



BRYN LANE, WREXHAM.

**GREAT CRESTED NEWT SURVEY AND
MITIGATION STRATEGY.**

Ref No:- 080261/GCN/Mitigation/Rev1.

Date: 25th August 2008

TABLE OF CONTENTS.

	Page Number
1. INTRODUCTION.	3
2. SURVEY METHODOLOGY.	4
3. SURVEY RESULTS.	5
4. EVALUATION OF FINDINGS.	6
5. MITIGATION STRATEGY.	7
Appendix I.	
GREAT CRESTED NEWT INFORMATION.	24
Appendix II. PONDS ON OR NEAR THE SITE.	26
Appendix III. RESULTS SUMMARY TABLE.	27
Appendix IV. SURVEY REPORT 2005.	28
Appendix V. SURVEY REPORT 2008.	29

1. INTRODUCTION.

1.1. Derek A Whitcher Ltd carried out four great crested newt surveys of the ponds on and around the above site during 2005 and a further two surveys in 2008 of those ponds where a population of great crested newts was identified during the original surveys in order to bring the survey information up to date and at the same time increase the number of surveys to six in each of these ponds.

1.2. Based upon the results of the six great crested newt surveys, this document provides a mitigation strategy that will form part of a Planning Application for the development of the site and will subsequently become an essential part of a Welsh Assembly great crested newt licence application.

1.3. Great crested newts are protected under both British and European legislation. Appendix I of this report provides details of that protection and some basic guidelines into great crested newts and their behaviour to assist the reader of this report to understand the contents.

2. SURVEY METHODOLOGY.

The survey area was thoroughly searched for evidence of great crested newt (*Triturus cristatus*) activity by carrying out the following survey techniques:-

Searching aquatic habitats by:-

- Examining vegetation in ponds and areas of static water for newt eggs.
- Looking for newts in ponds and areas of static water with a high-powered torch during hours of darkness.
- Setting bottle traps, leaving them overnight and returning the next morning to inspect and record all animals trapped before immediate release.

3. SURVEY RESULTS.

3.1. The detailed survey results are contained within the two previously prepared great crested newt survey reports, reference numbers 050419 dated 31st May 2005 and 080261 dated 30th June 2008. Both are attached as Appendices IV and V to this mitigation strategy.

3.2. Appendix II of this report provides an aerial photograph of the survey area and all of the ponds on or near the site that have been surveyed.

3.3. Appendix III of this report provides a full summary of the survey results.

4. EVALUATION OF FINDINGS.

4.1. Of the ponds and water bodies originally surveyed, thirteen were assessed as containing a small population of great crested newts and two as containing a medium population of great crested newts.

4.2. Ponds C, D, E and F were all classed as containing a small population of great crested newts when in fact all great crested newts found at these ponds were terrestrial. It is considered to be inevitable that the newts will use the pond but it is considered unlikely that they breed in any of these ponds. Repeat surveys of ponds C and D during 2008 confirmed no newts or amphibians in either pond.

4.3. During the first two surveys the water level reduced between each survey. Ponds H and U in particular were found to contain significant numbers of newts during the early surveys but had dried to such an extent by the last two surveys in 2005 that no newts were observed or trapped. During the 2008 surveys there was far more water in pond H than three years ago but no great crested newts were found. Pond U does not exist, it has completely dried up.

4.4. The only other significant difference between the 2005 and 2008 surveys is with Pond J where only three great crested newts were trapped in 2005 while 11 and 14 respectively were trapped during the 2008 survey. Pond J is a wetland area within the existing site boundary where access is very restricted and it was always possible the population was under stated due to the access difficulties.

4.5. Overall there clearly remains a very significant population of great crested newts present on and close to the site.

5. MITIGATION STRATEGY.

5.1. To provide a structure to the mitigation strategy, this is presented in the old DEFRA licence application format.

5.2. Exact timings of the various phases of the work will depend upon a variety of factors including the signing of contracts with the eventual end users. The following mitigation strategy therefore provides a variety of options to cover all eventualities. The eventual choice of strategy will be decided in consultation with CCW.

D. Impact assessment.

D1. Pre- and mid-activity impacts.

The primary impacts on the great crested newt population will be the danger of killing newts in the terrestrial habitat on the site during the development, the long term loss of an area of terrestrial habitat and the loss of one great crested newt breeding pond.

D2. Long-term impacts.

The long term impact on the great crested newts will be a loss of terrestrial habitat within their territory and the loss of one breeding pond.

D3. Post-activity interference impacts.

The future use of the site will have a potential impact on the great crested newts within the area.

D4. Other impacts.

There will be no other impacts.

D5. Summary of impacts at site level.

Potential impact	Areas affected	Ecological affects	Significance to meta population (without mitigation)	Mitigation proposed	Residual impact (after mitigation)
Loss of aquatic habitat	One breeding pond to be lost.	Potential impact on future breeding.	High	Six new ponds to be created, three ponds to be improved and one obsolete pond to be reinstated.	Minimal long term impact.
Disturbance to newts, including inadvertent killing.	The development site.	Potential impact on adults and juveniles in the terrestrial phase.	Medium	The erection of amphibian fencing around the proposed development site and the exclusion of amphibians using pitfall traps.	Low
Loss of Terrestrial habitat.	The development site.	Loss of terrestrial habitat and source of food and shelter.	Medium.	Provide additional areas of enhanced terrestrial habitat, refugia and hibernacula.	Low.

Long term threat of death.	The development site.	Danger from drainage scheme.	Medium.	Install newt friendly drainage system.	Low
----------------------------	-----------------------	------------------------------	---------	--	-----

D6. Summary of impacts in a wider context.

There will be no wider impacts.

D7. Maps to show impacts.

Not appropriate.

E. Mitigation and compensation.

E1. Mitigation strategy.

To reduce adverse impacts;

- To enhance existing aquatic habitat to provide initial receptor sites.
- To erect temporary amphibian fencing (TAF) around the worksites.
- To exclude the newts from the sites by erecting TAF and installing pitfall traps and refugia.
- To keep the newts out of the site during development by retaining perimeter TAF.
- To create a large area of nature reserve containing new and enhanced terrestrial and aquatic habitat.
- To put in place a long term maintenance and monitoring scheme for the nature reserve areas.

