with the hand searching and removal of terrestrial refugia from across the works footprint.

[1] The fence will remain in place until construction work was complete. Regular checks of fence integrity will be undertaken to ensure its function was maintained. Illustrative design of fence shown in E.2.4.

Any animals discovered during the hand-searching and pitfall trapping will be immediately transferred into retained/created terrestrial habitat in the north east of the site. Animals will be released in areas where suitable shelter/ cover exists and the habitat will be supplemented by creation of a new pond and stone-pile, log-pile and hibernacula features as well as supplementary hedgerow/ scrub planting.

Installation of exclusion fencing and pitfall trapping will be completed on a phase by phase development and repeated prior to commencement of works in each phase of development. The exclusion fence will remain in place until development has been completed in the phase the fence surrounds, and following completion of works the fence will be removed.

B.3 Actions requiring licensing

The proposed residential development at the site could result in killing, injury or disturbance of individual animals and damage or destruction of terrestrial resting places (refuges) of Great Crested Newts within the proposed works footprint (see Plan in Section C.4). To minimise the risk to any newts present and maintain the newt population present at the site, newts will be captured and transferred (translocated) from within the development footprint to the area of retained terrestrial habitat around the existing pond as described above.

## C Survey and site assessment

C.1 Pre-existing information on Great Crested Newts at the survey site

Great Crested Newt were not previously known to exist at the site before a survey was undertaken of both the current site and the land to the north which supports the pond in March 2012. During this survey Great Crested Newt eggs were confirmed as being present in the pond.

Data received from the South Wales Biodiversity Records Centre (SEWBReC) identified 5 records of Great Crested Newts to the northwest of the site, the closest being approximately 700m from the site boundary. These records are all associated with Cosmeston Lakes Country Park, with the most recent record dated 2006. It is considered likely the population associated with the site forms part of a wider meta-population associated with Cosmeston Lakes County Park. OS and aerial mapping indicate the closest ponds in the surrounding area are approximately 600m north and 900m north east of the pond immediately north of the current site and on this basis any exchange of individuals between these ponds is likely to occur on an occasional/ irregular basis only.

C.2 Statutory sites notified for this species (SSSIs or SACs) within 10km

Seventeen statutory designated sites are located within 10km of the site boundary. The available citation details for these sites do not list Great Crested Newt as a reason for notification although as detailed above information received from SEWBReC does identify the presence of a Great Crested Newt population within the boundary Cosmeston Lakes Country Park SSSI.

C.3 Objectives of the survey

The survey work undertaken to inform the proposed development at the site comprised of an Extended Phase 1 Habitat survey in August 2016 (SBE, 2016) which updated the results of survey originally undertaken within the current site and the land to the north in 2012. The results of this survey were used to assess the availability and extent of suitable habitat for Great Crested Newt on the site. Targeted survey work for Great Crested Newt was undertaken at the pond c.70m north of the site between April and May 2013 (bottle trapping, egg-searches and torchlight survey). Due to access constraints an update to the 2013 amphibian surveys has not been possible and as such the results of the 2013 surveys have been used to inform the mitigation strategy identified within this document.

## C.4 Scaled plan/map of survey area

**LAND AT COG ROAD, SULLY (SOUTH SITE)**

Indicative Masterplan

1:1000 @ A2

Phase 1 Inc. 'SUDS' Feature

Phase 2 Inc. Ecological Mitigation Area

Phase 3

C.5 Site/habitat description (relevant to Great Crested Newts)

A summary of the terrestrial habitats within and adjacent to the Swanbridge Road site is provided in the following sections, with further details contained within Annex J.1 (Extended Phase 1 Survey report (SBE, 2016)).

The development site primarily consists of the northern portion of a larger arable field bordered by hedgerows. A pond is located offsite within an improved grassland field approximately 70m north of the site.

*Arable Land*

The site consists of the northern part of a single larger arable field which had been ploughed and planted with a maize crop, and as such consisted almost entirely of bare earth with no visible botanical interest. Field margins were narrow along the eastern and western elevations (<2m wide) and generally absent or <0.5m wide along the northern elevation. Where present the margins supported a limited range of species including Cocks Foot *Dactylis glomerata*, Common Couch *Elymus repens*, False Oat-Grass *Arrhenatherum elatius*, Alexanders *Smyrnium olusatrum* and Field Bindweed *Convolvulus arvensis* along with species indicative of nutrient enrichment such as Nettles *Urtica dioica* and Cleavers *Galium aparine*. Bramble *Rubus fruticosus* scrub was also encroaching from the adjacent hedgerows.

*Hedgerows and Trees*

The site is surrounded by hedgerows on the western, northern and eastern boundary (Plates 1 & 2). The hedgerows along the northern and eastern site boundary were regularly trimmed resulting in a dense hedge approximately 2m in height. The western boundary hedgerow appeared to lack regular management with the exception of side trimming resulting in a taller hedgerow. Species within the hedgerows include Hawthorn *Crataegus monogyna*, Blackthorn *Prunus spinosa*, Elder *Sambucus nigra*, English Elm *Ulmus procera* and Hazel *Corylus avellana*. Nettles and Cleavers were dominant in the hedgerow bases with other species such as Ivy *Hedera helix* and Lords and Ladies *Arum maculatum* also noted. Although all hedgerows were found to be relatively diverse along their entire length none were noted as supporting five or more woody species within a 30m length and as such are classified as being species poor.

The hedgerows around the site boundary were generally devoid of trees, with the exception of a single multi-stem Ash in the centre of the northern boundary and a small number of trees within the taller, unmanaged hedge along the western site boundary. A small group of predominately Sycamore *Acer pseudoplatanus* trees were recorded in the southeast corner of the site.

*Off-site pond*

Due to access constraints an assessment of the pond c.70m north of the site could not be undertaken as part of the 2016 survey. However this pond was surveyed in 2012 and 2013 and the following description is based on this assessment. In 2012/2013 the pond was found to be relatively shallow and choked with Floating Sweet-grass *Glyceria fluitans* with little other aquatic vegetation present (Plate 3). During the targeted amphibian surveys undertaken in 2013 the pond was found to be drying down by mid-May, with no standing water left by early June. In summers with low rainfall the pond is understood to regularly dry out. The pond is located within improved grassland fields managed via cattle/ sheep grazing and for hay/ silage. In 2012/ 2013 the pond margins were grazed and suffered from poaching.

**Plate 1. Arable land, hedgerow and narrow field margin along eastern site boundary**

**Plate 2. Hedgerow along the northern site boundary**

**Plate 3. Pond within an improved grassland field c.70m north of the current site (photo taken March 2012)**

C.6 Field survey

Due to access constraints it was not possible to update to the targeted amphibian surveys undertaken in 2013. Amphibian surveys undertaken at the pond in 2013 were carried out using techniques recommended

by the Herpetological Conservation Trust and followed guidelines issued by English Nature (2001) to determine the likely presence/ absence of Great Crested Newts *Triturus cristatus*. The surveys were conducted by licenced surveyors[2].

The surveys were conducted under suitable weather conditions between 08th April and 20th May 2013 utilising a range of standard methodologies including torchlight searches, egg searches and bottle trapping. Each technique is described below. Six survey visits were scheduled to be undertaken between April and June, although only 5 visits (incorporating 4 bottle-trapping sessions) were completed as the pond had dried out before the final visit could be undertaken, with too little water present to allow bottle trapping during the penultimate visit (visit No. 5 on 20th May, see Plate 4 for condition of pond on 14th May 2013).

**Plate 4. Pond drying down on 14th May 2013**

*Torchlight Search*

Torch surveys to detect adult or juvenile newts were performed during each visit after sunset (08th, 15th & 22nd April, 13th & 20th May). The surveys were conducted using 1,000,000 candlepower torch. The whole pond was searched with particular attention paid to marginal vegetation and potential open display areas. All species encountered were recorded.

[2] Licence numbers 38872:OTH:SA:2012 & 40130:OTH:SA:2012

*Bottle trapping*

Bottle trapping was undertaken at the pond during all survey visits identified above except 20th May, when water levels were found to be too shallow. Twenty-two traps were set during the first three visits (08th, 15th & 22nd April). During the penultimate survey visit (13th May) the pond had dried so severely only seven traps could be set due to insufficient depth of water, with no trapping undertaken during the final visit due to lack of water.

The traps were set near aquatic vegetation around the perimeter of the pond prior to sunset and left in position overnight. The traps were checked and removed early the following morning and any species found within the traps were recorded. Following each use the traps were cleaned in a dilute solution of bleach and rinsed with clean tap water to reduce the possible spread of harmful diseases between amphibian populations in other ponds.

