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Enviroparks, Hirwaun

Wildlife Protection Plan

February 2017

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Submitted by Pell Frischmann

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CONTENTS

APPENDICES

APPENDIX A – REPTILE MITIGATION STRATEGY R57006/V001/B
APPENDIX B – OTTER AND REPTILE FENCING SPECIFICATION
APPENDIX C – DRAFT TREE PROTECTION PLAN
APPENDIX D – WILDLIFE PROTECTION AREA PLAN
APPENDIX E – LANDSCAPE STRATEGY PLAN
APPENDIX F – 2014 REPTILE TRANSLOCATION UPDATE
APPENDIX G – PROPOSED DEVELOPMENT PHASING PLAN

1. INTRODUCTION

Pell Frischmann Consultants have been commissioned by Enviroparks Hirwaun Ltd (EHL) to compile a Wildlife Protection Plan for the Enviroparks development at Hirwaun Industrial Estate. Previous ecological surveys have identified a range of habitats and species on site which require protection. Revisions have been made to this plan following more detailed information being made available regarding project phasing. Further amendments have been made following liaison with Rhondda Cynon Taff County Borough Council and the project landscape architects. Changes have also been made on the recommendation of the Brecon Beacons National Park Authority.

This report has been revised to reflect the changes in the Proposed Development and the proposed Development Phasing Plan and replaces the previous plan R57006005/F Pell Frischmann 2015

1.1 OBJECTIVES AND SCOPE

The purpose of this plan is to detail the necessary protection measures required to ensure that the local conservation status of habitats and species present are maintained during and after the construction works.

The Wildlife Protection Plan (WPP) aims to support the application for the 'a*mended phase II development and operation of a sustainable waste resource recovery and energy production park, comprising the consolidation of the approved gasification yard and pyrolysis building into a 6,270.43m2 gasification hall; an emissions stack measuring 45m in height and 4.5m in diameter; a 2,102.86m2 fuel storage hall and a 378m2 turbine hall for electricity generation; and a 4,824m2 open service yard containing ancillary structures including air-cooled condensers for the gasification plant, ancillary fire water tanks and a fire pumphouse, effluent pumps, gas boosters, transformers and a standby diesel generator and fuel tank, with boundary landscape and planting at land at Fifth Avenue, Hirwaun Industrial Estate, Hirwaun, Aberdare'.*

This report supersedes the previous Wildlife Management Plan which was prepared to meet the requirements of planning conditions for the previous approved scheme.

The plan includes a brief review of previous surveys and reports which collectively describe the ecological status of the site. The management plan describes the protection and mitigation measures which are required to conserve the ecological status, and the management structure to ensure that full compliance takes place.

Wildlife Protection Areas will be maintained throughout the construction phase, and details of ecological enhancement have also been included. Further enhancement measures may be required in respect of BREEAM credit awards.

1.2 SUMMARY OF PROPOSED SCHEME

Planning Permission is sought for a revised sustainable waste resource recovery and energy production park at the Hirwaun site (previous planning application references: Brecon Beacons National Park Authority reference 08/02488/FUL and Rhondda Cynon Taf County Borough Council reference 08/1735/10). Construction work to date has removed vegetation from a large proportion south of the site which has impacted on wet grassland and plantation woodland habitats.

1.3 SITE LOCATION

The site is situated between Fifth Avenue and Penderyn Reservoir, 1.5km North West of Hirwaun Town Centre at National Grid Reference SN938068. An extract of the OS map showing the site location is presented in Figure 1. The red line boundary of the site is shown in Figure 2.

Figure 1: Site Location

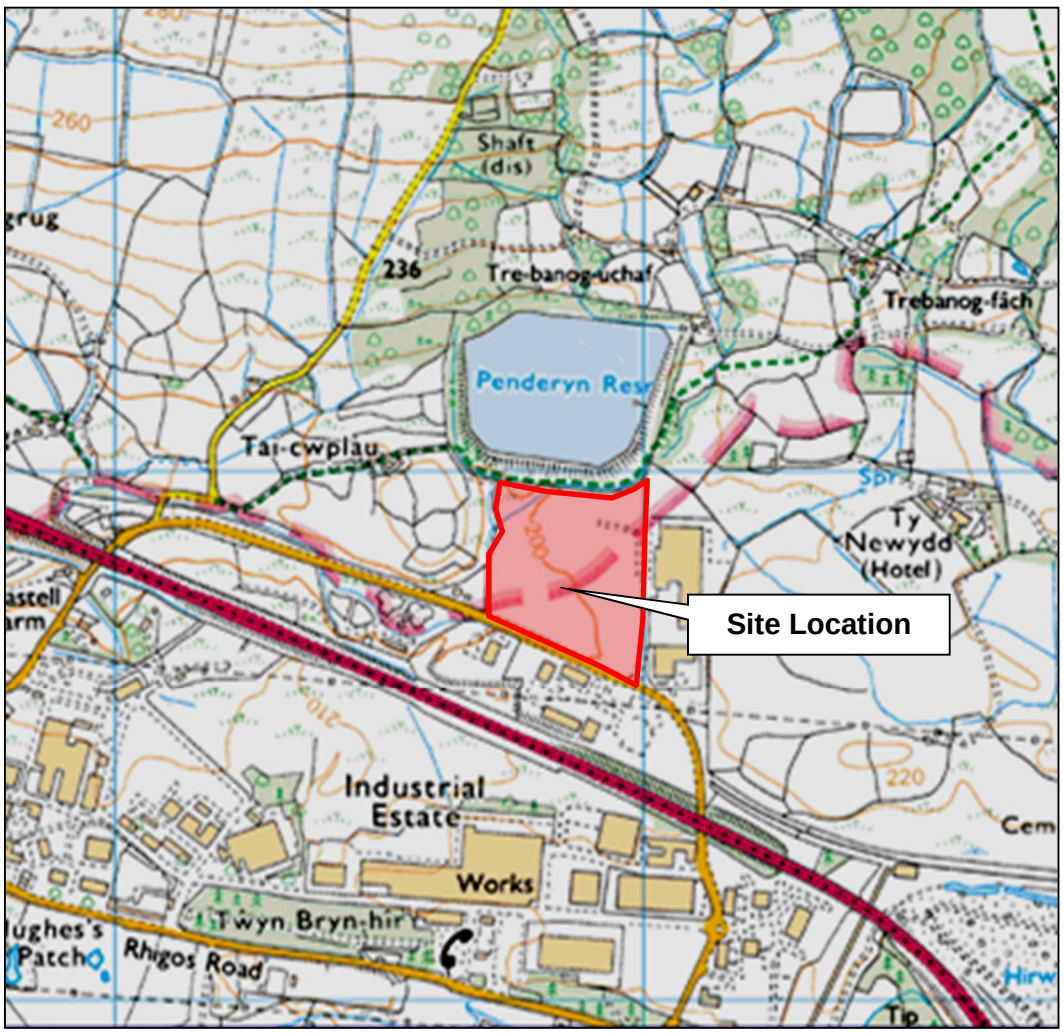


Figure 2: Site boundary in red

2. SUMMARY OF PREVIOUS SURVEY WORK AND REPORT

An Extended Phase 1 Habitat survey was undertaken by Middlemarch Environmental Ltd in September 2008. This recommended further surveys to determine the status of a range of species including: breeding birds, badgers, otters, bats, marsh fritillary butterfly, water voles and reptiles. A site suitability study for great crested newts was also undertaken.

No badgers, marsh fritillary butterfly, otters or water voles were recorded during subsequent surveys undertaken in 2008 by Middlemarch Environmental Ltd. The site was also assessed as having negligible potential to support great crested newts.

Breeding birds were recorded within young woodland areas and a reptile survey undertaken in May 2008 recorded a single slow worm. This information resulted in the planning authorities requesting that a reptile mitigation strategy be drawn up as a planning condition. Bat foraging activity was recorded over the wet grassland areas but no bat roosts were identified within, or close to the site boundary.

The site was resurveyed by Pell Frischmann staff in 2011 who confirmed that the main habitat types identified on site in 2008 had not changed. The number of scattered broadleaf trees had declined through continued grazing pressure. No invasive species were identified on site.

The reptile survey was repeated in July 2012 by TerrAqua Ecological Services Ltd to provide updated information. Slow worms, common lizards and grass snakes were recorded.

During August, September and October 2012, reptiles and amphibians were translocated from the construction area to a receptor area in the north western section of the site. The translocation results are presented in Table 1.

Table 1: Reptile and amphibian translocation results- summer 2012

Species	Numbers caught and translocated
Grass snake	4
Slow worm	30
Common Lizard	17
Toad	161
Frog	75
Palmate newt	18

Reptiles were more frequently encountered in the western portion of the site close to the stream. The Reptile Mitigation Strategy (R57006V001) can be found in Appendix A. This provides details of all survey and mitigation work completed to date.

During the Reptile surveys of 2012, otter spraints were identified close to the stream that forms the western boundary of the site. The stream was again checked for holts and otter resting points but none were identified. It is likely that otters use the stream as a safe migration route to and from the Penderyn reservoir. Spraints were recorded at the same location during surveys undertaken in 2014.

Due to delays in construction, the reptile translocation work was repeated in the late summer of 2014. The updated translocation results are attached in Appendix F. New reptile/amphibian exclusion fencing was erected, and retiles were caught and translocated to the same refuge area as in 2012. The translocation results are presented in Table 2.