E1.1. During winter 2008/2009 existing ponds on the site will be enhanced and an obsolete pond on the site reinstated to provide initial release habitat until such time as new habitat can be created and enhanced.

E1.2. Pond C is outside the application boundary but is to be electro-fished to remove the existing population of fish.

E1.3. Pond J is to be improved by reducing the amount of typhus in the pond and also creating open areas of water.

E1.4. Pond P is to be enhanced by removing the willow trees growing in and around the pond creating heavy shade, by excavating areas of silt to create open water and by removing the impact of poaching by grazing cattle.

E1.7. An old and obsolete pond located at the northern boundary of the site is to be excavated and reinstated.

E1.8. On receipt of a Welsh Assembly Government licence and prior to works commencing in all areas on the site, temporary amphibian fencing (TAF) will be erected around the perimeter of the appropriate work area and newts and amphibians will be excluded by pitfall trapping and carpet or felt square refugia.

E1.9. The perimeter TAF will be retained for the duration of the development to prevent the return of newts and amphibians. The integrity of the TAF will be maintained and vegetation controlled to avoid this from bridging the TAF.

E1.10. Temporary terrestrial refugia will be installed outside the work site in a safe location where trapped newts can be relocated to.

E1.11. The licence holder or an agent under the licence will monitor the pitfall traps daily and remove any trapped newts to the area of safe terrestrial refugia. The trapping will continue for a minimum period of thirty days where the overnight temperature is

above 5°C. The trapping period will be extended if required until the licensed ecologist is satisfied that the exclusion is complete and until at least five days have elapsed without trapping any great crested newts.

E1.12. Once the trapping has been completed, the work area and compound will be released to the developer and the work can commence.

E1.13. The method of exclusion of great crested newts from Pond M will be dependent on timing. If a licence can be obtained sufficiently early the newts will be prevented from returning to the pond to breed in spring and will be located close to Pond P.

E1.14. If the timing is such that the newts have already returned, the pond will be ring fenced with TAF and the newts will either be pitfall trapped when leaving the pond and removed to terrestrial habitat adjacent to Pond P or trapped by bottle trapping and relocating into Pond P. The exact method of working will be agreed in consultation with CCW.

E1.15. All personnel working on the project will be briefed prior to commencing work. All will receive a handout that includes identification information. All personnel briefed will sign an appropriate log to demonstrate that they have completed the briefing.

E1.16. The site surface water drainage system will be designed to be newt and amphibian friendly with open ditches wherever possible and with drains or channels offset from kerbs by 100mm to reduce the likelihood of amphibians becoming trapped in the drainage system. There will be no catch pits or sumps in the system where amphibians can become trapped.

E1.17. On completion of the development in any area, the TAF will be carefully removed from around the work site and compound area under the supervision of the ecologist or his appointed agent to ensure any amphibians sheltering against the fence are rescued and relocated.

E2. Receptor site selection.

All newts and amphibians identified within the work site will be relocated to suitable habitat provided in the nature reserve areas on the site but outside the work site.

E2.1. Existing great crested newt status.

The receptor site is within the existing habitat area for the newts and amphibians.

E2.2. Location, ownership and status.

The land where any amphibians will be relocated will be the nature reserve areas within the site where the land is in the same ownership.

E2.3. Habitat description, size and boundaries.

The receptor site will be the existing great crested newt habitat that exists on the site, suitably enhanced to carry the additional newts to be released.

E3. Habitat creation, restoration and/or enhancement.

E3.1. Aquatic habitats.

E3.1.1. One great crested newt breeding pond will be lost as a result of the development. Six new ponds are to be created on the site, one obsolete pond reinstated and three existing ponds are to be enhanced.

E3.1.2. During winter 2008/2009, Pond C will be electro-fished and cleared of its existing fish population. These will either be removed to a pond off site or will be released into Pond D.

E3.1.3. During winter 2008/2009, Pond P will be enhanced with all works carried out under the direct supervision of a licensed ecologist or his appointed agent.

E3.1.4. A tracked excavator will be taken to site along a route chosen carefully in agreement with the ecologist, the route will be hand searched as it travels to the pond. If a newt is found, the route will be changed to avoid that location.

E3.1.5. Willow trees presently growing in the pond will be cut down by hand, cut into lengths and stacked at an agreed location close to the pond to create a log pile. The area will be hand searched by the ecologist in advance of these works.

E3.1.6. The tracked excavator will remove areas of accumulated silt to create an open area of water while retaining perimeter vegetation suitable for egg laying.

E3.1.7. During winter 2008/2009, Pond J will be enhanced with all works carried out under the direct supervision of a licensed ecologist or his appointed agent.

E3.1.8. A tracked excavator will be taken to site along a route chosen carefully in agreement with the ecologist, the route will be hand searched as it travels to the pond. If a newt is found, the route will be changed to avoid that location.

E3.1.9. The tracked excavator will remove areas of typhus and accumulated silt to create open areas of water within the pond and wetland area. Typhus and silt removed will be stacked at an agreed location close to the pond. The area will be hand searched by the ecologist in advance of these works.

E3.1.10. In addition, a significant area of the typhus growing in the pond will be removed by hand and stacked at an agreed location close to the pond. The area will be hand searched by the ecologist in advance of these works.

E3.1.11. During winter 2008/2009, an obsolete pond at the northern boundary of the site will be excavated to reinstate this as a great crested newt breeding pond with all

works carried out under the direct supervision of a licensed ecologist or his appointed agent.

E3.1.12. A tracked excavator will be taken to site along a route chosen carefully in agreement with the ecologist, the route will be hand searched as it travels to the pond. If a newt is found, the route will be changed to avoid that location.

E3.1.13. The tracked excavator will excavate materials from the hollow on the site to form a new pond to the approximate dimensions of the original pond and with a maximum depth of 1.5m but with shallow margins.