C.7 Survey Results

The amphibian surveys identified Great Crested Newts within the pond during two of the five survey visits undertaken. A peak count of 8 adults (7 male, 1 female) were observed during a torchlight survey on 15th April, with a single adult male recovered from the bottle traps set on 15th April. A single adult male Great Crested Newt was also recovered from bottle traps set on the 22nd April. With the exception of Common Frog *Rana temporaria* no evidence of use of the pond by other amphibian species was observed. Full details of the survey results are provided in Annex J.2.

C.8 Interpretation/evaluation of survey results

During the surveys undertaken at the site in 2012 and 2013 breeding Great Crested Newt were confirmed within the pond on-site. A peak count of 8 adult Great Crested Newt were recorded during a single survey session (torchlight survey undertaken on 15th April 2013). With a peak count of 8 individuals the population size class assessment guidelines provided within the Great Crested Newt Mitigation Guidelines (English Nature, 2001) and Great Crested Newt Conservation Handbook (Langton *et al.*, 2001) would indicate the pond would be considered likely to support a small or low population of this species. However due to constraints associated with the 2013 surveys (pond drying down before surveys were completed and pond becoming choked with *Glyercia*) and because surveys have not been able to be updated in 2016 due to access constraints, the presence of a medium sized population is assumed for the purpose of the current method statement. Update surveys at an appropriate time of year would be required to inform any application for a European Protected Species Licence which would be made following receipt of planning permission.

*Terrestrial habitat use by Great Crested Newts*

Several studies relating to terrestrial habitat use and dispersal by Great Crested Newts have been undertaken, although empirical data on the terrestrial ecology of the species is relatively scarce (Jehle, 2000) due to difficulties associated with detecting animals in the terrestrial phase. In terms of distances travelled from breeding ponds, Great Crested Newt have been found in high densities up to 200m away from the pond (Franklin, 1993 – cited in English Nature, 2004) with several authors estimating a maximum migratory range of 250m from a pond (e.g. English Nature, 2004). The distance of 250m is also identified within the English Nature Great Crested Newt Mitigation Guidelines (2001)[3] - which state that Great Crested Newt '*commonly move between ponds that are within 250m of each other*' and that '*as a general guide, suitable habitats within 250m of a breeding pond are likely to be used most frequently*'.

Based on the available terrestrial habitat within the site, the hedgerow along the northern boundary of the current application site (approximately 70m south of the pond) was considered likely to represent the most suitable areas of terrestrial habitat in close proximity to the pond. Arable land present within the site is likely to represent sub-optimal habitat, although based on the limited availability of suitable habitat in close proximity to the pond may still be of some importance to the newt population. Hedgerows around the remaining site boundaries (east and west) may also be used as terrestrial habitat on an occasional/ irregular basis although due to their distance from the breeding pond were considered less likely to be used than that located south of the pond (eastern boundary c.177m from pond, western boundary c.267m from pond).

## D Impact Assessment

The following section presents the potential impacts of the development of the Swanbridge Road site in the absence of specific mitigation measures. The indication of High, Medium or Low impacts is based on guidance set out in Great Crested Newt Mitigation Guidelines (English Nature, 2001).

### D.1 Short term impacts: disturbance

In the short term, site clearance within the proposed development boundary will lead to a loss of terrestrial habitat for newts and could also result in the incidental killing or injury of any individuals present within these areas at the time of works. Although development both associated with the current site and land to the north could limit effective newt dispersal to the north and south, no significant adverse impact on dispersal or fragmentation of habitats would be predicted given the retention and strengthening of the hedgerow along

[3] At present, there are no equivalent guidelines produced by Natural Resources Wales (NRW) although NRW do endorse the use of the English Nature guidelines

the northern boundary of the site which will allow newts to continue to travel across the site and into habitat immediately adjacent to, and beyond, the development boundary. The population associated with the pond to the north may form part of a wider meta-population associated with Cosmeston Lakes County Park and the retained habitat area and northern hedgerow will allow continued connectivity to the eastern boundary of the site towards Cosmeston Lakes County Park

No direct impacts on breeding habitat will occur as a result of the works.

The predicted scale of these short term impacts, incorporating partial destruction of 'intermediate' (50-250m from breeding pond) terrestrial habitat and temporary disturbance of such habitats within the current site would be of low. However in combination with the destruction of 'immediate' (i.e. <50m from breeding pond) and 'intermediate' habitat associated with the site to the north the predicted scale of impact would be Medium.

D.2 Long term impacts: site modification

In the long term, the footprint of the completed development will represent a permanent loss of terrestrial habitat for Great Crested Newts. However, the majority of this loss will be restricted to areas of arable land which are considered sub-optimal terrestrial for Great Crested Newt. An area of approximately 1ha of terrestrial habitat is to be retained in the northeast of the site which connects into the retained area around the pond proposed as part of the development of the site to the north (approximately 1.6ha). The retained area is to be managed principally for the benefit of Great Crested Newt (including grassland creation, hedgerow and scrub planting).

The remainder of the terrestrial habitat on site (approximately 5.8ha) will be lost (i.e. for building footprints, hard-standing, access roads, residential gardens etc.). No further loss or damage of habitat in the surrounding area suitable to support Great Crested Newt will be associated with the current development.

The predicted scale of these impacts resulting from the partial destruction of intermediate terrestrial habitat would be Low (based Great Crested Newt Mitigation Guidelines) although combined with the proposed development north of the hedgerow which results in partial destruction of immediate terrestrial habitat the predicted scale of impact would be Medium.

D.3 Long term impacts: site loss

As described under D2, long-term habitat loss (principally arable land) will result within the development footprint (approximately 5.8ha). However based on the uniformity of the habitat (arable land which is considered sub-optimal for Great Crested Newt) and the retention of areas of terrestrial habitat in the north east of the site in close proximity to the off-site pond the long term impact on the Great Crested Newt population at the local scale is considered to be low. A negligible impact at the regional and national scale is considered likely.

D.4 Long term impacts: fragmentation and isolation

Based on the retention of the hedgerow along the northern boundary of the site there is little to suggest the Great Crested Newt population could not continue to move from the on-site pond into the surrounding landscape via this route. Some loss of connectivity may occur to the north and south due to the proposed residential development both within the current site and on the land to the north, although due to the existing openness of habitat to the north and south (improved grassland extending 250m to the north of the pond and arable land/ improved grassland extending 500m south) newts are considered less likely to be currently dispersing via these routes and would be more likely to travel along the hedgerow along the northern boundary of the current site as a route for dispersal into the surrounding landscape and towards other known off-site populations in the east at Cosmeston Lakes County Park. As such the impact of fragmentation/ isolation of habitats is considered to be low.

D.5 Post development interference impacts

Newts may be subject to low levels of disturbance by residents, although any impact would be considered negligible. However, the introduction of fish or invasive aquatic plant species to the existing off-site pond by residents could potentially pose a risk to the quality of the breeding habitat available for newts at the site.

The existing off-site pond occurs at a high point within the current site and the site to the north and the existing catchment of the pond will be largely retained throughout construction and operation of the scheme which will maintain the existing quantity and quality of water entering the pond.

Kerbs and drainage features represent a common cause of entrapment and mortality for newts in new developments (English Nature, 2001). Road drains will be off-set from the kerb or installed with an adjacent

inset kerb stone (see example in E.2.4) to minimise the risk of entrapment or mortality. A section of drop kerb will be provided along every 20m of road within 100m of the pond and within 50m of the southern hedgerow to minimise the risk of amphibians becoming trapped at the base of kerbs. Gully pot design associated with the proposed residential properties will be fitted with escape ramps to allow any trapped newts with a means of escape.

D6 Predicted scale of impact

Within the current site the proposed development at the Swanbridge Road site will result in the permanent loss of 5.8ha of predominantly sub-optimal terrestrial habitat. In the absence of mitigation measures, the works represent a risk of damage/destruction of 'intermediate' terrestrial habitats well as the incidental killing or injury of individual animals during site clearance/ construction and post development interference impacts. However with cumulative effect of the development proposed to the north of the site (which would result in and partial damage/ destruction of 'immediate' and 'intermediate' terrestrial habitat) the potential impact of the proposals at the local level is considered to be Medium. No effects would be predicted at a county, regional or national level.

## DELIVERY INFORMATION – MITIGATION, COMPENSATION AND MONITORING

### E Works to be undertaken

As described in Section D of the Background Information, potential impacts of the proposed development relate to the loss of terrestrial habitat including arable land and hedgerow (damage/destruction of a resting place for Great Crested Newt) and the incidental risk of killing or injury of individual animals as part of site preparation/construction as well as post development interference impacts. In the absence of mitigation, and in combination with the impact of the proposed development to the north, the risk to Favourable Conservation Status of the local population is considered Medium. Accordingly, the principles of the mitigation strategy are based on minimising the risk to individual Great Crested Newts during site preparation/ construction and providing alternative refugia within retained habitat to mitigate for loss of such features as part of the development and provision of a new breeding pond.