Table 2: Reptile and amphibian translocation results- summer 2014

Species	Numbers caught and translocated
Grass snake	5
Slow worm	17
Common Lizard	11
Toad	198
Frog	81
Palmate newt	6

This work enabled additional data to be collected regarding the status of both reptiles and amphibians on site. The results show a slight decline in reptile numbers which may be due to repeated years of high rainfall and generally poor drainage across the site. Given the size of the trapping area these represent low population levels.

Reptile exclusion fencing was erected in 2014 to prevent translocated reptiles from re-entering the development site. In addition, this reptile fencing is protected by stock fencing to prevent damage from ponies which are present on land adjacent. Both of these fences have been periodically inspected for damage/breaches.

Both fences were in good condition when last inspected on 2nd April 2015. The reptile exclusion fence remains fully intact and no breaches were recorded. Consequently, no additional reptile surveys or trapping is required as translocated reptiles will not have been able to re-enter the construction site area. The reptile exclusion fence requires regular monitoring to ensure an effective barrier is maintained.

Undertaking surveys over a 7-year period has helped to provide a more accurate picture of the site biodiversity. The following groups of protected species have been recorded on site (see Table 3 below).

Table 3: Protected Species present on site

Species present on site	Location	Legal Protection
Breeding Birds	Within broadleaf plantation areas	WCA
Reptiles	Largely on western side of site	WCA
Otters	Along western stream corridor	CHSR
Bats	Foraging activity only	CHSR

The Wildlife and Countryside Act (WCA) 1981 (as amended) is the principal mechanism for the legislative protection of wildlife in the UK and is divided into four parts, the first section of which details the protection of wildlife. The Conservation of Habitats and Species Regulations 2010 (CHSR) protects animals listed on Schedule 2 and plants listed on Schedule 5, also known as European Protected Species.

The species listed in Table 3 (above) are listed on the Welsh Government's Section 42 List of Species of Principal Importance for the Conservation of Biological Diversity in Wales, 2007. All these reptiles are also UK Biodiversity Action Plan Priority Species.

Wildlife protection is an iterative process. New species may migrate into the protected areas of the site and new habitat areas. Regular reviews of this Wildlife Protection Plan will ensure that measures are updated to allow for changes or additional measures to be adopted as appropriate.

3. POTENTIAL EFFECTS OF WORKS

The following effects have been identified, for which appropriate protection/ mitigation has been provided as detailed within Section 5 of this report.

3.1 POTENTIAL EFFECTS ON BREEDING BIRDS

Effects on breeding birds may occur if areas of broadleaf plantation are cleared or disturbed during the bird breeding season which is between March and August inclusive.

3.2 POTENTIAL EFFECTS ON REPTILES

Without appropriate mitigation, the following effects on reptiles may occur:

- Permanent loss of habitat during re-development works; and
- Direct harm to reptiles during site preparation and construction works.

3.3 POTENTIAL EFFECTS ON OTTERS

Without appropriate protection measures, direct harm to otters may occur during site preparation and construction works. Site observation since 2012 suggests that otters are using the stream along the western boundary on an occasional basis. Precautions are to be taken to avoid harm or damage to this habitat.

Following construction otters are unlikely to access the waste processing areas due to the high level of human activity. Otter activity will be monitored as part of the post construction assessment. It is important that the western boundary is kept undisturbed and as dark as possible so that otters can continue to access the reservoir.

3.4 POTENTIAL EFFECTS ON BATS

It is unlikely that removing bat foraging habitat will have any effect on the conservation status of bats within the local area, due to the plentiful source of alternative sites nearby. Removal of foraging habitat is likely to result in a negligible impact. Landscaping and attenuation measures at the Enviroparks site will create new foraging habitat areas on completion.

BBNPA planning condition 8 for the previous scheme, makes reference to the need for the scheme "*to avoid conflict with bat flight lines and foraging activity and activity of any other potentially protected species at existing and proposed habitat/landscaping on the northern and western edges of the application site by minimising light (pollution) spill in these areas*"

Lighting will be restricted at both of these areas within the new proposals.

4. ROLES AND RESPONSIBLITIES

Enviroparks have appointed Pell Frischmann as environmental consultants to oversee the implementation of the Wildlife Protection Plan, and to ensure that all compliance and monitoring is completed. The project will be supervised by principal ecologist Simon Humphreys CEnv MCIEEM, with the assistance of ecologist Jonathan Davey AIEMA. They will be responsible for ensuring that work:

I) Complies with legal consents relating to nature conservation;
ii) Complies with planning conditions relating to nature conservation;

The construction contractor will appoint an Ecological Clerk of Works (ECW) to oversee the day to day implementation of the WMP. They will be responsible for the:

iii) Installation of physical protection measures during construction;
iv) Implementation of sensitive working practices during construction;

They will also undertake*:*

v) Regular inspections and maintenance of physical protection measures and monitoring of working practices during construction;
vi) Provision of training and information about the importance of the 'Wildlife Protection Zones' to all construction personnel on site.

The ecological clerk of works will report to the project ecologists on a regular basis and immediately in the case of any adverse incidents or the discovery of protected or notable species. The ECW will be responsible for undertaking wildlife awareness training with all staff and contractors. Note: the title “Ecological Clerk of Works” will be subject to agreement with the construction contractor. BREEAM require the appointment of a site “wildlife champion”, so the title may change but not the on-site responsibilities.

On completion a permanent site Environmental Officer (EO) will be appointed who will be responsible for ongoing wildlife management measures. It is preferable that this role is undertaken by a permanent member of staff rather than through the site landscape maintenance contractors. They will also assist in long term monitoring and undertaking ongoing wildlife improvements.

5. PROTECTION, MITIGATION AND ENHANCEMENT REQUIREMENTS

5.1 REPTILE MITIGATION

The following mitigation measures have already been undertaken.

Reptiles have been removed and excluded from the development footprint. A receptor area was fenced off using reptile exclusion fencing and reptiles and common amphibians were translocated from the construction area over a 3-month period.

The reptile fence has currently been erected (as shown in Appendix D) creating a receptor area for reptiles as shown within the site boundary. This area contains the most suitable habitat on site for reptiles with wetland, scrub and open basking areas.

Reptiles and amphibians are currently excluded from the construction sections of phase 1, 2 and 3. The wildlife protection areas are shown in Appendix D. No further amendments of the exclusion fencing will be required for the construction of phase 2 or 3 buildings. Phase 4 will require modification of the Wildlife Protection Zones to be undertaken prior to the commencement of construction works.

The phase 1, 2 and 3 construction areas have been stripped of vegetation prior to construction so there is no risk of reptile re- colonisation. A further amendment will be required to allow for the construction of the phase 4 buildings. This will not take place until the new habitat area has been constructed along the southern boundary. The amendment will require temporary reduction of the size of the reptile receptor area to allow for re-alignment of the stream.

Reducing the size of the receptor area will require a new length of reptile fencing to be erected within the WPP. Reptiles will be trapped and translocated from the temporary to the permanent area using standard techniques (as detailed by Froglife 1999). A specification for reptile exclusion fencing can be found in Appendix B. Some of the reptiles and amphibians will be translocated to the new habitat area along the southern boundary, once the landscaping is sufficiently mature. Following completion of the re-alignment of the stream, exclusion fencing will be removed and reptiles will be able to return to all of the wildlife protection area (see section 6.7).

Due to the risk of re-colonisation of the phase 4 area prior to development, it is also recommended that refugia traps are again deployed during the last active reptile season before work begins on the phase 4 site. Any reptiles will be translocated to the modified exclusion area or the newly landscaped area along the southern boundary. Once all reptiles have been removed, the phase 4 area should be surface stripped or cut back to ground level in order to avoid any potential re-colonisation.

Photo 1: Part of the on-site receptor area within the wildlife protection area

5.2 BREEDING BIRD PROTECTION

No trees clearance will be undertaken during the breeding season (March to September inclusive). If work needs to be undertaken during these months, the site should first be checked by a suitably qualified and experienced ecologist. A bird survey report will also be produced to confirm legal compliance. No clearance work can be undertaken within 5 metres of an occupied nest.

5.3 OTTER PROTECTION

Steel security fencing has been erected around the perimeter of the entire site. This has been located approximately 4 – 5 metres to the east of the western stream. This is to avoid impacts to mature trees and the riparian corridor along this boundary. This will create a protected corridor for any migrating otters along the stream. This will enable otters to continue to use the stream as a migration route during all of the construction phases, and will prevent otters straying into potentially dangerous parts of the site.

The security fencing extends to ground level and to date has been found to be sufficient to exclude otters from the main site. It is essential that the fence is regularly inspected to check for signs of otter couches, or spraints within the site itself or if there are signs of otters digging under the fence. If so, additional otter exclusion fencing will be erected as soon as possible at the base of the security

fence and dug into the ground as recommended. The location of the perimeter security fence is such that it will provide protection for otters through all four of the construction phases.

A suitable specification for otter fencing mesh is shown in Appendix B. this will only need to be used if otters are found to breach the perimeter security fence. If otter fencing is required, it is recommended that this is retained after the construction phase.

5.4 BATS MITGATION

Existing grass areas will be retained within the wildlife protection area. These will be enhanced as part of the local effort to protect the marsh fritillary butterfly meta population through the provision of linking habitats. These ecological enhancement measures will also improve the quality of the grassland for bat foraging.