E3.1.14. During the development of the site an additional five ponds will be created as part of the surface water drainage system for the site but will be created in a way that they will be able to carry flood waters when necessary but will retain 300mm of water at other times and may dry up in times of drought. Each pond will be planted with suitable egg laying plants.

E3.1.15. An additional pond will be created in the nature reserve at the north east corner of the site specifically for great crested newts. This pond will have a maximum depth in the middle of 1.5m with shallow areas around. The pond will be planted with suitable egg laying plants.

E3.1.16. Because of the size of the ponds and the amount of work that will be required in their creation, a terrestrial exclusion of newts will be carried out before they can be constructed.

E3.1.17. Final pond designs and planting lists will be agreed with CCW.

E3.2. Terrestrial habitats.

E3.2.1. Additional terrestrial refugia will be provided within the allocated nature reserve areas of the site as outlined on the landscape and ecology mitigation plan.

E3.2.2. Timber from all trees felled on the site will be retained and placed in log piles within the nature reserve areas. The size of the log piles will be determined by the available timber but there will be at least two such areas, one close to pond P and one in the north east nature reserve and each will be approximately 3m x 2m x 1m high and will be covered with a membrane and soil across the top to prevent ingress of water, while keeping the sides open for amphibian access.

E3.2.3. Additional terrestrial refugia and hibernacula will be created in the form of piles of stone or rubble, covered by a membrane and top soil. These will be extensive and will be generally as shown on the Landscape and Ecology Mitigation Plan. A minimum of 200 square metres of terrestrial refugia will be created.

E3.2.4. Because of the size of the terrestrial refugia and hibernacula and the amount of work that will be required in their creation, a terrestrial exclusion of newts will be carried out before they can be constructed.

E3.3. Integration with roads and other hard landscapes.

E3.3.1. The drainage scheme on the new development will be designed with open ditches wherever possible to enable any newts to escape.

E3.3.2. Necessary drains and drainage channels will be installed 100mm from kerbs to significantly reduce the risk of newts and amphibians becoming trapped.

E3.3.3. There will be no sumps or catch pits in the system that will cause newts to become trapped.

E3.3.4. There will be additional hard standing areas where there will be additional vehicle movements. There will be no raised outer edges or kerbs to these areas that could potentially cause newts to become trapped on these areas.

E3.3.5. Lighting will be provided on the site to illuminate the hard standing areas and the roads on the site and this will deter newts. Those lights will be designed to avoid illumination of adjacent terrestrial habitat.

E3.4. Integration with other species/habitat requirements.

There will be no change from the present situation on the site.

E4. Capture, exclusion and translocation.

E4.1. Timing, effort, methods, layout of capture/exclusion methods, translocation.

E4.1.1. The exact timing of the various works on the site is not known at this time although it has been assumed that construction works will be undertaken in late 2009. It is also not known whether the development will advance in phases or simultaneously in all areas. The following will apply to all work areas.

E4.1.2. After receipt of a Welsh Assembly Government licence, TAF and pitfall traps are to be installed around the site boundary and across the site to trap any terrestrial amphibians within the development footprint. Carpet tiles or equivalent will be placed between the pitfall traps along the drift fencing to improve the trapping efficiency. Pitfall traps will be placed at 10m intervals along the inside of the perimeter TAF and at 10m intervals along both sides of the internal drift fencing. The number of pitfall traps will be above the numbers specified in the English Nature Great Crested Newt Mitigation Guidelines.

E4.1.3. Pitfall traps will be furnished with damp vegetation for shelter, a floating raft and a mammal ladder consisting of a twig not more than 1cm in diameter.

E4.1.4. All traps will be checked every morning between 06.00 and 11.00. Any newts or other amphibians trapped will be placed under suitable cover outside the development footprint.

E4.1.5. During extended periods of dry days, which do not fall within the English Nature definition of a trapping day, lids will be securely fitted over the pitfall traps.

E4.1.6. Pitfall trapping will continue for 30 trapping days, when the weather conditions are warm and damp. If no great crested newts are trapped during the last five days, trapping will cease after the 30 days are complete. If newts continue to be trapped, trapping will continue until a period of five days elapses without any captures, on suitable wet nights.

E4.1.7. Torch search and capture will supplement pitfall trapping. Torch searches will be carried out and thereafter whether more torch searches are to be carried out will be determined by the pitfall trapping and torch search results.

E4.1.8. During the pitfall trapping, the staff of Derek A Whitcher Ltd will carry out daily checks of the TAF and will carry out minor repairs as necessary. At the end of this time, the area will be handed over to the license holder for development works to commence. The internal temporary drift fencing will be carefully removed under the supervision of the ecologist or his appointed agent, as will all pitfall traps, taking care to release any sheltering amphibians.

E4.1.9. Once the pitfall trapping has been completed and the site handed over to the licence holder who will appoint a responsible person on site to carry out daily checks of the TAF and to ensure immediate repairs are carried out. The licence holder will also ensure that any vegetation growth that might enable great crested newts to cross the fencing into the development area will be controlled.

E4.1.10. The exact method of excluding the newts from Pond M, the only pond that will be lost to the development, will depend upon timing.

E4.1.11. If the Welsh Assembly Government licence is available soon enough, TAF will be erected around the perimeter of the pond with pitfall traps and refugia around the outside of the TAF and newts will be trapped and relocated as they return to their pond to breed. Bottle trapping of the pond will be carried out to determine whether any newts have overwintered in the pond or returned prior to the TAF being erected. Trapped newts will be released to Pond P.

E4.1.12. If the licence has not been received in time to prevent the newts from returning to the pond but before they have time to breed, TAF will again be erected around the pond to trap and exclude any newts that are late arriving. Egg strips in the form of strips of bin liners will be pegged down in the pond to confirm that breeding has not commenced. The water level in the pond will be carefully reduced by either siphoning, digging a drainage channel or by using a low flow pump fitted with a filter to prevent newts becoming trapped in the pump. Bottle traps will be set in the pond to trap newts and all trapped will be released to Pond P.

E4.1.13. If the newts are likely to start to breed before a licence is received, egg strips as above will be placed into the water. On receipt of the licence, the egg strips will be carefully removed and taken immersed in water to be installed into Pond P to hatch. Adult newts will be bottle trapped and taken to Pond P.