The main principles of the mitigation strategy can be summarised as follows:

1. Creation of pond and sowing of grass seed in retained habitat area from September/ October 2017.
2. Remaining proposed planting (scrub/ trees) within retained habitat area undertaken prior to March 2018;
3. Clearance of vegetation to ground level (i.e. a height of 20 – 30cm) within the area associated with Phase 1 development undertaken between December 2017 and February 2018 (prior to March 2018[4]). Clearance of short sections of hedgerow (at proposed highway/ pedestrian access points) undertaken using hand tools only (chainsaws, strimmers) with felled material and arisings removed from the works footprint. Clearance of any vegetation regrowth in arable areas undertaken using vehicle mounted mower or similar (vehicle use based on limited likelihood of amphibians being present in arable areas over winter period);
4. Creation of 1 no. log-pile, 1 no. stone-pile and 1no. hibernacula features within the retained area around the existing pond to the south of the site. Features will be created using material from the site with additional material brought in if required under the direction of the project ecologist;
5. Installation of a semi-permanent amphibian exclusion fence (see illustrative design in Section E.2.4) around the boundary of Phase 1 (see plan in E.2.4) from March 2018. The trench for the fence will be dug by hand or in part by a small excavator. Any digging will be preceded by a hand-search of potential refugia along the fence line by the project ecologist or accredited agents. Semi-permanent type fencing will be used in view of the requirement to remain in place throughout the construction of each phase. The fence will be regularly checked and maintained by site staff or project ecologist

[4] This timing will avoid any potential conflict with nesting birds and will limit potential impacts on any over-wintering amphibians – i.e. no ground clearance work undertaken.

(checked a minimum of once per week). The fence will remain in place for the duration of site preparation/construction work in Phase 1;

6. In parallel with the fence installation detailed above pitfall traps (5L square plastic buckets with lids will be dug in flush with the exclusion fence with the bucket top just below ground level. Traps will be set at 5-10m spacing along the internal perimeter of the exclusion fence;
7. Traps will remain closed (lids on) until night time temperatures reach >5°C over a period of 5 consecutive nights. Once temperatures are consistently above 5°C the traps will be opened under suitable weather conditions and checked on a daily basis (before 11am) and any animals found will be immediately transferred out of the works footprint to the retained terrestrial habitat in the north east of the site. Animals found will be released in areas where cover/ shelter is available to minimise risk to individuals following release;
8. In parallel with pitfall trapping, hand search and removal of any remaining terrestrial refuges (logs, stones etc.) within the works footprint will be undertaken by the project ecologist or accredited agent.
9. Pitfall trapping will be undertaken for a minimum of 30 trapping nights and, if required, continued until thereafter 5 nil return trapping nights are achieved. Cessation of pitfall trapping will be dependent upon capture rates and will be agreed with the local species team at NRW;
10. Following completion of pitfall trapping any remaining features (tree stumps, larger stones etc.) will be removed using a small excavator under supervision of the project ecologist or accredited agent;
11. Following completion of above and agreement of reasonable capture effort with NRW, soil strip/ initial site clearance will be undertaken across the area associated with Phase 1 development. The exclusion fence is to remain in place as detailed in Section E.2.4 until all works have been completed within that phase of development. The fence will be regularly checked and maintained as required throughout the site clearance and construction process (minimum of once per week). Checking and maintenance of the fence is to be the responsibility of the project ecologist or site manager;
12. If any Great Crested Newts be found within the works footprint during site clearance/ construction all works will immediately cease and the project ecologist or NRW contacted for advice on how to proceed.
13. The same process outlined in items 3 to 12 above will be repeated for development phases 2 and 3 i.e. vegetation clearance, construction of exclusion fence, pitfall trapping for a minimum of 30 days and, following agreement of suitable capture effort with NRW, site clearance. The location of exclusion fencing for each phase of development is illustrated in E.2.4. Timing of future development phases will be dependent upon progress of works on site.
14. Following completion of all works within a development phase the exclusion fencing around the boundary of the completed phase will be removed.

The principles of the mitigation strategy will apply over the duration of the project with regular checks on the condition and integrity of the exclusion fencing a key consideration. The fence will be checked a minimum of once per week and any damage to the fence will be immediately (within 24h) repaired to maintain its function.

A small excavator will be used to create the pond and stone-pile, hibernacula and log pile within the retained habitat area. Prior to the excavator accessing the site, vegetation clearance and hand searches of potential refugia will be undertaken in all areas likely to be affected by these works. Access to the retained habitat by a small excavator will be minimised as far as practical i.e. excavator using single access route, no tracking of vehicles over the site, and will be supervised by the project ecologist.

A timetable of the proposed works is included within Section G. Subject to planning consent and licence approval, vegetation clearance works in Phase 1 will be undertaken from December 2018 with commencement of construction works from late spring/ summer 2018, following completion of site clearance. The timings and methods identified within this document may be subject to revision as part of a licence application post planning consent. Any revised method statement will be submitted as part of the licence application to NRW and will require approval from NRW as part of this process.

## E.1 Great Crested Newt Capture and Exclusion

Capture and transfer of newts from terrestrial refugia within the footprint of each phase will be undertaken by hand by the named ecologist or accredited agents prior to the commencement of works within each phase. Any newts discovered will be transferred immediately or held temporarily (e.g. in a bucket lined with damp vegetation) prior to release at a comparable refuge site within the retained habitat area.

In order to minimise the risk of Great Crested Newts entering the works footprint exclusion fencing of the form described above will be installed around the boundary of Phase 1 from March 2018. The fencing will be installed as illustrated in E.2.4. Pitfall traps will also be installed along the interior of the fence line at 5-10m intervals. A hand search along the fence line will be undertaken immediately prior to installation of the fence by the project ecologist or accredited agent.

Installation of the amphibian exclusion fence and pitfall traps will be undertaken by contractors under the supervision of the project ecologist or accredited agent.

Pitfall traps will remain closed (lids on) until night time temperatures reach >5°C over a period of 5 consecutive nights. Once temperatures are consistently above 5°C the traps will be opened under suitable weather conditions and checked on a daily basis (before 11am) and any animals found will be immediately transferred out of the works footprint to the retained terrestrial habitat around the pond. Capture and transfer of newts from pitfall traps and terrestrial refugia within the works footprint will be undertaken by hand by the named ecologist or accredited agents. Trapping will be undertaken for a minimum of 30 nights and continue thereafter (if required) until 5 nil return visits are achieved.

The construction of the exclusion fence and pitfall trapping exercise as described above will be repeated for each development phase.

Regular checks of the fence integrity will be undertaken by the project ecologist, accredited agent or site staff and any defects/damage immediately (within 24h) repaired. For each phase, the exclusion fence will only be removed once all works have been completed within that phase.

## E.2 Great Crested Newt Habitat

### E.2.1 Receptor Site modification, enhancement or creation

To provide additional breeding habitat a pond will be created within the retained habitat area (receptor site) in the north east of the site. The pond will be constructed using a small excavator. The area associated with the pond and the access route for the excavator will be thoroughly hand searched by the licenced ecologist or accredited agent prior to construction of the pond. The pond will be constructed in September/ October 2017 during the period newts would still be active. Any newts found would be carefully transferred to other areas of the retained habitat away from areas where they may be at risk during the works.

The surface area of the new pond will measure c.400m$^2$ and the water level will be a maximum of 1500mm deep at the central points. The pond edges will have a shallow gradient to create marginal areas and will have a scalloped perimeter. A bentonite geosynthetic clay lining will be installed over the base layer to ensure the pond retains water and a thin layer of top soil (c.50mm) will be carefully spread over the liner with care taken not to pierce the liner. The pond will be allowed to naturally fill with rainwater.

A small number of native aquatic plants will be introduced to the pond in early spring 2018 (once the pond contains sufficient water) to provide an egg-laying substrate for Great Crested Newt. Appropriate plants include Water Mint, Water Forget-me-knot and Water Crowfoot. All plants will be thoroughly washed prior

to introduction to ensure non-native plant species are not accidentally introduced to the pond. To avoid the need to pierce any liner, plants will be placed on top of the liner.