The corridor swales and grassland which will be created along the southern boundary of the site will form an important foraging habitat. Trees along the western and northern boundaries are being retained. Additional trees will be planted close to the southern and eastern boundaries as part of the landscape plan.

An External Lighting Scheme has been produced by Waterman to satisfy planning conditions BB8 and RCT7 of the previous. This provides details of measures to avoid light spill and to reduce the requirement for lighting close to the northern and western boundaries. Similar measures have been adopted by the current application. Existing trees will also reduce light spill within the Wildlife Protection Areas.

5.5 TREE PROTECTION

Retained trees are shown in the Tree Protection Plan (TPP) which has been produced for the site. A copy of the draft TPP is shown in Appendix C which shows the position of protective tree fencing for phase 1, phase 2 and phase 3 construction periods. Full Details of the tree protection measures can be found in the Arboricultural Survey Report R57006V004. Protection measures will comply with BS 5837 2012 ‘Trees in relation to design, demolition and construction – Recommendations’.

5.6 BARN OWLS ENHANCEMENT

Barn Owls are known to be active in the surrounding area but have not been recorded at the site. A single barn owl box will be erected in one of the mature oak trees along the western boundary. The nest should be erected not less than 3.5m above ground level with a clear flight path access.

5.7 WILDLIFE PROTECTION AREAS

The Wildlife Protection Areas (WPA) are shown in drawing D57006V103 which is presented in Appendix D. These represent areas of suitable habitat where protected species may be present. This includes land adjoining the western and northern site boundaries. These areas have direct connectivity to adjacent areas of woodland, permanent pasture and the Penderyn reservoir.

These areas will be protected during the construction phase with tree protective fencing (to BS 5837 guidelines) to ensure that the WPA is not damaged.

No work should take place within the Wildlife Protection Areas without the approval of the Project Ecologist.

The plan D57006V104 Wildlife Protection Areas (Appendix D) also shows a temporary Wildlife Protection Area to the south of the main Wildlife Protection Area. The temporary area will be excluded from the construction area during the first development phase. This is currently open grassland which will provide a buffer area for the main Wildlife Protection Area. It will also provide an additional reptile and amphibian refuge area, while the attenuation and swale area is under construction.

The Temporary Wildlife Protection Area will be removed only once the first and second construction phases have been completed. The tree protective fencing will be moved to the boundary of the residual Wildlife Protection Area as shown in the Draft Tree Protection Plan D57006V102.

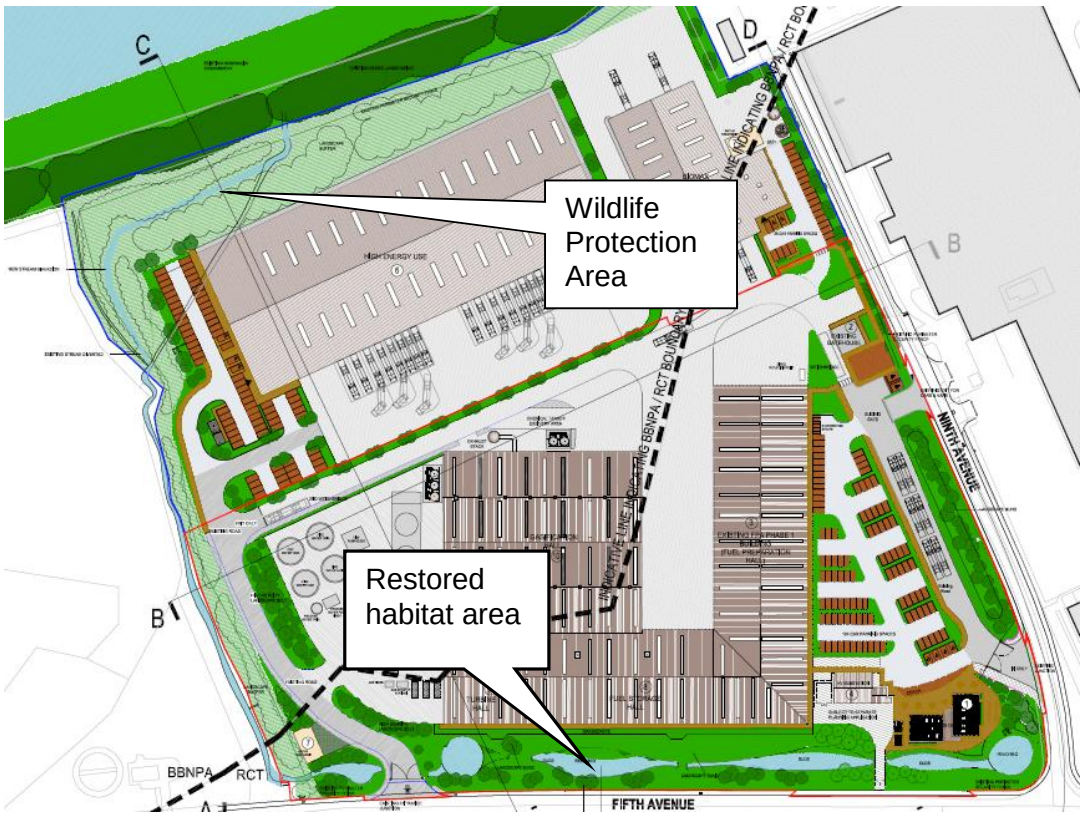
One section of the stream which cuts through the Wildlife Protection Area will require re-aligning during the third construction phase. Currently the stream passes through a steep drain cut across the north west corner of the site. This will be re-profiled to create shallow banks and berms. This will allow partial flooding of the adjoining areas during wet periods. This work will require detailed design and will be subject to Land Drainage consent from RCTCBC.

In this part of the site the stream is in two sections, one continuing along the western boundary up to the north west corner. This will allow access for otters to continue through to and from Penderyn reservoir during the temporary stream re-alignment works.

5.8 SITE ENHANCEMENT

Measures to enhance the ecology of the site are listed below, and demonstrate the steps taken to achieve sustainable development.

Figure 3: Restored Habitat Areas within the approved scheme



Wetland and Marshy Grassland Creation Areas

Attenuation areas joined by swales will be created along the southern boundary of the site. This will create new wet grassland and scrub habitats with connectivity to the existing stream and riparian corridor. The habitat will be enhanced with the construction of at least two reptile hibernacula using timber from felled trees. A 1m diameter pit should be dug to a depth of approximately 0.5m and loosely filled to ground level with logs, brash and stones. This should be covered with a single layer of geotextile membrane (such as “terram”) and capped with 50 - 100mm of turf. The ECW will be responsible for ensuring that the hibernacula are constructed to an adequate standard and are correctly located in a position where they will not be subject to flooding.

The swales will be seeded using gravel and soil retained from the existing marshy grassland (see Landscape Strategy Plan in Appendix E). This will ensure that the local marshy grassland seed source is retained. This will be enhanced with plug plants of devil’s-bit scabious (*Succisa pratensis*) which will be grown from local seed source (as available). This aims to provide suitable grassland areas to complement the Rhos pasture found in the nearby Special Conservation Area which supports marsh fritillary butterflies.

This will be repeated where possible within the retained grassland area within the northern Wildlife Protection Area.

This will create habitats suitable for reptiles, amphibians and possibly otters. These habitats will also support good invertebrate populations which in turn will provide foraging areas for bats and food sources for a wide range of bird species.

This restored area will be separated from the receptor area by an access road. A large size culvert has been specified under the road, to enable reptiles and otters to cross under the road. Once the restored habitat has been completed, a small number of reptiles and amphibians from the receptor area will be trapped and translocated from the receptor area by the Project Ecologists and released into the restored habitat area. This will ensure that the habitat is re-colonised more quickly than would otherwise occur

Tree Planting

Additional tree planting is proposed along internal roads within the site and within car parking areas. New tree planting will replace most of the trees which are due to be removed along the eastern boundary. Trees will also be planted along the southern boundary and will reinforce the edge of the Wildlife Protection Area to the west and north. The total area of new planting will mitigate for the loss of trees cleared during construction. Locally native species including sessile oak and sallow will be favoured as well as downy birch and hazel. Rowan will be planted on drier sites. These trees will also buffer the adjoining habitat areas.

6. IMPLEMENTATION OF ENVIRONMENTAL PROTECTION

6.1 IMPLEMENTATION DURING CONSTRUCTION PHASE

This management plan will form part of the Construction Environmental Management Plan (CEMP). An environmental clerk of works will be appointed by the site contractor to oversee protection and monitoring work during the construction phase. This management plan will form the basis of a specification for tender purposes. Protection works will fall within the main contract. Mitigation works will fall within the landscape plan. Overall responsibility will remain with the client. Section 8 shows how works will be phased over time across the site. Some habitat areas are likely to remain undisturbed for some time.

6.2 STAFF AWARENESS

The Project Ecologist will produce a suitable ecological awareness brief for all staff and contractors at the Hirwaun site. The ECW will be responsible for delivering this presentation to all staff and contractors throughout the construction period. Records of presentation attendees will be collated by the ECW for reference.

The ecological awareness brief will cover the following issues:

- The location of the wildlife protection areas
- The species which are present on site, their importance and legal status.
- Identification and compulsory staff procedures in case protected or notable species be encountered within the construction zone.
- Location and identification of protective fencing
- Reporting procedure for damage to fencing, wildlife protection areas and tree root protection zones.
- Leaflet, poster or AV presentation showing the location of the wildlife protection areas and photographs of protected species, and their signs, to be given to all staff and contractors on completion of awareness brief.