E4.1.14. If newts have bred and larvae have hatched, trapping out of the pond should be left until the larvae are sufficiently developed to be able to withstand being relocated. Water levels will be carefully reduced by siphoning or by digging a drainage channel and adults and larvae will be relocated by bottle trapping into Pond P. TAF will be erected as an additional safeguard to trap and relocate any newts that try to leave the pond.

E4.1.15. If the exclusion of the pond is not necessary until later in the year, newts will be trapped in pitfall traps on the inside of the TAF around the pond and newts trapped will be released terrestrially close to pond P.

E4.1.16. The final method of exclusion to be used will be agreed with CCW.

E4.1.17. On completion of the development in any area, the TAF will be carefully removed from around the work site and compound area under the supervision of the ecologist or his appointed agent to ensure any amphibians sheltering against the fence are rescued and relocated.

E4.1.17. Summary.

E4.1.17.1. Initially additional release habitat will be created by enhancing four ponds on the site in advance of development work.

E4.1.17.2. Great crested newts and amphibians will be excluded from the site working areas using temporary amphibian fencing, pitfall traps and refugia.

E4.1.17.3. The perimeter TAF will remain in place for the duration of the works and will be removed on completion of the works.

E4.1.17.4. Nature reserves containing additional aquatic and terrestrial habitat will be provided to compensate for the area to be lost to the development.

E5. Post-development site safeguard.

E5.1. Habitat management and maintenance.

E5.1.1. A management organisation with an appropriate proven track record will be appointed for the long term management of the nature reserve.

E5.1.2. A management plan will be drawn up and will be agreed by CCW for each area of the site. This will be designed to maintain the nature reserve habitat and will include details of work to be carried out, the timing of those works to have the minimum impact of the great crested newts.

E5.1.3. The management of the site will be secured from the issuing of the Welsh Assembly Government Licence.

E5.2. Population monitoring.

E5.2.1. Part of the management plan to be carried out by the appointed management organisation will be to carry out two great crested newt surveys of all ponds within the site between mid April and mid May each year.

E5.2.2. All survey records will be fed back to CCW to be included within the ecological records database

E5.2.3. The results of the surveys will be recorded and analysed annually and this will create a base line of data that will feed back information on the success of the various aspects of the mitigation strategy and this will in turn advise on areas where specific actions are required within the management plan.

E5.3. Mechanism for ensuring delivery.

E5.3.1. The licence holder will have overall responsibility to ensure that all aspects of the Welsh Assembly Government licence are adhered to.

E5.3.2. The ecologist, Derek Whitcher or his appointed agents, will advise the licence holder and will, on his behalf, ensure that the great crested newt mitigation measures are carried out to the required standards in accordance with the Welsh Assembly Government licence.

E6. Timetable of works.

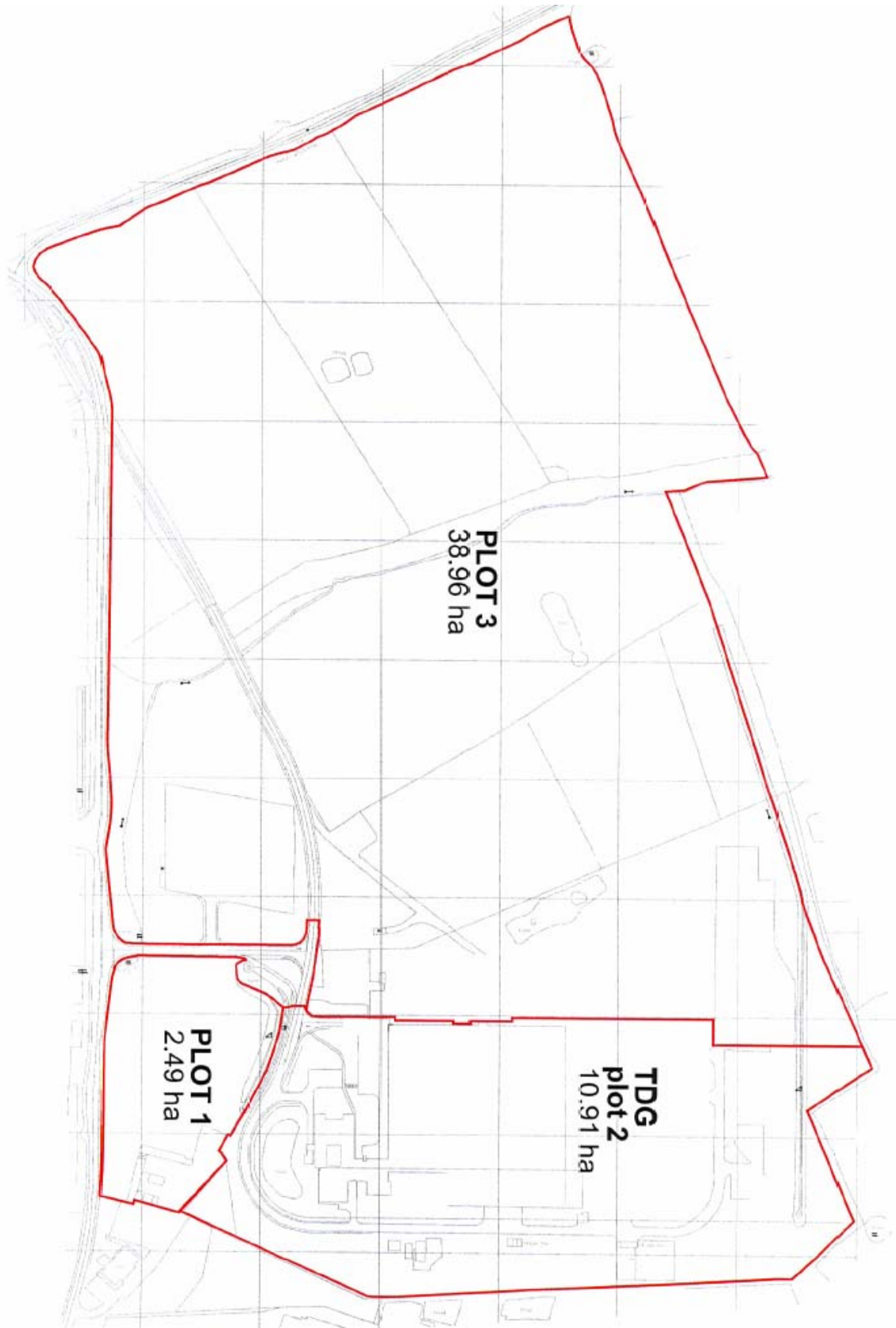
September/October 2008.	Submit WAG licence application.
September 2008/February 2009.	Electro fish Pond C.
January/February 2009.	Enhance Ponds J and P.
January/February 2009.	Reinstate pond at northern site boundary.
2009.	On receipt of licence, install amphibian fencing, pitfall traps and refugia and commence trapping.
2009/2010.	Development works.
2010.	Remove all TAF on completion.