The area proposed as retained habitat is currently arable land. This area will be sown with a wildlfower grass seed mix with the aim of providing a tussocky and diverse grassland sward more suitable for Great Crested Newt. The retained habitat area will be sown with a suitable native wildflower mix (Emorsgate EM2 or similar approved) in September/ October 2017. The seed will be sown at a rate of 4g/$m^2$ to supplier's instructions. The area scheduled for sowing is currently arable land managed with the use of machinery and, with the exception of the crop, is dominated by bare ground. On this basis the use of a small machine to prepare the seed bed and for sowing of the seed will be undertaken as required. Any large surface refuges such as stones would be hand searched by the project ecologist or accredited agent prior to preparation of the seedbed. Sowing the seed in autumn 2017 would enable the grassland sward to be established by spring 2018 when pitfall trapping is due to commence and newts would be moved to the retained habitat. A grassland management regime would be adopted within the retained habitat area to promote the development of a tussocky sward more suitable for Great Crested Newt. The management regime is discussed in F.1 below.

Within the retained habitat, mitigation measures to provide alternative refugia for amphibians will be implemented via the creation of 1no. stone-pile, 1no. log-pile habitat and 2no. hibernacula – material for these features will be sourced from within the site with additional material brought in as required. The stone pile will be created using large, heavy stones (to minimise the risk of disturbance/ removal by members of the public). The stone pile will be located in close proximity to the pond edge (<5m) and will be a minimum of 2m L x 1m wide. Log-piles will typically be constructed from logs 1 – 2 m in length, with a shallow scrape (up to 100mm depth) created on the ground and the first layer of logs laid within this scrape. Hibernacula will be constructed based on the design illustrated in E.2.4. Locations for these features will be identified by the project ecologist and will avoid damage/disturbance of existing refugia within retained habitat.

To improve the available terrestrial habitat for newts on the site additional scrub and hedgerow planting are also to be undertaken in the retained area in the north east of the site (see plan in E.2.4 for locations and specification). Blocks of scrub planting will result in the creation of approximately 430$m^2$ of new native scrub with an additional 200m of hedgerow planting also undertaken around the boundary of this area. Additional scrub and hedgerow planting will also be undertaken within the area around the existing pond as part of the proposed development to the north of the site and the hedgerow along the northern boundary of the site current site is to be extended to 10m wide with native scrub planting part of this development (see Method Statement for Land South of Cog Road (Soltys Brewster Ecology, 2015).

All enhancement measures to be implemented within the retained habitat area are illustrated in E.2.4.

E.2.2 Temporary loss of breeding sites, resting places

No impacts on aquatic (breeding) habitats will arise as a result of the works. Some loss of terrestrial refuge sites will occur during the site preparation and clearance phases. Loss of terrestrial habitat will predominantly relate to arable land which is considered sub-optimal for Great Crested Newt and therefore less likely to be utilised than features in the area immediately surrounding the off-site pond and the hedgerow along the northern site boundary. Provision of alternative refugia within the retained habitat area in the north east of the site will be implemented as described in E.2.1.

E.2.3 Destruction of existing breeding sites, resting places

Vegetation clearance to ground level (to a height of 20 – 30cm for shrub or woody vegetation) only will be undertaken through winter 2017/2018. No below ground clearance or destruction of areas which could be used by hibernating amphibians will be undertaken during winter months.

All works to remove existing refugia will involve hand-searching and removal of these features by the ecologist or accredited agent. For larger refugia – such as shrub roots in hedgerow areas – small excavator will be used to pull back retained stumps to expose the root ball which will be checked by the ecologist or accredited agent prior to uprooting and removal. Removal of larger refugia would not be undertaken until pitfall trapping had been completed. Provision of replacement refugia within the retained habitat area is described under Section E.2.1.

## E.2.4 Scaled maps/ plans


**KEY - RETAINED POND AREA AND SOUTHERN HEDGEROW EXPANSION ONLY**

- Proposed Grassland
- Proposed Pond
- Proposed Scrub Planting
- Proposed Mown Path
- Proposed Native Hedgerow Planting
- Proposed Hibernacula
- Proposed Log Pile
- Proposed Stone Pile

**Notes:**

This plan illustrates the retained and proposed landscape features within the retained habitat area associated with the Swanbridge Road site only. For proposal associated with the adjacent site to the North refer to *Land South of Cog Road, Sully - Mitigation Method Statement - Great Crested Newt* (Soltys Brewster Ecology (2015) Ref: E1237002/ Doc 03). This also plan excludes landscape structure outside the retained habitat area which would be subject to reserved matters design and application.

***SCRUB PLANTING MIX***

Randomly plant at 3 per 1m² in groups of 3 to 7 of a single species. Avoid planting in grids or lines.

| % | BOTANICAL NAME | COMMON NAME | SPECIFICATION INFORMATION |
|---|---|---|---|
| 10 | *Corylus avellana* | Common Hazel | 1+1 Transplant, Bare Root |
| 35 | *Crataegus monogyna* | Common Hawthorn | 1+1 Transplant, Bare Root |
| 5 | *Cornus alba* | Dogwood | 1+1 Transplant, Bare Root |
| 10 | *Prunus avium* | Wild Cherry | 1+1 Transplant, Bare Root |
| 35 | *Prunus Spinosa* | Common Blackthorn | 1+1 Transplant, Bare Root |
| 5 | *Acer campestre* | Field Maple | 1+1 Transplant, Bare Root |

Extra over planting of trees within scrub as per Extra Over Tree Planting Mix below.

***NATIVE HEDGE MIX***

Planted at 300mm apart, central to a 1 metre wide strip, 6 per linear metre in double staggered row in groups of 3 or 7 of a single species.

| % | BOTANICAL NAME | COMMON NAME | SPECIFICATION INFORMATION |
|---|---|---|---|
| 10 | *Acer campestre* | Field Maple | 1+1 Transplant |
| 10 | *Corylus avellana* | Hazel | 1+2 Transplant |
| 30 | *Crataegus monogyna* | Hawthorn | 1+1 Transplant |
| 30 | *Prunus spinosa* | Common Blackthorn | 1+2 Transplant |
| 10 | *Sambuccus nigra* | Common Elder | 1+1 Transplant |
| 10 | *Viburnum opulous* | Guerder Rose | 1+1 Transplant |

***EXTRA OVER TREE PLANTING MIX***

Species to be planted as mixed sizes as indicated below, in groups of 3, 5 or 7 of a single species. To be planted at a typical rate of 1 tree per 10 linear metres in hedgerows and 10m2 in scrub planting.

| % | BOTANICAL NAME | Common Name | SPECIFICATION INFORMATION |
|---|---|---|---|
| 20 | *Acer campestre* | Field Maple | Standard 14-16cm girth, rootballed. Single timber stake 600mm high. |
| 10 | *Alnus glutinosa* | Alder | Feathered 1.5m height. Rootballed. |
| 20 | *Prunus avium* | Wild Cherry | Feathered 1.5m height. Rootballed. |
| 5 | *Malus sylvestris* | Crab Apple | Standard 14-16cm girth, rootballed. Single timber stake 600mm high. |
| 2.5 | *Quercus robur* | Pendunculate Oak | Standard 14-16cm girth, rootballed. Single timber stake 600mm high. |
| 30 | *Tilia cordata* | Small Leaved Lime | Standard 14-16cm girth, rootballed. Single timber stake 600mm high. |

***Grassland Areas***

Emorsgate EM2 Standard General Purpose Meadow Mixture (sow at 4g/m² to suppliers instructions)

| % | BOTANICAL NAME | COMMON NAME | SPECIFICATION INFORMATION |
|---|---|---|---|
| 0.5 | *Achillea millefolium* | Yarrow | - |
| 4.0 | *Centaurea nigra* | Common Knapweed | - |
| 2.5 | *Galium verum* | Lady's Bedstraw | - |
| 1.0 | *Leucanthemum vulgare* | Oxeye Daisy | - |
| 0.5 | *Lotus corniculatus* | Bird's Foot Trefoil | - |
| 2.0 | *Plantago lanceolata* | Ribwort Plantain | - |
| 0.5 | *Plantago media* | Hoary Plantain | - |
| 0.2 | *Primula veris* | Cowslip | - |
| 2.0 | *Prunella vulgaris* | Self Heal | - |
| 4.2 | *Ranunculus acris* | Meadow Buttercup | |
| 1.5 | *Rhinanthus minor* | Yellow Rattle | |
| 1.0 | *Rumex acetosa* | Common Sorrel | |
| 0.1 | *Trifolium pratense* | Red Clover | |
| 8.0 | *Agrostis capillaris* | Common Bent | |
| 40.0 | *Cynosurus cristatus* | Crested Dogs Tail | |
| 28.0 | *Festuca rubra* | Red Fescue | |
| 4.0 | *Phleum bertolonii* | Smaller Cat's-tail | |

o client/project
Taylor Wimpey
**Swanbridge Road, Sully**

o drawing
Proposed planting within retained pond area (Receptor Site) and southern hedgerow expansion

| o drawing no. | o revision | o scale | o drawn | o date |
|---|---|---|---|---|
| E1237004/003 | * | NTS @ A3 | AP | Sept 2016 |