7. PROJECT PHASING

The site will be developed in 4 phases, with phases 1, 2 and 3 covering the southern portion of the site, and phase 4 covering the northern portion of the site as shown in Appendix G.

Phase 1 has been completed. Phases 2, 3 and 4 are subject to this application. The northern portion of the site will remain within the wildlife protection area until it is due to be developed.

Habitats within the northern portion of the site will remain unaffected until phase 4 of the development is due to commence.

Phase 4 construction will require the re-alignment of the open field drain that currently runs in a south westerly direction from the northern boundary. Repositioning of the reptile protection fencing will also be required prior to the commencement of this work. (see section 5.7 for further details) This work should only proceed while reptiles are active (i.e. between March and October) and following completion of the attenuation pond and swale areas (in phase 1). Detailed designs will be required to ensure that adequate mitigation is provided.

Compensation measures for any temporary impacts within the Wildlife Protection Area will already have been installed along the line of swales and SUDS adjacent to the southern boundary. The Temporary Wildlife Protection Area must remain intact until such time as the SUDS and landscape area alongside 5th Avenue have been completed and re-colonised by reptiles.

There will be opportunities to enhance the Wildlife Protection Area through widening and lengthening the open drain during re-alignment work. Designs for this work must be approved by the Project Ecologist who will also issue construction method statements to ensure that the habitats are protected. Additional protection for reptiles and otters may be specified during this work.

8. WILDLIFE MONITORING

8.1 CONSTRUCTION PHASE

The ECW will be responsible for checking the condition and position of all protective fencing including tree and reptile fencing during construction. This will be recorded and reported back to the Project Ecologist not less than once every two weeks during construction periods. On site spot checks will made by the Project Ecologist to assess the effectiveness of the protection fencing.

The ECW will be responsible for repairing or replacing any damaged or missing fencing. Any damage incidents will be reported to the Project Ecologists.

8.2 OPERATIONAL PHASE

On completion of construction works, the responsibility for monitoring will pass to the site Environmental Officer (EO). It is recommended that records are made available at the visitor centre.

The EMO will also be responsible for checking the Wildlife Protection Areas on a regular basis to ensure that suitable habitat conditions are maintained. Any plant or animal sightings should be recorded and photographic records should also be kept. An annual wildlife report should be complied and a copy sent to the Project Ecologists.

Checks should include signs of otter activity. It is possible that otters may be attracted to waste material within the site. If this occurs, additional otter exclusion fencing may be required to ensure that they are not able to access potentially hazardous areas.

A presence/absence reptile survey will be undertaken in the landscapes SUDS area to check that this area has been successfully colonised by reptiles and amphibians. This survey will be undertaken no earlier than 12 months following completion of the landscape works, and at the optimum time of year (May-June or September)

The project ecologists will monitor the grassland areas for a period of 24 months after sowing. The Landscape Architects have recommended a responsive mowing regime to ensure that a wide range of marshy grassland species become established. Current proposals allow for an early spring and a late summer grass cut and removal of all arisings. The project ecologist will check the grass sward prior to the second annual cut. They will assess the range of species present and the need to adjust the timing of the grass cutting to optimise the floral diversity and to make every effort to ensure that devil's-but scabious is present. It is possible that some species such as soft rush (*Juncus effusus*) or ragwort (*Senecio jacobea*) may be dominating the seeded areas. These may require additional control by the spot application of systemic herbicides.

9. PROJECT VARIATIONS AND ADDITIONS

No disturbance should occur within the Wildlife Protection Areas. The project ecologist must be notified in advance of any operations which are likely to impact or change the receptor area in any way. All operations will be directly supervised by the ECW to ensure there is no disturbance. Proposed impacts may result in additional protection, and translocation measures being undertaken. These will be restricted to suitable times of year and may also require additional surveys being undertaken. Additional receptor areas or additional habitat enhancement works may be required.

The Enviroparks project will be subject to a BREEAM assessment. Green roofs are proposed for some of the structures on site. Additional wildlife enhancement features may be required in order to obtain credits under the BREEAM ecological assessment options. These will be implemented as part of a future revision of this plan.

10. MANAGEMENT PLAN SUMMARY

The management plan summary plan has been summarised within Table 4 below:

Project Phase	Activity	Protection Measures	Responsibility	Comments	Timing
Post Construction Phase 1	Monitor grassland areas. Monitor otter activity Reptile Monitoring		Project Ecologists and EMO	Maintain interim WPA	As appropriate
Construction Phase 2 & 3	Protective fence erection Habitat creation (as covered in phase 1)	Maintenance of fences and supervision of works within WPA. Wildlife awareness training. Site monitoring (as covered in phase 1)	Project Ecologists and ECW	Monitoring all aspects of construction to ensure compliance through the CEMP	No tree cutting during bird breeding season
Post Construction Phase 2 & 3	Monitor grassland areas. Monitor otter activity Reptile Monitoring (as covered in phase 1)		Project Ecologists and EMO	Maintain interim WPA	As appropriate
Construction Phase 4	Re-align stream	Re-position reptile fence. Trap and re-locate reptiles and amphibians. Supervise re-alignment works. Monitor otter activity	Project Ecologists and ECW	Monitoring all aspects of construction to ensure compliance through the CEMP	No tree cutting during bird breeding season Reptile translocation between March and October.
Post Construction Phase 4	Monitor grassland areas. Monitor otter activity Reptile Monitoring		Project Ecologists and EMO	Monitor grassland areas. Monitor otter activity Reptile Monitoring	As appropriate

Project Phase	Activity	Protection Measures	Responsibility	Comments	Timing
Post Construction	Monitoring & reporting	Timing of operations	Site Environmental Officer	General wildlife surveying and supervising landscape contractors	Surveys to be undertaken at the appropriate time of year.

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APPENDIX A

REPTILE MITIGATION STRATEGY

Pell Frischmann

excellence through innovation

Enviroparks, Hirwaun
Reptile Mitigation Strategy

December 2012

R57006001/B

Submitted by Pell Frischmann

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CONTENTS

1. INTRODUCTION

Pell Frischmann Consultants have been commissioned by Enviroparks Ltd to compile a Reptile Mitigation Strategy for their development site at Hirwaun Industrial Estate. Previous ecological surveys have identified slow worms (*Anguis fragilis*) on site, and recent surveys have also recorded grass snake (*Natrix natrix*) and common lizard (*Zootoca vivipara*).

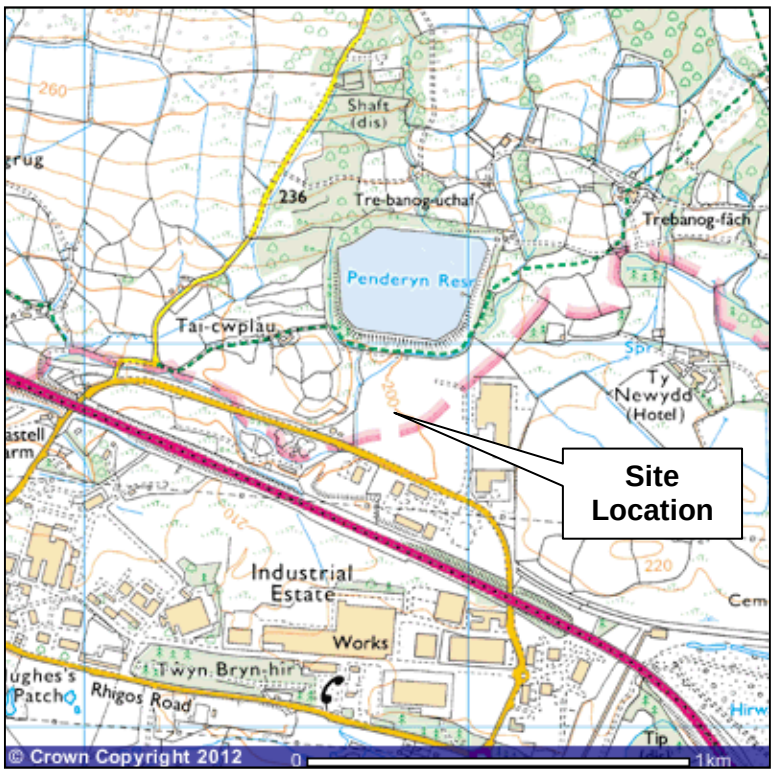
The purpose of this strategy is to detail the necessary mitigation works to ensure that the local conservation status of these reptiles is maintained during and after the construction works, and fulfils the planning requirements of Rhondda Cynon Taf County Borough Council and the Brecon Beacons National Park Authority.

Initial trapping and translocation work was undertaken during late summer 2012 and the results of this work are summarised in Appendix A.

1.1 SITE LOCATION

The site is situated between Fifth Avenue and Penderyn Reservoir, 1.5km North West of Hirwaun Town Centre at National Grid Reference SN938068. A map of the location is shown in Figure 1.

Figure 1: Site Location



1.2 ENVIROPARKS SCHEME

Planning Permission has been granted for the construction of a sustainable waste resource recovery and energy production park at the Hirwaun site (Brecon Beacons National Park Authority reference 08/02488/FUL and Rhondda Cynon Taf County Borough Council reference 08/1735/10). Construction work will remove vegetation from a large proportion of the site which will impact on reptile habitat.