E7. This draft plan shows the proposed development, nature reserves and mitigation measures.



E8. Map to show extent of each parties interest on the site.

E8. This map shows the land in the ownership of Kingmoor Park Ltd outlined in red.

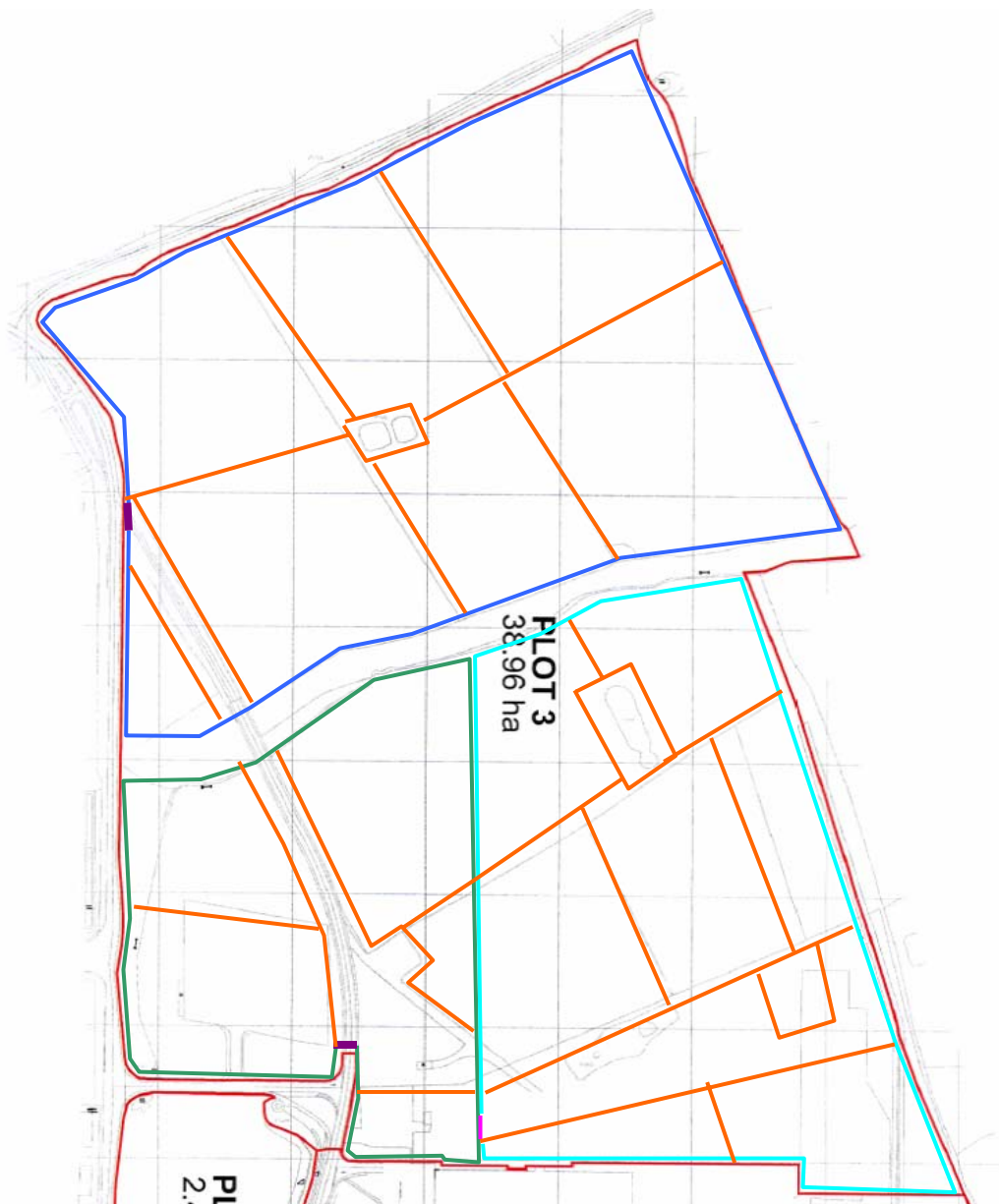


E9 This map shows the receptor sites for any newts captured during the work.



E10. Maps to show capture and exclusion works.

E10. Shows the location of the proposed capture and exclusion work on site.