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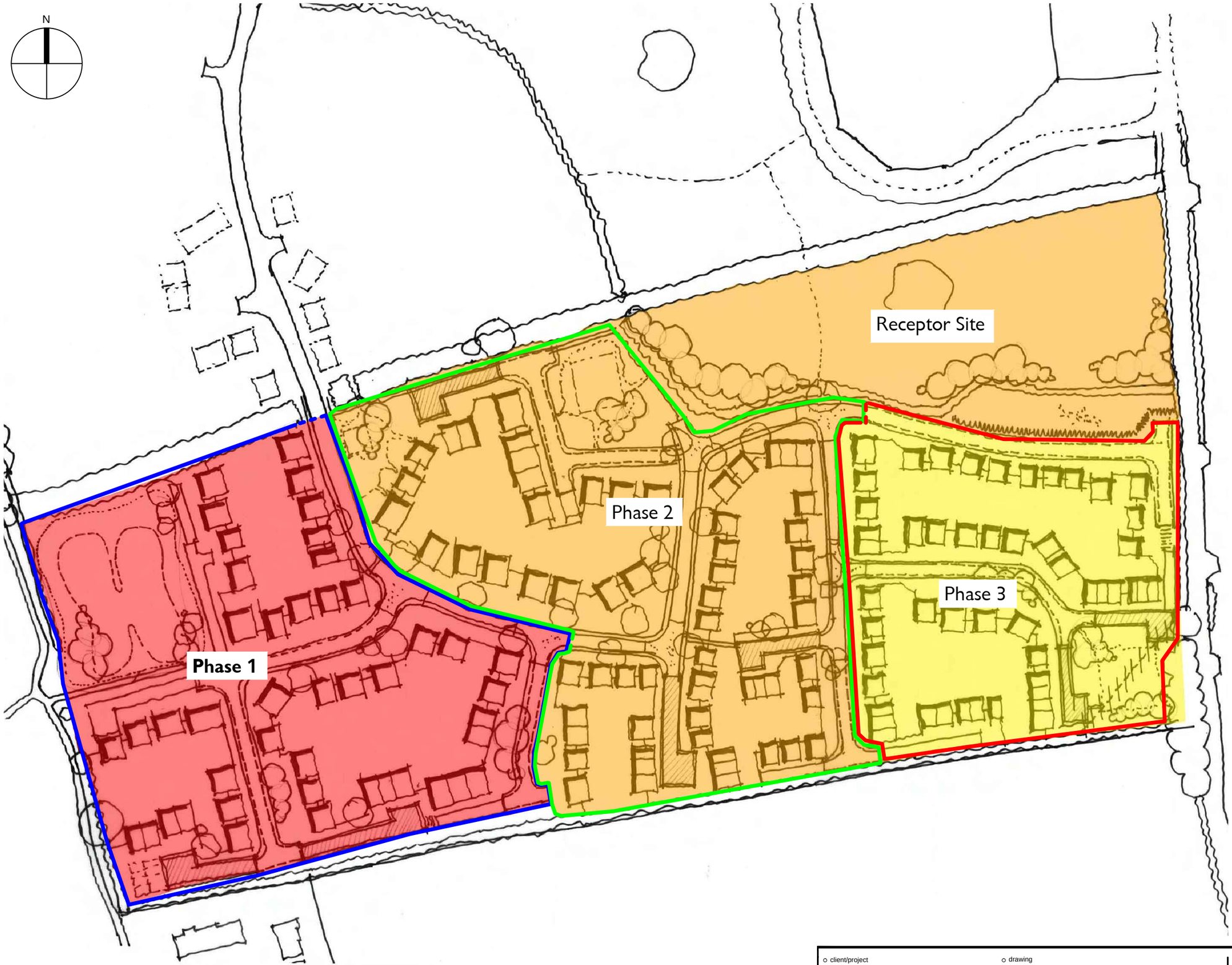


**Key**

Exclusion fencing to be installed prior to development Phase 1 with pitfall traps set every 5-10m along internal perimeter

Exclusion fencing to be installed prior to development Phase 2 with pitfall traps set every 5-10m along internal perimeter

Exclusion fencing to be installed prior to development Phase 3 with pitfall traps set every 5-10m along internal perimeter

Dashed line represents area of exclusion fence to be removed following completion of reptile translocation/ newt pitfall trapping to allow access for construction. All other areas of exclusion fence around each phase to remain in place throughout construction and not be removed until works within relevant phase have been completed.

Integretiry of exclusion fence checked at least once a week and maitained as required.

| client/project | | drawing | | |
|---|---|---|---|---|
| Taylor Wimpey<br>**Land at Swanbridge Road, Sully** | | Proposed Exclusion Fencing | | |
| drawing no. | revision | scale | drawn | date |
| E123704/001 | - | NTS @ A3 | AP | Sept 2016 |

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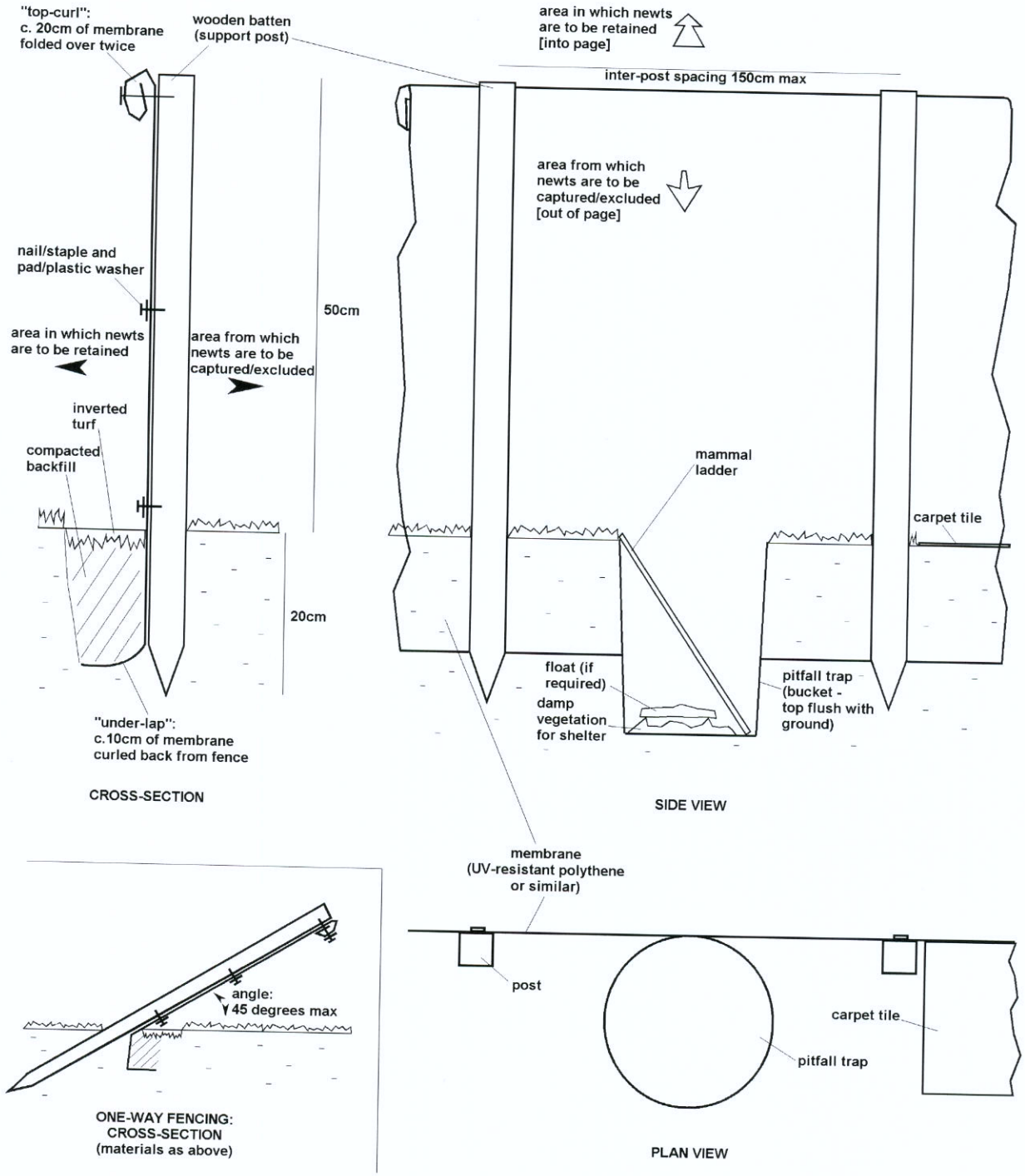
**Figure 4: Fence and pitfall trap design**

Recommended design for exclusion fence (temporary amphibian fence), drift fence, and pitfall trap placement. This design can be used for a variety of capture and exclusion/retention purposes (see text and Figure 5: Common fencing and trapping patterns).



therefore be developed by an experienced pond ecologist, rather than a general environmental consultant or a landscape architect with little knowledge in this field.