2. LEGISLATION

All of the UK's native reptiles are protected by law. Common lizard (*Zootoca vivipara*), slow worm (*Anguis fragilis)*, adder (*Vivipera berus)* and grass snake (*Natrix natrix)* are protected from killing or injuring under the Wildlife and Countryside Act 1981 (as amended) (WCA). This legislation makes it illegal to:

- Intentionally, or recklessly, kill or injure any of the above species; and/or
- Sell, or attempt to sell, any part of the above species (alive or dead).

The protection afforded to reptile species under the WCA was extended by the Countryside and Rights of Way Act 2000.

The above species are listed on the Welsh Assembly Governments Section 42 List of Species of Principal Importance for the Conservation of Biological Diversity in Wales, 2007. All these reptiles are also UK Biodiversity Action Plan Priority Species.

3. PREVIOUS REPTILE SURVEYS

A Phase 1 Habitat survey was undertaken by Middlemarch Environmental Ltd in September 2008. Suitable habitat for reptiles was identified and further surveys were recommended.

A reptile survey was undertaken in May 2008 by Middlemarch Environmental Ltd, and a single slow worm was recorded. This information resulted in the planning authorities requesting that a reptile mitigation strategy be drawn up as a planning condition.

The reptile survey was repeated in July 2012 by TerrAqua Ecological Services Ltd to provide updated information. Thirty reptile tiles were distributed over the site and inspected on 7 separate occasions. The survey report is presented in Appendix 1. Slow worms, common lizards and grass snakes were recorded.

The maximum number of slow worms recorded on any site visit was four. Based on a survey assessment for the evaluation of key reptile sites, a score of less than five individuals constitutes a low population (Froglife, 2009).

The maximum number of common lizard recorded on any site visit was four. Based on a survey assessment for the evaluation of key reptile sites, a score of less than five individuals constitutes a low population.

The maximum number of grass snake recorded on any site visit was one. Based on a survey assessment for the evaluation of key reptile sites, a score of less than five individuals constitutes a low population.

Amphibian species (common toad and common frog) were also recorded during the survey. These were also considered to constitute low populations. The common toad is listed on the Welsh Assembly Governments Section 42 List of Species of Principal Importance for the Conservation of Biological Diversity in Wales, 2007 and is a UK Biodiversity Priority Species.

Reptiles were more frequently encountered in the western portion of the site close to the stream.

4. POTENTIAL IMPACTS OF WORKS

Without appropriate mitigation, the following impacts on reptiles may occur:

- Permanent loss of habitat during re-development works; and
- Direct harm to reptiles during site preparation and construction works.

As adverse impacts to reptiles are likely, a strategy is required in ensure that reptiles and protected during the construction phase.

5. MITIGATION AND ENHANCEMENT

1.3 MITIGATION MEASURES

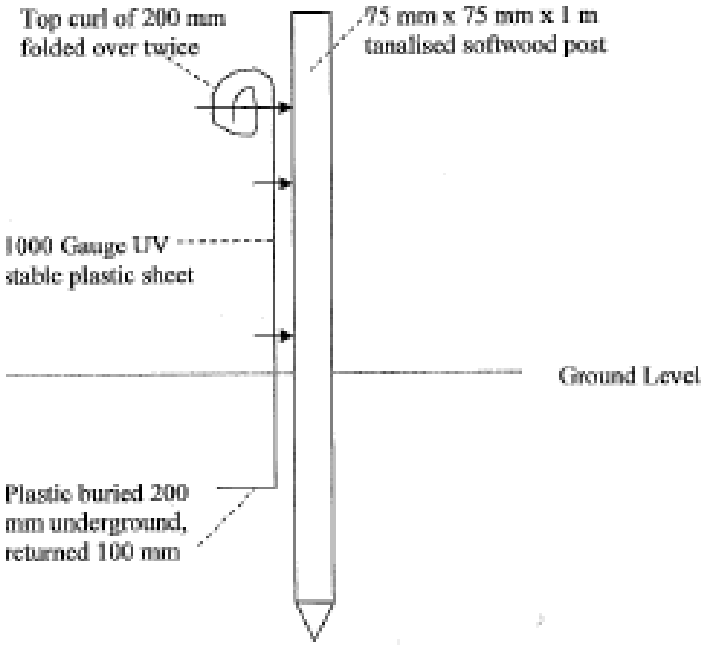
The following mitigation measures will be adopted prior to any construction works taking place.

Reptiles will be removed and excluded from the development footprint prior to any clearance works commencing. Animals will be relocated to a receptor area within the site boundary in the area of most suitable habitat along the western boundary of the site. (See Figure 3). This area also has direct connectivity to additional areas of suitable reptile habitat. The suitable habitats include the south facing slope of Penderyn Reservoir and the woodland and pasture areas immediately to the west of the site. These adjoining areas are extensive and contain a range of features which are likely to be attractive to reptiles including wetland, scrub and open basking areas.

Photo 1: Part of the on-site receptor area

A reptile exclusion fence will be erected to a standard specification as shown in Figure 2.

Figure 2: temporary reptile fencing



The fence will be erected as shown in Figure 3 (below) creating a receptor area for reptiles as shown within the site boundary. This area is where most of the reptiles were recorded during both previous surveys.

Figure 3: Reptile exclusion fence and on-site receptor area

The collection of animals will take place using recognised methods (as detailed within Froglife (2009) and the Herpetofauna Workers Manual (1998)) during September and early October 2012 to ensure the maximum number of animals have been rescued before works commence. One hundred and twenty five suitable artificial refuges will be distributed across the site, with a higher density along the western side closer to the exclusion fence. The trapping effort will continue within the optimum trapping period until reptile species are absent from at least 5 consecutive visits

Hand searching and selective habitat destruction may also be undertaken by the ecology team. Other exclusion techniques may also be adopted such as directional strimming which will aid the natural movement of reptiles to adjacent suitable habitat.

Any amphibian collected from the artificial refugia will also be carefully translocated to the receptor area.

1.4 REPTILE TRANSLOCATION

Reptile translocation work following the recommendations in section 1.3 was undertaken during the summer of 2012. Figure 4 (below) details the reptiles and amphibians which were translocated to a suitably protected reception area:

Figure 4: Reptile translocation results- summer 2012

Species	Numbers caught and translocated
Grass snake	4
Slow worm	30
Common Lizard	17
Toad	161
Frog	75
Palmate newt	18

These results are influenced by the wet conditions during the summer. The numbers of reptiles which were caught, fall within the range to be expected following the reptile activity surveys undertaken earlier in the season.

1.5 HABITAT ENHANCEMENT

Site clearance works will result in the removal of areas of young trees and scrub from the eastern boundary of the site. Small diameter timbers will be moved to the receptor area and stacked to create permanent reptile hibernacula.

1.6 HABITAT RESTORATION

A series of attenuation ponds are due to be constructed along the southern boundary of the site, (alongside Fifth Avenue). This is shown in Figure 4 (below)

Figure 5: Restored reptile habitat area

This area includes ditches, ponds, wetland, shrub and scrub areas as well as an area of open grassland, which will form suitable reptile habitat. The habitat will be enhanced with at least two reptile hibernacula constructed from logs and soil. A 1m diameter pit should be dug to a depth of approximately 0.5m and loosely filled to ground level with logs, brash and stones. This should be covered with a single layer of geotextile membrane (such as “terram”) and capped with 50 - 100mm of turf.

This restored area will be separated from the receptor area by an access road. This may form a barrier to reptile migration into the restored habitat area, although drainage channels below the road will be continuous. Once the restored habitat has been completed, a small number of reptiles and amphibians from the receptor area should be trapped and translocated from the receptor area and released into the restored habitat area. This will ensure that the habitat is re-colonised more quickly than would otherwise occur.

1.7 PROJECT VARIATIONS

No disturbance should occur within the reptile receptor area. The project ecologist must be notified in advance of any operations which are likely to impact or change the receptor area in any way. Proposed impacts may result in additional protection, and translocation measures being undertaken. These will be restricted to suitable times of year and may also require additional surveys being undertaken. Additional receptor areas or additional habitat enhancement works may be required.

1.8 POST CONSTRUCTION MEASURES

A requirement of reptile mitigation works is to ensure that sufficient quality, quantity and connectivity of habitat to accommodate the reptile population with no net loss of the local reptile conservation status. This can be achieved either on site or at an alternate site. Population numbers at the Enviroparks site are low and the proposed mitigation provision within the retained habitat areas and the attenuation area along Fifth Avenue, are considered adequate to ensure no net loss to the reptile population within the locality of the site.

A report will be compiled upon completion of the works to include:-

- Supervision of pre-construction works;
- Trapping and translocation records; and
- Mitigation work supervision and inspection.

6. ECOLOGICAL REPORT LIMITATIONS

The information reported herein is based only, on the interpretation of data collected during the desk study investigations and the site visit. This work pertains specifically to the identification of protected species on the proposed site. Information provided to Pell Frischmann by Biodiversity Records Centres and other statutory information sources has been accepted as being accurate and valid.

This report has been prepared by Pell Frischmann with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it by agreement with the client.

The evaluation and conclusions do not preclude the existence of protected species, which could not reasonably have been revealed by the comprehensive desk studies and site visit. Hence, this report should be used for information purposes only and should not be construed as a comprehensive characterisation of all site habitats.

In addition this report details only the conditions on site, at the time of reporting. The dynamic nature of the natural environment will result in changes to the surrounding environment as seasons change. No responsibility is taken by Pell Frischmann to the existence of additional species identified on this site at a later date.