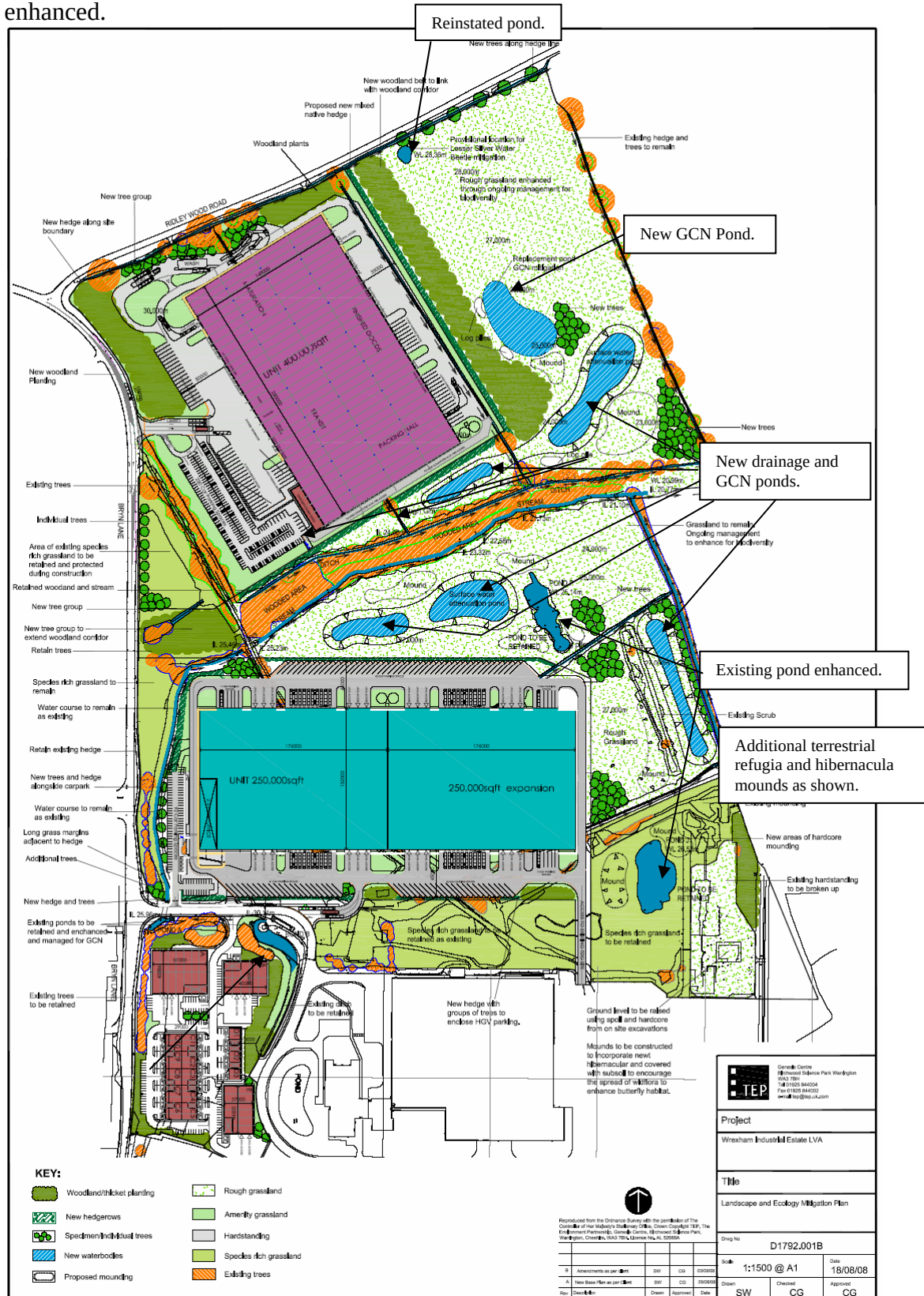


The dark blue, green and turquoise lines are perimeter TAF around each of the three work areas. The orange lines are indicative internal drift fence lines that will be in place for the duration of the trapping and exclusion phase only. The dark purple lines are across each entrance to the site and will either be a removable section of fence or will be buried and concreted girders to form an entrance trap to ensure newts cannot enter the exclusion areas.

Pitfall traps will be placed at 10m intervals on the inside of perimeter TAF and either side of the drift fencing as appropriate with carpet or felt squares between.

E11. Map to show habitat creation, restoration and/or enhancement.

The following map shows the areas of aquatic and terrestrial habitat to be created and enhanced.



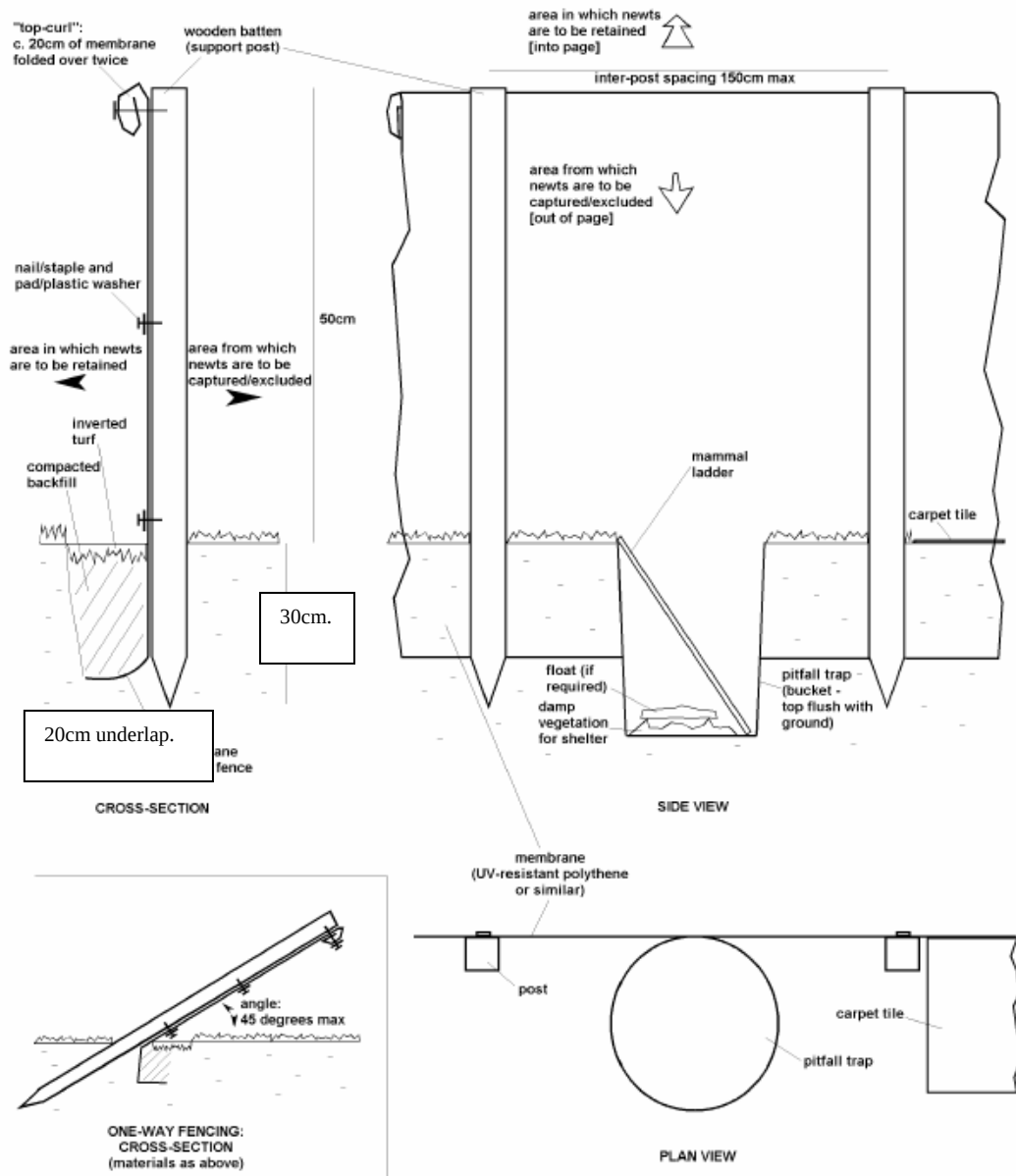
Existing pond electro fished.