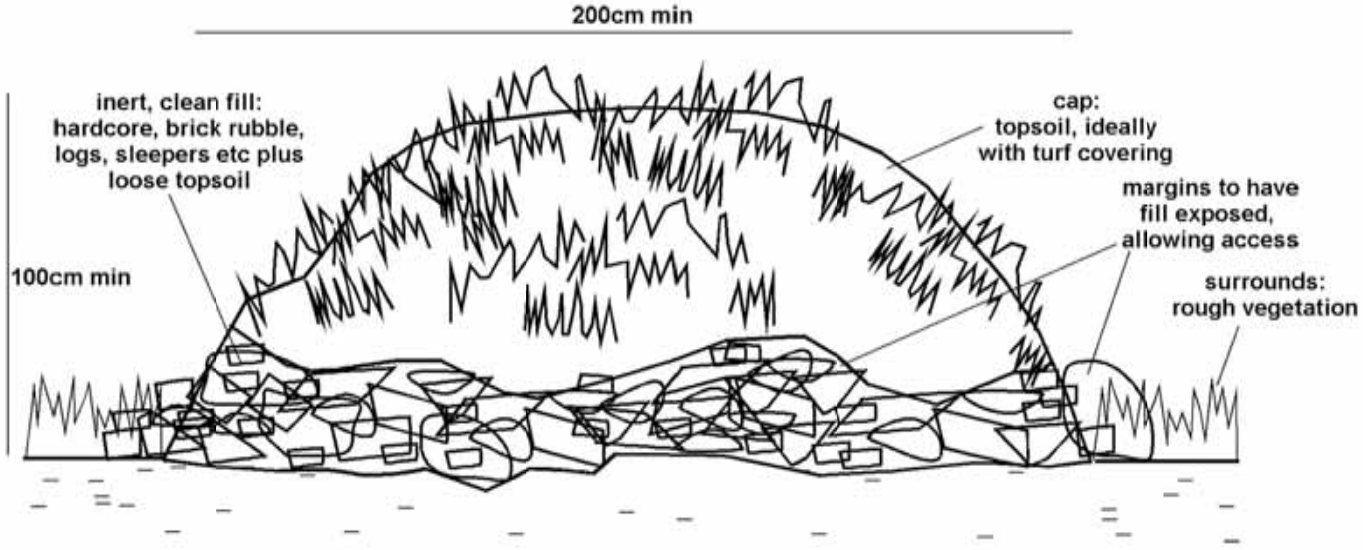
### 8.3.2 Terrestrial habitats

The area up to around 500m surrounding a mitigation pond should be considered as potential newt habitat, depending on the site layout. Scrub, woodland, hedgerows, banks and ditches, leaf litter, rough grassland, bare ground with fissures, disturbed ground, and pasture are frequently encountered great crested newt habitats which might be created, restored or enhanced as part of mitigation. Again, the aim should be to replace what has been lost and where possible enhance it.

Large piles of rubble, rock, log piles and earth banks (with plenty of mammal burrows and ground fissures present) make good hibernation and refuge sites. These features may be located in sheltered areas which are neither too dry nor prone to winter flooding or freezing (eg in frost hollows). On free-draining soils, these may be located below ground level by excavating a pit or trench, then infilling with a mixture of topsoil and rubble, sleepers, logs, etc. Some of the largest great crested newt populations in Britain occur within old brickworks sites, which usually provide a good range of these type of habitats. For ideas on the design and construction of suitable hibernacula, see Figure 3: Suggested hibernaculum design. Smaller refuges for daytime shelter may also be provided, though on sites which will be heavily used by the public these may not be appropriate unless they are well secured. Great crested newts are known to spend a considerable proportion of their terrestrial phase either underground or just above ground under refuge sites, so it is important that this aspect is addressed in mitigation plans.

**Figure 3: Suggested hibernaculum design**

This design mimics artificial and natural conditions in which great crested newts have frequently been found over-wintering. Dimensions should not be below 2m length x 1m width x 1m height. The illustrated design would be suitable for locating on an impermeable substrate. On free-draining substrates, the design is largely similar but the bulk of the fill is sited in an excavated depression in the ground. Hibernacula should ideally be positioned across a site, both close to and distant from breeding ponds, always in suitable terrestrial habitat and above the flood-line.




Translocation of newts into terrestrial habitats should be delayed where time is required for maturation from the point of creation or restoration; this may be a year or more depending on soils, vegetation

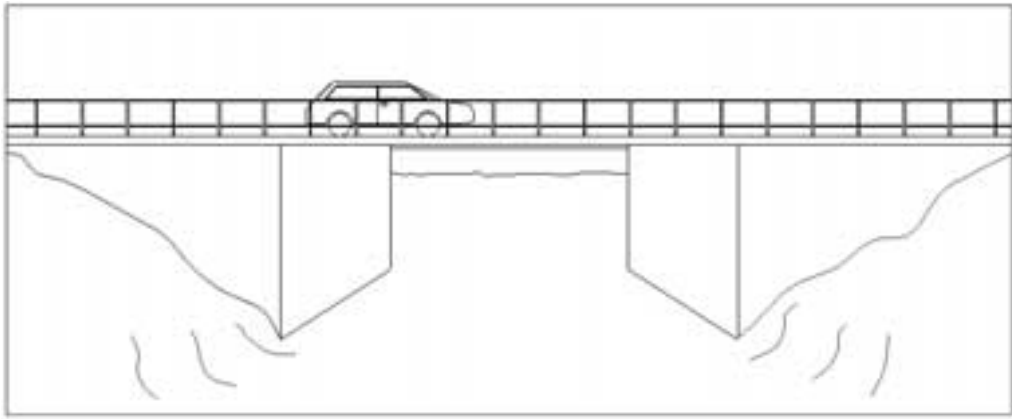


**Figure 5** *Underpasses can provide effective links for wildlife*

## **9.5** KERBS, DRAINS AND GULLY-POTS

Kerbs and road drains, gully pots and buried or sheer sided chambers and pipework, that are designed for fuel, oil or surface liquid interception and storage, may act as a fence and as a trap to amphibians. These features can cause amphibian mortality by trapping them in polluted places where they can suffer from toxic effects, exposure, starvation and drowning. Their use should be avoided in areas where amphibians are present. There are a range of alternative designs available to minimise the impact of kerbs and road drains on amphibians (eg Figure 6). Designs for amphibian tunnels, fences, permeable surfaces and gully pots are continually being developed, and those with appropriate ecological expertise will be able to supply further information.

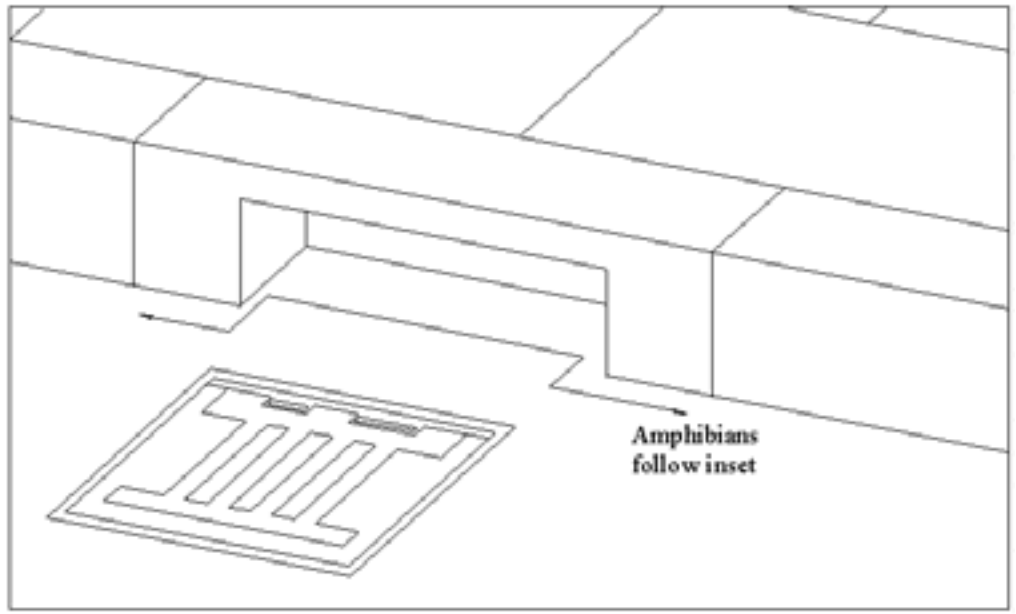



**Figure 6** *Inset kerb stones greatly reduce gully pot trapping of amphibians*

## **9.6** AMPHIBIAN TRANSLOCATION

Where it is not possible to keep amphibians at their original location, or safeguard them by short distance '*in situ*' transfers, it may (as a last resort) be necessary to trap and translocate the entire population to a new site. This is likely to be the case where entire breeding sites or land areas are to be lost and cannot practicably be replaced for technical reasons. Where possible, the receptor site should be within 1km of the original, or at least as close as is practicable. It is vitally important that both receptor and donor site share the same hydrological and ecological conditions as far as possible.