This report has been prepared solely for the use of Enviroparks Ltd and may not be relied upon by other parties without written consent from Pell Frischmann. In addition, it must be understood that this report does not constitute legal advice.

Pell Frischmann disclaims any responsibility to the client and others in respect of any matters outside the agreed scope of the work.

7. REFERENCES AND BIBLIOGRAPHY

English Nature (2001). *Great Crested Newt Mitigation Guidelines*. English nature, Peterborough.

English Nature (2004). Reptiles: Guidelines for Developers

Gent, AH & Gibson SD, (Eds). (1998) *Herpetofauna Workers Manual* JNCC Peterborough

Herpetofauna Groups of Britain & Ireland. (1998) *Evaluating local mitigation/translocation programmes: Maintaining Best Practice and lawful standards*. HBGI Advisory Notes for Amphibian and Reptile Groups (ARG's). HBGI, c/c Froglife, Halesworth, Ullapool.

Froglife Advice Sheet 10: Reptile Survey – An introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife, Halesworth, Ullapool. 1999.

Middlemarch Environmental Ltd (2008) – Reptile Survey Report

Middlemarch Environmental Ltd (2008) – Phase One Habitat Survey

TerrAqua Ecological Services Ltd (2012) - Reptile Survey Report

APPENDIX A

TERRAQUA ECOLOGICAL SERVICES LTD (2012)
REPTILE SURVEY REPORT

Reptile Translocation Enviroparks Hirwaun Update/Methodology

On behalf of Enviroparks (Hirwaun) Ltd

October 2012

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Reptile Translocation Undertaken By:

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1 Background

1.1 Ecological Brief

TerrAqua Ecological Services Ltd was commissioned by Enviroparks Ltd to carry out a translocation of reptiles on land located off Fifth Avenue, Hirwaun Industrial Estate, Hirwaun in order to ensure that no reptile species would be harmed during the ground works for any proposed industrial development of the site.

The development boundary was taken as that supplied by Mr Simon Humphreys of Pell Frischmann.

The translocation was undertaken in September/October 2012.

1.2 Client Details

The work was undertaken on behalf of Enviroparks Ltd following an instruction to proceed by Mr S Humphreys, Principal Ecologist for Pell Frischmann acting on behalf of Enviroparks Ltd namely Mr Mark Bollington, Project Director, Enviroparks (Hirwaun) Ltd, Marlborough House, Keller Close, Milton Keynes, MK11 3LL.

3 Translocation Methodologies

3.1 General

The reptile translocation was carried out using a combination of visual searches of appropriate habitats, and the use of artificial refuga. The works were undertaken during September and October 2012.

Temperature and weather can play a significant role in the success or failure in the capturing of reptiles at a given site therefore survey visits were selected in order to take advantage of the most appropriate weather conditions.

Surveys were conducted when air temperatures were between 9º C and 17º C. very hot sunny days and cold wet conditions were avoided.

The translocations were all carried out during the morning or late afternoon, between 8.30am-11am or 3pm – 6.00pm. A total of 37 visits were made to the survey site.

3.2 Visual Search

On each survey visit a visual search was made of habitats within the survey boundary that appeared suitable for basking reptiles. These included south facing banks, rubble piles, the base of hedgerows, stream banks and areas of rough grassland. The site was walked slowly and above habitats scanned using 10x45 binoculars any reptile observed were captured. In addition any discarded debris that appeared suitable for use by reptiles was hand searched and any species found captured for release at a previously identified receiver site outside the development footprint.

3.3 Artificial Refuges

Reptile will readily use artificial refuges under which to shelter or bask. These artificial refuges can be very effective in the capturing of reptiles as the animals are often attracted to the refuges from surrounding habitats thereby increasing the success rate of a reptile translocation. Various materials have proved successful for use as artificial refuges including corrugated tin, wood, carpet tiles and roofing felt.

A total of one hundred and twenty five refuga of 0.5m x 1m square heavy duty roofing felt were positioned around the site at locations where the habitat was considered suitable for reptiles. These were left in situ for one week prior to the survey commencing.

Each of the artificial refuges was checked on thirty seven consecutive visits to the survey site. All reptile and amphibian species found were collected for release outside the development footprint.

4 Translocation Period

The translocation programme commenced on 15th September 2012 and continued for an initial period of thirty days. No reptile species were caught after day twenty nine of the programme. A small number of amphibian species namely common toad and common frog were still being captured at the end of this thirty day period and therefore the translocation continued for a further seven days in order to maximise the number of animals rescued. No animals were captured after day thirty two. The final inspection of the refuga was undertaken on 21st October 2012.

4.1 Capture and Release

Each animal caught was placed in a suitable container and removed immediately to suitable habitat outside the development footprint and behind the previously installed reptile exclusion fencing. All animals were released within 30 minutes of capture and no animals were transported away from the site.

The total number of animals captured and moved outside the development footprint is shown in table 1.

4.2 Completion of Reptile Clearance (Within current Exclusion Fencing)

No reptile or amphibian species were recorded after 16th October 2012, day thirty two of the programme, and the site was considered clear for development on 21st October 2012 following five consecutive survey visits with no further animals having being found.

Table 1 Site Visits Dates/ Times and Species Captured

Visit	Date	Time	Adder	Grass Snake	Sow Worm	Common Lizard	Common Toad	Common Frog	Palmate Newt
1	15/09	09.30	0	0	2	2	9	5	0
2	16/09	09.30	0	0	2	1	10	4	0
3	17/09	09.15	0	1	2	1	10	5	0
4	18/09	09.25	0	0	3	2	12	6	0
5	19/09	09.10	0	1	2	1	5	4	1
6	20/09	09.25	0	0	2	1	9	2	2
7	21/09	09.30	0	0	2	1	10	3	1
8	22/09	08.40	0	0	1	0	9	4	2
9	23/09	18.00	0	0	1	0	8	3	1
10	24/09	08.45	0	0	1	1	8	3	0
11	25/09	15.00	0	0	1	1	5	2	0
12	26/09	09.50	0	1	2	2	10	5	1
13	27/09	10.00	0	0	0	0	2	2	2
14	28/09	11.00	0	0	1	0	7	2	1
15	29/09	15.30	0	0	1	0	5	2	1
16	30/09	15.00	0	0	1	0	8	2	1
17	1/10	15.00	0	0	0	0	9	3	1
18	2/10	10.30	0	0	0	0	5	4	1
19	3/10	09.30	0	0	0	1	4	2	0
20	4/10	09.55	0	0	1	1	3	2	0
21	5/10	10.30	0	0	1	0	2	1	0
22	6/10	11.00	0	0	1	0	1	1	0
23	7/10	15.00	0	0	1	1	1	2	0
24	8/10	15.00	0	1	0	0	1	1	1
25	9/10	09.45	0	0	0	0	2	1	1
26	10/10	16.00	0	0	0	0	1	0	1

27	11/10	16.30	0	0	1	1	1	0	0
28	12/10	10.00	0	0	0	0	1	1	0
29	13/10	09.30	0	0	1	0	1	0	0
30	14/10	15.00	0	0	0	0	1	2	0
31	15/10	10.50	0	0	0	0	1	0	0
32	16/10	09.20	0	0	0	0	0	1	0
33	17/10	16.00	0	0	0	0	0	0	0
34	18/10	15.00	0	0	0	0	0	0	0
35	19/10	09.50	0	0	0	0	0	0	0
36	20/10	10.00	0	0	0	0	0	0	0
37	21/10	10.45	0	0	0	0	0	0	0
Total			0	4	30	17	161	75	18

References

Gent, T. & Gibson, S. (1999). Herpetofauna workers manual. Joint Nature Conservation Committee

APPENDIX B

OTTER AND REPTILE FENCING SPECIFICATION

OTTER FENCING

Technical specification document

TORNADO®

TORNADO OTTER FENCING

The Specialist Anglers Alliance (SAA) has commissioned the Forestry Research and the Otter Consultancy to establish the most cost effective solution for excluding otters out of fisheries. This report was funded by the Environment Agency and the proposed fencing would need to be unobtrusive and designed to suit a variety of situations and ground conditions. Comprehensive tests were conducted at an otter sanctuary using different types of fencing. The research concluded a permanent wire mesh fence would provide the best solution, requiring very little maintenance throughout its lifespan. The full report can be viewed on the SSA Website at www.ssauk.org.

Overview

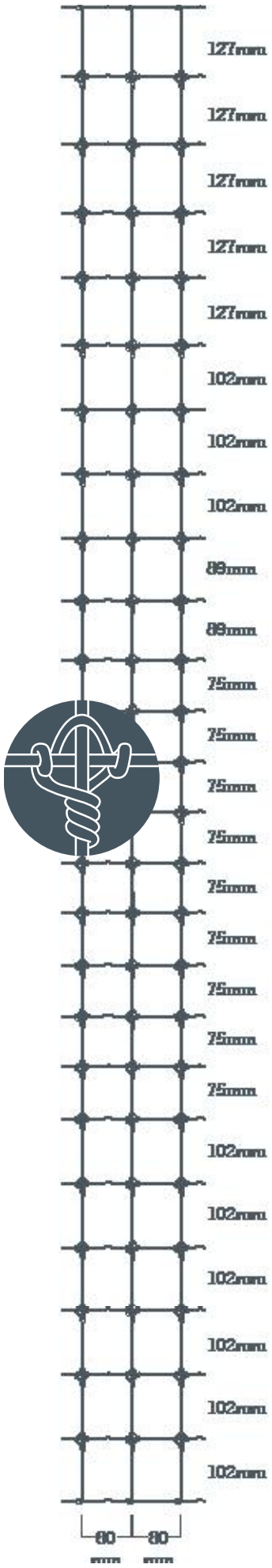
Tornado have been manufacturing and supplying wire mesh fencing for over 30 years. From our manufacturing plant in Cumbria we are able to offer an extensive range of products suitable for exclusion and enclosure of a large variety of animals. Tornados' products are used extensively by the Forestry Commission and the Highways Agency, and can be seen on many of Britain's motorways, highways, woodlands and watercourses. The fencing guidelines, as detailed below, are based on the findings of the aforementioned report.