E12. Map to show post activity management.

Not available at present.

E13. Diagram to show capture/exclusion apparatus.

TAF and pitfall traps generally as per English Nature Guidelines but with bottom buried to a depth of 30cm with a 20cm underlap.



Derek A Whitcher.

25.08.2008.

CCW Great Crested Newt Survey Licence Number.

OTH:SA:236:2006

APPENDIX I.

BACKGROUND GREAT CRESTED NEWT INFORMATION.

The great crested newt population has suffered a major decline in Britain over the last century. Numerous ponds have been lost, unmanaged ponds have become silted up and over-shaded, development has destroyed ponds and associated terrestrial habitat and caused fragmentation of populations. The loss of grassland, scrub and woodland has resulted in fewer opportunities for foraging, dispersal and hibernation.

The UK Biodiversity Plan (BAP) contains a great crested newt Species Action Plan (SAP) aimed at maintaining its existing range and population status, as well as increasing the number of populations through re-colonisation.

The great crested newt is listed on Schedule 5 of the Wildlife and Countryside Act 1981, recently modified by the Countryside and Rights of Way Act 2000. The great crested newt is therefore subject to the provisions of Schedule 9, which make it an offence to:

- Intentionally kill, injure or take a great crested newt.
- Possess or control any live or dead specimen or anything derived from a great crested newt.
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection by a great crested newt.
- Intentionally or recklessly disturb a great crested newt while it is occupying a structure or place, which it uses for that purpose.

The great crested newt is also listed on Annex II and Annex IV of The Conservation (Natural Habitats &c) Regulations 1994. Regulation 39 makes it an offence to:

- Deliberately capture or kill a great crested newt
- Deliberately disturb a great crested newt.
- Deliberately take or destroy the eggs of a great crested newt.
- Damage or destroy a breeding site or resting place of a great crested newt.

The legislation applies to all life stages of great crested newts.

The maximum fine on conviction of offences under Section 9 and Regulation 39 currently stands at £5,000. The CroW Act 2000 amendment also allows for a custodial sentence of up to six months instead of, or in addition to, a fine. In addition, items, which may constitute evidence of the commission of an offence, may be seized and detained.

In order to understand the potential effects of development it is essential to understand a little of the great crested newt ecology.

Great crested newts breed in ponds and other water bodies. They can begin to migrate to their breeding ponds as early as the first frost-free days in late January with the majority reaching their breeding ponds by mid March. Timing will be influenced by a number of factors, mainly evening temperatures above 5C and recent rain.

The peak egg-laying period is from mid-March to mid-May. The newts will lay their eggs individually, mainly on the leaves of submerged plants. The larva hatch after three weeks and then take another 2-3 months to complete larval development. Adult newts generally leave their breeding ponds from late May onwards.

Once the larvae have completed metamorphosis (the transition from aquatic larvae to land-adapted juveniles, called efts), they emerge from the pond. This emergence begins in late August and generally continues until late October. It takes 2-4 years to reach sexual maturity, during which time the newts will be land based.

Adults and immature newts spend the winter in places that afford protection from frost and flooding. This will generally be underground amongst tree roots, in mammal burrows, or under suitable refuges above ground like deadwood or rubble piles. Hibernation may last from October to February.

Whilst on land, outside the hibernation period, great crested newts will forage at night, taking a wide range of invertebrate prey.

From the above, it can be seen that great crested newts spend the majority of their time on land and only visit the ponds for breeding purposes. As a result, surveys need to be timed very carefully. Terrestrial surveys are very inaccurate and the only time that surveys can be truly thorough is in the narrow window of opportunity between March and September.