'*In situ*' amphibian transfer and translocation is a time-consuming process, normally requiring a trapping period of several months. Trapping should be carried out both on land (pit-fall trapping) and in water (netting and by draining/hand), and should ideally cover a period of at least one year, or one season as a minimum (March to September). Where great crested newt or natterjack toad are being translocated, the appropriate government licensing authority will be required to license the operation.

## E.3 Mechanisms for ensuring delivery of mitigation and compensation measures

### E.3.1 Measures to ensure compliance with this method statement

Delivery will be implemented solely by the owners of the site through a Natural Resources Wales European Protected Species licence, which will tie them to the conditions outlined in this Method Statement.

### E.3.2 Ensure that sufficient land has been acquired for compensation purposes

The proposed works will be undertaken within the boundaries of the site and will result in the loss of predominantly sub-optimal terrestrial habitat (arable land). Terrestrial habitat will be retained and enhanced in the area immediately surrounding the pond to provide a continued terrestrial resource for Great Crested Newt at the site. No additional land purchase will be required to ensure the continued availability of habitat for Great Crested Newts locally.

### E.3.3 Ensure that designs of subsequent development are newt friendly

Development at the site will include the retention and enhancement of habitat area in the north eastern area of the site with the principal purpose of providing continued habitat for Great Crested Newt at the site. This area falls adjacent to the area to be retained within the development site to the north.

Kerbs and drainage features represent a common cause of entrapment and mortality for newts in new developments (English Nature, 2001). Road drains will be off-set from the kerb or installed with an adjacent inset kerb stone (see example in E.2.4) to minimise the risk of entrapment or mortality. A section of drop kerb will be provided along every 20m of road within 100m of the pond and within 50m of the southern hedgerow to minimise the risk of amphibians becoming trapped at the base of kerbs.

### E.3.4 Provide sufficient resources

A project ecologist will be appointed to oversee works as required, with funding in place to cover the works.

## E.4 Mitigation contingencies

Mitigation contingencies are considered unlikely to be necessary due to the relatively simple nature of the mitigation proposed. However, should a problem arise which requires deviation from the methods set out within this method statement an alternative solution will be sought in consultation with NRW.

E.5 Biosecurity risk assessment

To minimise the risk of transferring amphibian diseases or non-native plants into the pond disinfecting procedures will be undertaken in accordance with the specification set in in ARG-UK Advice Note 4 (ARG, 2008). This is likely to be most relevant to the project ecologist or accredited agents who may be working at a variety of sites with standing water over the same time period.

## F Post-development site safeguard

F.1 Habitat/ Site Management and Maintenance

*Pond*

The new pond and existing off-site pond will be monitored on an annual basis to assess its condition and identify the presence of any unwanted features. Rubbish or similar will be removed from the pond as required. Removal of items from the pond will be undertaken between November and January, when newts would be least likely to be present. Should other unfavourable features such as fish or invasive plant species be found to be present a strategy for their removal/ control will be agreed with NRW before being implemented. The integrity of the lining of the new pond will also be checked annually to ensure it continues to hold water. Should the pond lining be found to be defective it will be repaired to ensure the pond continues to retain water.

*Retained hedgerow and new scrub planting*

The existing hedgerow along the northern boundary of the site is a dense, mixed species hedge which is regularly trimmed. The objectives for this feature are to maintain a dense hedgerow and allow to grow up to 2-3m in height. Blocks of scrub are also be planted within the retained area to increase the area of scrub habitat present. A high proportion of thorny species are included within the planting mix and the aim is that, once established, these will form areas of dense scrub 2-3m in height and that the thorny species will discourage human access to these areas.

The northern boundary hedgerow is to be side trimmed once every two years. The top will also be trimmed to a height of c.2.5m in year 1 (2019) and trimmed to a height of 2.5-3m once every two years following this. All cutting/ trimming will be undertaken using handheld equipment. All cuttings/ arisings are to be removed from the site and composted/ disposed of as appropriate.

In scrub planting areas all planted shrubs (excluding standard trees) will be cut back to 200mm in year 3 (2021) using handheld equipment to encourage dense, bushy growth. Edge trimming of scrub will be undertaken annually as required to prevent overgrowth into adjacent areas. No further management is proposed and shrubs will be allowed to grow up to form an area of dense, mixed species scrub.

All cutting of scrub or woody vegetation will be undertaken outside the breeding bird season (i.e. cutting possible between September and February inclusive).

Annual monitoring visits will be used to assess the condition of the scrub and hedgerow habitat and the requirement for further management practices such as thinning. Any changes to the management regime will be agreed with NRW before being implemented.

*Retained Grassland*

Once established (likely from spring/ summer 2018) the grassland within the retained habitat area will be managed via cutting. To maintain a tussocky resource the grassland will be cut on a rotational basis, with no more than half the area cut in any one year. The western half of the retained habitat area would be cut in year 1 and eastern half in year 2 and continue on this basis. The grassland will be cut between November and February, when the newts would be least likely to be active and at risk of killing or injury. Cutting height will not be lower than 100mm and all arisings will be collected and removed from the site. Scrub encroaching into the grassland areas will be cut back to ground level on an annual basis as required.

Pedestrian paths through the retained habitat area as illustrated in E.2.4 will be maintained via mowing a narrow strip of grassland no wider than 1.5m. Mowing of these paths will typically be undertaken every 2-4 weeks, dependent upon vegetation growth rates.

All vegetation management works in the area of retained habitat will be undertaken by hand (using strimmers/ brush cutters, chainsaws etc.), with all cuttings carefully removed and disposed of/ composted off site as appropriate. The use of pesticide or herbicide will not be undertaken in any part of the retained habitat area.

The long-term management of the retained habitat area will be delivered via a Section 106 agreement. Annual monitoring of habitats within the retained area will be undertaken to assess their current condition and the effectiveness of the management regime. Should the condition of any feature be viewed as unfavourable the management regime will be amended as required in consultation with NRW.

F.2 Population monitoring

Given that update amphibian surveys have not been undertaken at the pond due to access constraints it is recommended amphibians surveys be updated prior to an application for a European Protected Species licence is made to cover the proposed development works.

Construction is predicted to take 4-5 years monitoring is to be undertaken both during and following completion of the scheme. Monitoring is to be undertaken once every two years during the construction period and for 5 years after completion of construction (2018, 2020, 2022 & 2024, 2026, 2028). An additional monitoring visit is also undertaken in year 10 following completion of construction (2033).

Monitoring surveys will be designed to assess the continued use of the off-site pond to the north and the newly created pond within the current site by newts and will be undertaken using standard methodology to include egg searching, torching, bottle trapping or netting. Four survey visits will be undertaken between mid-March and mid-June of each year identified for monitoring above, with at least two of the visits between mid-April and mid-May.

Monitoring of the habitats including the pond, surrounding retained habitat area and southern hedgerow will be undertaken on an annual basis from commencement of construction.

F.3 Post development mitigation contingencies

Should the results of the surveys identified above indicate unfavourable population status beyond normal population fluctuations the use of post development mitigation contingencies such as additional enhancement measures or a revised management regime for the retained habitat will be discussed and agreed with NRW.

F.4 Mechanisms for ensuring delivery of post development works

The proposed works are subject to planning consent and any relevant planning condition could be enforced as required – for example requiring a management plan to be agreed with the Local Authority and NRW and implemented as agreed following completion of the works. Any management for the current site should be undertaken in consideration of management of the retained area in the site to the north of the hedgerow to ensure a combined approach. A combined management plan considering both areas would facilitate this.
The proposed works will require an EPS licence to be in place to cover the works.