Netting recommendation

Tornado Titan T26/242/8 has been designed with optimum line wire spacing to provide adequate protection, yet remain as cost effective as possible Nets with a 76mm apertures throughout are also available if required to a maximum height of 1900mm.

T	26	242	8
Titan Knot	Number of line wires	Height (cm)	Vertical wire spacings (cm)

T26/242/8

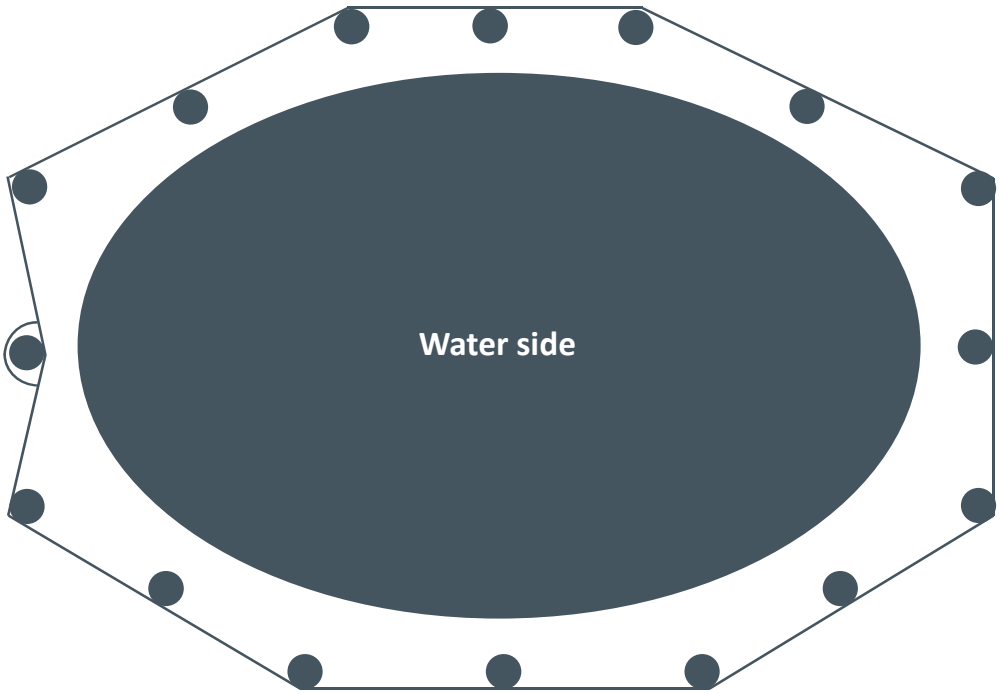


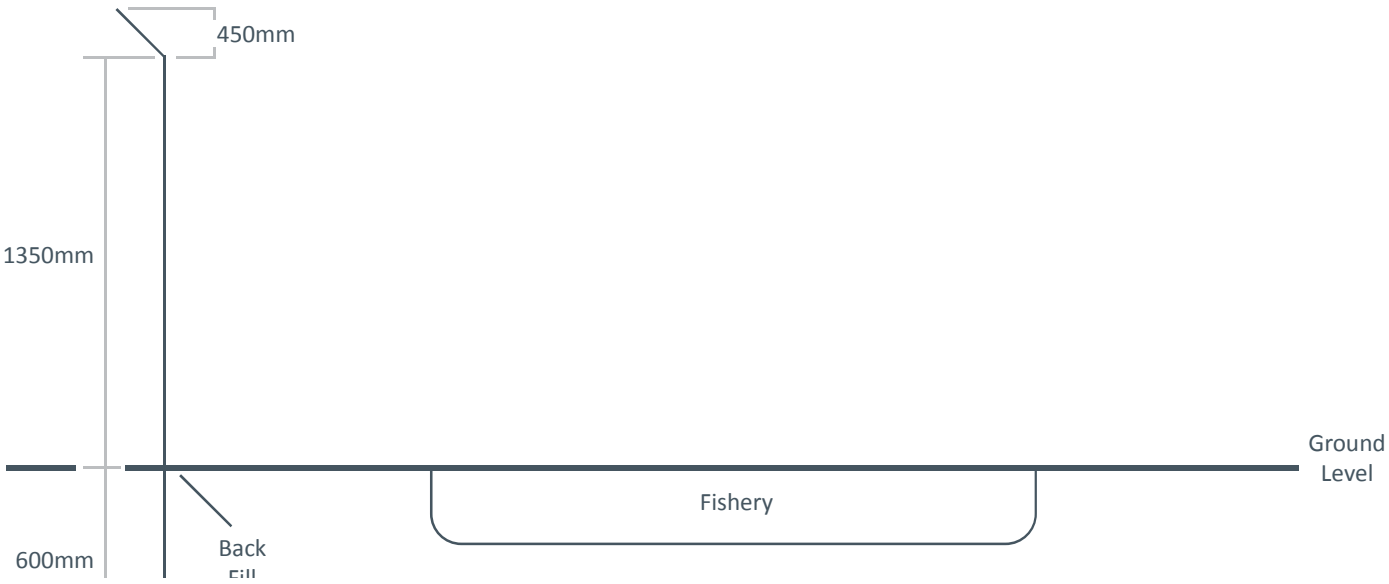
Typical Layout

Otters are excellent at both digging and climbing, so it is important to bury the netting underground #, and install a crank (turnout) at the top of the fence. A typical installation would see 600mm of fencing embedded underground, 1500mm above ground, and a 300mm crank. The wire should be erected on the side of the posts where the otters will apply pressure, if possible. Posts, struts and all braces should be installed waterside to prevent the Otters climbing them to gain access to the watercourse. If fencing around external corners, or where the turning posts need to be on the Otter side, an additional piece of netting should be attached to cover the exposed timber assembly.

If ground conditions make it impractical to bury the netting, turning it out and pegging it down is a viable alternative.

Note: Additional netting erected around post to prevent Otters climbing.





The following specifications are based on average ground conditions, however two key points should be taken into consideration.

Ground conditions

In soft ground the posts should be increased in length. Breast / heal pieces should also be increased in size to help prevent the straining posts moving. In hard / rocky ground the posts can be reduced in length and breast / heal pieces may not be necessary.

Livestock pressure

In areas of high animal pressure it is recommended that posts are placed closer together. In low pressure areas the posts can be placed up to 6m apart.

ERECTING THE FENCE

Trench

A trench should be dug to allow the bottom 600mm of the fence to be buried. This is often easier to do prior to installing the fence posts.

Straining posts

These should be approximately the height of the vertical section of netting above ground, and half of the embedded section (1800mm), plus a minimum of 1200mm. They should be dug or driven into the ground leaving the height of the netting plus 50mm (If the posts are being dug into the ground breast / heal pieces should be attached to give added support).

It is essential that these are securely fixed as they have to carry all the tension of the fence. Similarly, turning posts should be used at any major changes in direction. Slightly smaller posts can be used depending on the severity of the turn. Struts should be used to support the straining posts. Struts should be morticed into the strainer about 1/2 way up the post, (above ground) in the direction of the strain, making sure it is positioned to miss the horizontal straining wires of the fence. Alternatively, a second straining post can be erected approx 3m in front of the main straining post and a brace fitted between them. A diagonal wire is then attached, creating what is known as 'box strainer'.

The box strainer puts less pressure on the straining posts and can be particularly useful in rocky ground, when it is difficult to get a post in to the required depth, or when the ground is soft, helping to prevent the straining posts lifting out.

Straining posts should be erected at all terminations of the fence, any major change in direction, or 200m apart on long straight runs.

Intermediate posts

Run a 2.5mm high tensile wire between the straining posts and tension it. This creates a straight line and helps place the intermediate posts in the correct position. The line will also emphasize any undulations in the fence line. Intermediate posts should be dug / knocked in at up to 6m spacings. Posts should be positioned at the top and bottom of any high/low points allowing the finished fence to flow. All other intermediate posts should be positioned using the high tensile wire as a guide. The high tensile wire can be left in situ or removed and used again.

Cranks

Galvanized cranked extension brackets are available, these are pre-drilled to take support wires and fixings. Cranks should be installed facing the Otter side of the fence and fixed using suitable coach bolts. Run additional 2.5mm high tensile wires along the cranked extensions (These are required to help support the Otter netting once installed).

Roll out the fencing, laying it into the trench as you go, and tie off at each end using knots or suitable connectors. The section of fencing below ground level and the section over the cranked brackets do not need to be tied off as these are not tensioned. Attach the straining clamps (making sure the bolts are tight) close to the centre of the section to be strained. The clamps should be placed approximately 2.0m apart for a 100m section of fence. If more than two rolls are required, rolls can be joined together using suitable joiners or knots. Allow an additional 15cm between the straining clamps per 10m to be strained. Connect three boundary strainers, top, centre and bottom, to the straining clamps making sure the chains are not twisted.