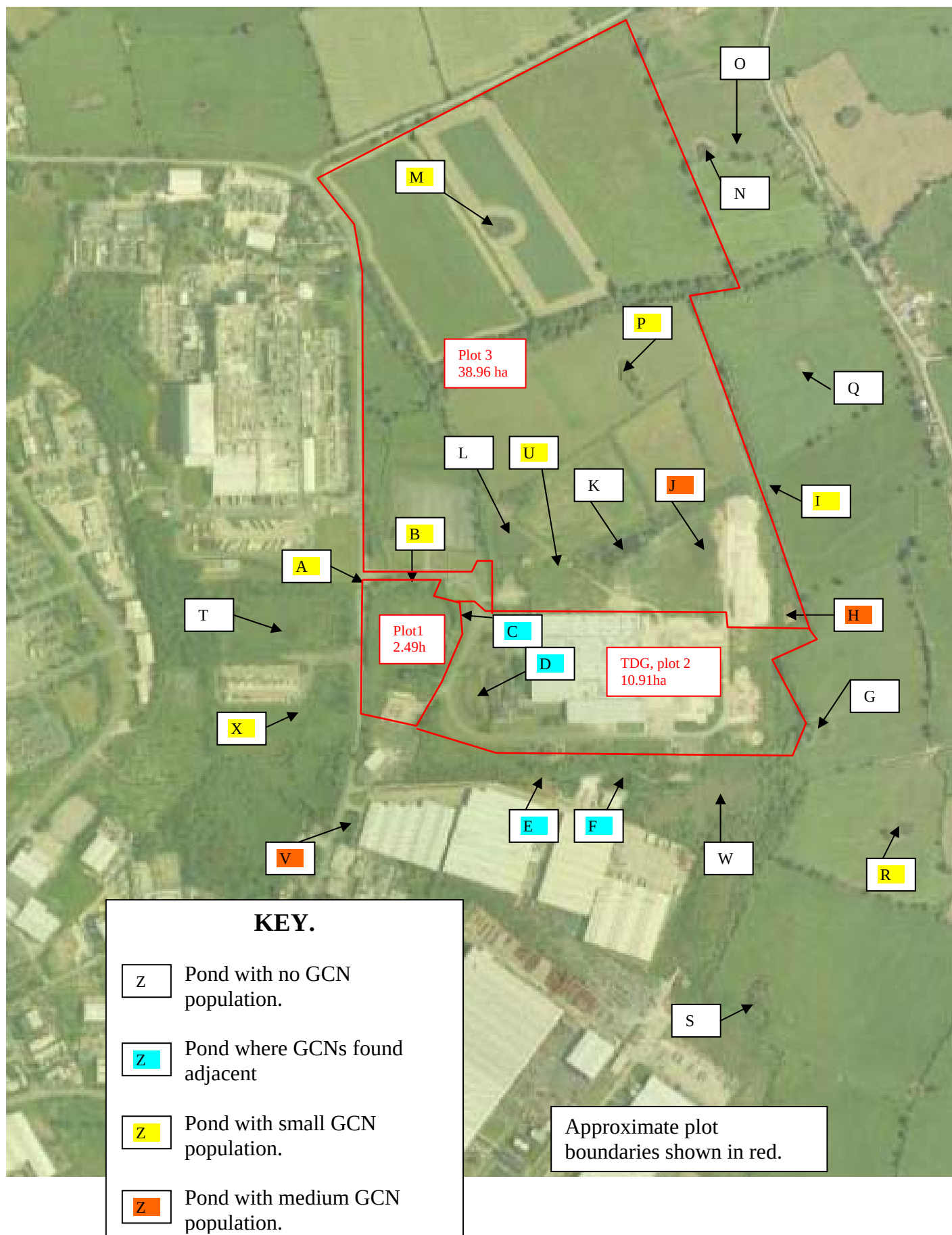
Great crested newts will travel large distances between ponds and terrestrial refuges. It is recommended that anywhere within 500m of a pond should be treated as potential great crested newt habitat and should be surveyed and evaluated.

An experienced surveyor must carry out the surveys and must be in possession of an appropriate Natural England great crested newt survey licence.

It is essential that great crested newt surveys are planned well in advance of any development and ideally before Planning Consent is sought. Surveys can only be carried out at the appropriate time of year and repeat surveys are essential. The guidelines suggest that between four and six surveys need to be carried out, three of these between mid-March and mid-June.

If great crested newts are to be effected by any development, a thorough assessment of the population is essential followed by the design of a comprehensive mitigation package. Only when this has been done can a licence application be submitted to Natural England for approval. It takes 30 working days for a licence application to be determined and the period of time that mitigation measures take can be measured in months. It is therefore essential to plan well in advance of development commencing.

Appendix II. PONDS ON OR NEAR THE SITE.



Appendix III. RESULTS SUMMARY TABLE.

Key: Figures are great crested newt numbers. Figures in brackets were found terrestrially. X was not surveyed.

Pond Ref	1 st Torch 2005	1 st Bottle 2005	2 nd Torch 2005	2 nd Bottle 2005	3 rd Torch 2005	3 rd Bottle 2005	4 th Torch 2005	4 th Bottle 2005	Maximum Count, 2005	5 th Bottle 2008	6 th Bottle 2008	Maximum Count 2008	Maximum Count Overall
A	1	1	0	0	1	0	0	0	1	0	0	0	1
B		0	0	0	0	0	2	0	2	3	0	0	3
C	(1)	0	0	0	0	0	0	0	(1)	0	0	0	(1)
D	(1)	0	0	0	0	0	0	0	(1)	0	0	0	(1)
E	(1)	0	0	0	X	0	0	X	(1)	X	X	X	(1)
F	(9)	0	(2)	0	X	0	0	X	(9)	X	X	X	(9)
G	X	0	0	0	0	0	X	0	0	0	0	0	0
H	5	13	X	2	0	X	0	X	13	0	0	0	13
I	0	1	X	6	X	0	X	1	6	4	5	5	6
J	0	3	X	1	0	0	0	1	3	11	14	14	14
K	0	0	X	0	0	0	0	X	0	0	0	0	0
L	X	X	X	X	X	X	X	X	0	0	0	0	0
M	X	7	X	6	0	1	X	0	7	2	1	2	7
N	X	0	X	0	0	0	X	0	0	X	X	X	0
O	X	0	X	0	0	0	X	0	0	X	X	X	0
P	X	1	X	6	0	8	X	2	8	5	3	5	8
Q	X	0	X	0	0	0	X	0	0	0	0	0	0
R	X	0	X	7	0	8	X	3	8	0	0	0	8
S	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	0	Dry	Dry	0	0
T	X	X	0	0	0	0	0	0	0	X	X	X	0
U	6	X	Dry	Dry	Dry	Dry	Dry	Dry	6	Dry	Dry	0	6
V	8	13	10	11	X	7	4	X	13	X	X	X	13
W	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	5	X	0	2	10	X	10	X	X	X	10

Appendix IV. SURVEY REPORT 2005.

Appendix V. SURVEY REPORT 2008.