## G Timetable of works

**Indicative works programme assuming commencement of construction in 2018 (Phase 1 Development)**

| Date/Timing | Proposed Activity Under NRW Licence |
|---|---|
| September/ October 2017 | Creation of pond and sowing of grass seed undertaken in retained habitat area.<br>Creation of log-pile, stone pile and hibernacula in retained habitat under the direction of the project ecologist or accredited agent – use of small excavator required. Areas to be disturbed during installation of above to be hand searched prior to works. No other ground disturbance/ stripping or vehicular access to works footprint during this period. |
| December 2017 - February 2018 (prior to March 2018) | Felling of short sections of hedgerow (at highway/ pedestrian access points) to ground level (i.e. to 20 – 30cm) using hand tools (chainsaws etc).<br>Clearance of grassland using vehicle mounted mower (limited likelihood of newts being present in grassland over winter). |
| Prior to March 2018 | Remaining vegetation planting within the retained habitat area (scrub/ trees etc.) |
| From March 2018 | Installation of amphibian exclusion fence for Phase 1 with trench dug by hand or in part by a small excavator. Pitfall traps installed at 5-10m intervals along length of exclusion fence.<br>Fence installation to be preceded by a hand-search of any potential refugia along the fence route by the ecologist or accredited agent.<br>Any animals found transferred to retained terrestrial habitat. |
| From March 2018 (temperature/ weather dependent) | Following installation of fence and once night time temperatures are consistently above 5°C pitfall trapping will be undertaken for a minimum of 30 nights, and agreement with NRW confirmed prior to cessation of trapping. Remaining terrestrial refuges within works footprint subject to a hand search by the ecologist or accredited agent.<br>Any animals found transferred to retained habitat as described above. |
| March/ April 2018 | Following hand searches and completion of pitfall trapping remaining terrestrial refuges are to be removed i.e. tree stumps uprooted using a small excavator under ecological supervision. |
| Late spring/ Summer 2018 onwards | Clearance in area associated with Phase 1 and commencement of Phase 1 construction. Mitigation measures described above to repeated for each development phase.<br>Integrity of exclusion fence checked regularly (weekly) – any damage/defects corrected immediately. |
| Mid-March – mid-June 2018, 2020, 2022, 2024, 2026, 2028, 2033. | Great Crested Newt monitoring surveys in the retained pond. |

## H Land Ownership – Mitigation Site/ Compensation Site

H.1 Mitigation Site/Compensation - Site Ownership

Both the development and mitigation site, are contained within the same parcel of land (see E.2.4). All the land within this boundary will be within the control of Taylor Wimpey UK.

H.2 Mitigation Site/Compensation - Ownership Post Construction

Post construction ownership of the mitigation site/ retained habitat has yet to be agreed. However as detailed above the management of this area would be delivered via a Section 106 agreement.

## 1 References

ARG (2008) ARG-UK Advice Note 4 – Amphibian Disease Precautions: A Guide for UK Fieldworkers.

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Soltys Brewster Ecology (2016) *Land at Swanbridge Road, Sully – Mitigation Method Statement – Great Crested Newt.* Ref: E1237004/ Doc 01.

Soltys Brewster Ecology (2016) *Land at Swanbridge Road, Sully – Ecological Appraisal.* Ref: E1237004/ Doc 01.

Soltys Brewster Ecology (2016) *Land at Swanbridge Road, Sully – Reptile Mitigation Strategy.* Ref: E1237004/ Doc 02.

Taylor Wimpey UK (2013) *Land South of Cog Road, Sully – Environmental Statement.*

# J Annexes

## J.1 Pre-existing survey reports

Soltys Brewster Ecology (SBE) (2013) Land South of Cog Road Bat and Great Crested Newt Survey Report. Ref - E1237002/Doc 01

Soltys Brewster Ecology (2016) *Land at Swanbridge Road, Sully – Ecological Appraisal.* Ref: E1237004/ Doc 01.

## J.2 Raw survey data

Results of amphibian surveys undertaken at the site in 2013.

| Visit No | Date | Conditions/Findings |
|---|---|---|
| 1 | 08/04/2013 | Cool evening with 75% cloud cover, moderate winds (Force 3-4) and no rain. Air temp at 20.15 hrs: 5°C, water temp 20.20hrs: 7°C.<br><br>Trap recovery on 09/04: Overcast with occasional light drizzle. Moderate winds (Force 3-4). Air temperature 2°C @ 08.45hrs, water temp 5°C. No frost overnight.<br><br>Evidence of nutrient enrichment (algal bloom). Floating Sweet-grass present over 60-70% of pond, limiting area for effective torch surveying. Brief egg search revealed no eggs. Small clump of Frog spawn noted on eastern edge of pond. Mallard noted on pond, with feathers and droppings around pond egg indicating regular use by water fowl. Edges of pond poached by livestock, with water slightly turbid in places.<br><br>22 bottle traps set at approximately 2m intervals around the pond edge, with some set in areas less choked with Floating Sweet-grass in the centre of the pond. Traps set from 20:35-20:50hrs.<br><br>Torch survey from 20:20: No amphibians or other aquatic fauna noted, with the exception of a single Water Boatman.<br><br>*Bottle trap recovery on 09/04 from 08.45h* – No amphibians or other fauna found within traps. |
| 2 | 15/04/2013 | Warm evening with 90% cloud cover, light winds (Force 1-2) and no rain. Air temp at 20.00 hrs: 12°C.<br><br>Trap recovery on 16/04: Bright morning, 30% cloud cover. Light-moderate winds (Force2-3). Air temperature 10°C @ 08.30hrs. No frost overnight.<br><br>Floating Sweet-grass and algal bloom limiting area for effective torch survey to c.40% of pond. Water slightly turbid further limiting visibility.<br><br>22 bottle traps set at approximately 2m intervals around the pond edge, with some set in areas less choked with Floating Sweet-grass in the centre of the pond. Traps set from 20:40-01:50hrs.<br><br>Torch survey from 20:20: 7 male GCN, 1 female GCN and 1 Common Frog noted. Most GCN observed in areas of open water along the western side of the pond. Numerous water boatmen and other aquatic beetles noted.<br><br>*Bottle trap recovery on 06/04 from 08.30h* – 1 Male GCN and 1 Common Frog within bottle traps. |
| 3 | 22/04/2013 | Cool evening with 100% cloud cover, moderate winds (Force 2-3) and very light, misty rain (not heavy enough to limit visibility during torching) |

| | | |
|---|---|---|
| | | Air temp at 20.45 hrs: 10°C, water temp 11°C.<br><br>Trap recovery on 23/04: Bright morning, 20% cloud cover. Light winds (Force 1-2). Air temperature 11°C @ 08.30hrs, water temp 9°C. No frost overnight.<br><br>Floating Sweet-grass and algal bloom limiting area for effective torch survey to c.40% of pond. Pond had dried since previous survey by reducing pond area by c.50cm around pond edge.<br><br>22 bottle traps set at approximately 2m intervals around the pond edge, with some set in areas less choked with Floating Sweet-grass in the centre of the pond. Traps set from 20:55-21:05hrs.<br><br>Torch survey from 20:40: No amphibians seen, water beetles and water boatmen noted.<br><br>*Bottle trap recovery on 23/04 from 08.30h* – 1 Male GCN. |
| 4 | 13/05/2013 | Cool evening with 100% cloud cover, moderate winds (Force 3-4) and no rain. Air temp at 21.15 hrs: 7.5°C, water temp 21.20hrs: 9°C.<br><br>Trap recovery on 14/05: Overcast with occasional shower. Moderate winds (Force 3-4). Air temperature 8°C @ 08.45hrs, water temp 9°C. No frost overnight.<br><br>Pond severely dried to approximately 1/3 original size. Water depth reduced to <100mm over much of remaining area.<br><br>Water barely deep enough to bottle trap, with only 7 bottle traps set in remaining water from 21:45hrs.<br><br>Torch survey from 21:30: No amphibians noted. Water beetle, beetle larvae and Water Boatman observed.<br><br>*Bottle trap recovery on 14/05 from 08.45h* – No amphibians found within traps. 1 Beetle larvae recovered. |
| 5 | 20/05/13 | Mild evening with 100% cloud cover, Light Air – Force 1 winds and no rain. Air temp at 20.30 hrs: 19°C, 15°C @ 23.00.<br><br>Pond has dried down further and only 2 small, shallow 'puddles' remain on the western side. Depth typically 5 – 10cm – too shallow for trapping. Torch survey from 22-45 following bat survey did not identify any amphibians. |
| 6 | N/A | No survey- Pond too dry. |