Using the boundary strainers, gradually pull the straining clamps together until the fence is tight. All Tornado fences are manufactured using high tensile line wires and feature tension crimps, these crimps allow the fence to be erected tighter than traditional mild steel fencing. As a rough guide, the crimp should be reduced by about 50% when the fencing is erected.

Joining the netting

Cut the netting midway between the straining clamps, allowing enough wire for joining. Join the nets together, starting from the bottom, whilst removing as much slack wire as possible. Remove the boundary strainers and the straining clamps.

Stapling the netting to the posts

Use 40 x 4mm barbed staples when attaching the netting to the intermediate posts. The staple should be placed across the horizontal wires of the netting at an angle, this will help prevent the staples splitting the posts. The barbs will also prevent the staples pulling out. The staple should not be driven hard into the post.

Attaching the fencing to the crank

The Otter fencing should be attached to the line wires previously installed on the cranked brackets.

Trench

The trench can now be back filled.

Gateways

We would strongly recommend using Tornado Otter gates which are manufactured from galvanized steel and clad with 75mm x 75mm welded mesh. When installing the gates we recommended they are 'centre hung' (hung between the fence posts) making sure no gap greater than 50mm is left between the gate and the gate posts. This will enable the gate to open inwards up to 90 degree without the crank fouling on the posts. A 200 x 50mm timber lintel should also be dug in under the gate at ground level to prevent burrowing.

Wire specifications

Tornado T26/242/8 (50mtr roll length)
2.5mm HT coiled wire x 25kg (650 mtr)
40 x 4mm Barbed staples x 20kg buckets (120 staples per Kg)

Timber specifications

Straining posts: 3.0m long x 15-20cm in diameter.
Struts / box strainer brace: 3.0m long x 7.5cm-10cm in diameter.
Intermediate posts: 2.4m long x 7.5cm-10cm in diameter.

These guidelines are subject to local variations in fencing techniques and ground conditions.

Gripple T-Clip

Gripple Plus

Gripple Contractor Tool

Side Cutting Plier

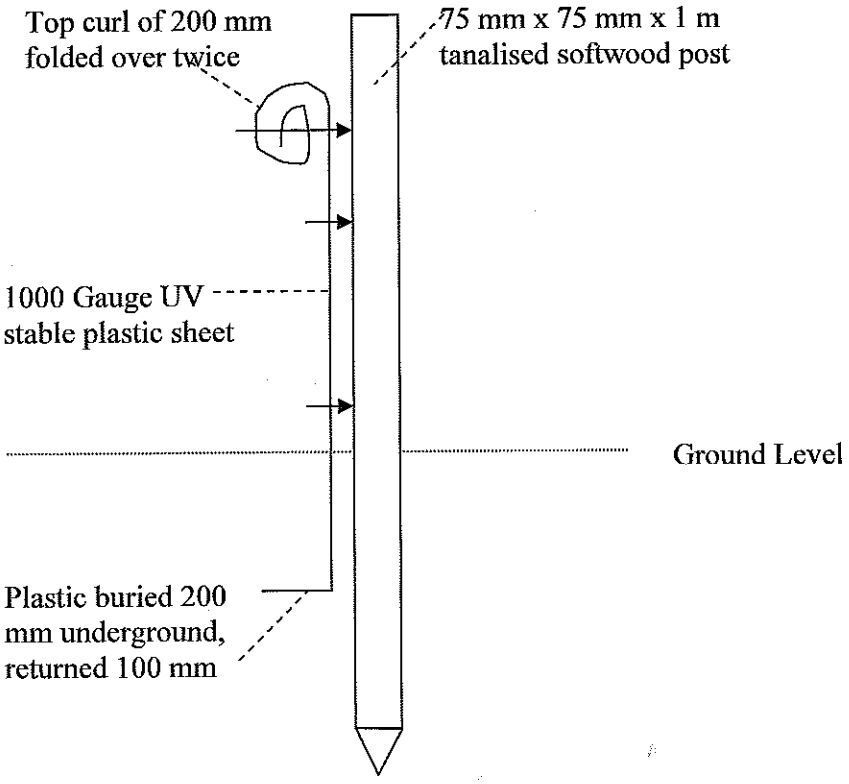
Ezepull Tool

Boundary Strainer

Wire Strainer

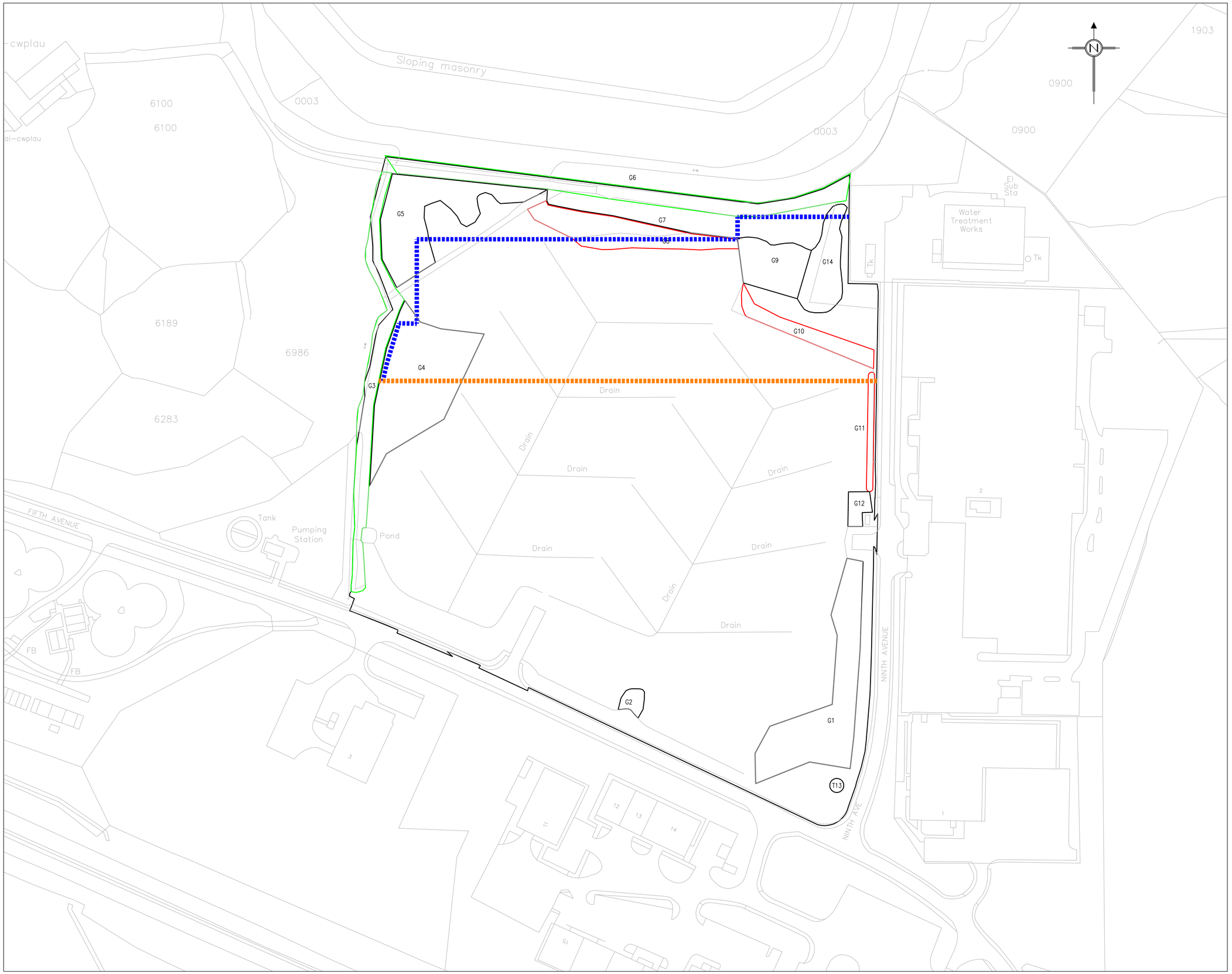
Pro Clamp

Joining Sleeves


Top curl of 200 mm
folded over twice
75 mm x 75 mm x 1 m
tanalised softwood post
1000 Gauge UV
stable plastic sheet
Ground Level
Plastic buried 200
mm underground,
returned 100 mm

APPENDIX C

DRAFT TREE PROTECTION PLAN



LOCATION PLAN
SCALE 1:1000

NOTES:

1. THIS DRAWING IS A REVISION OF DRAWING D57006V002.

KEY:

- SITE BOUNDARY
- T8 CATERGORY A
- T1 CATERGORY B
- T9 CATERGORY C
- T3 CATERGORY U

T = SINGLE TREE
G = GROUP OF TREES
X = TREE REMOVED

- PROTECTIVE FENCE PHASE 2
- PROTECTIVE FENCE PHASE 1

REV	DESCRIPTION	DRN	DES	CHK	APP	DATE
B	FENCES UPDATED	ICM	PF	SH	SH	29.01.15
A	INITIAL ISSUE	PND	PND	SH	SH	10.12.12

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P.F. Project Nr: E57006

Client: enviroparks reuse, recycle & recover

Client Project Nr: –

Client Project Title: –

Project: HIRWAUN ENVIROPARK

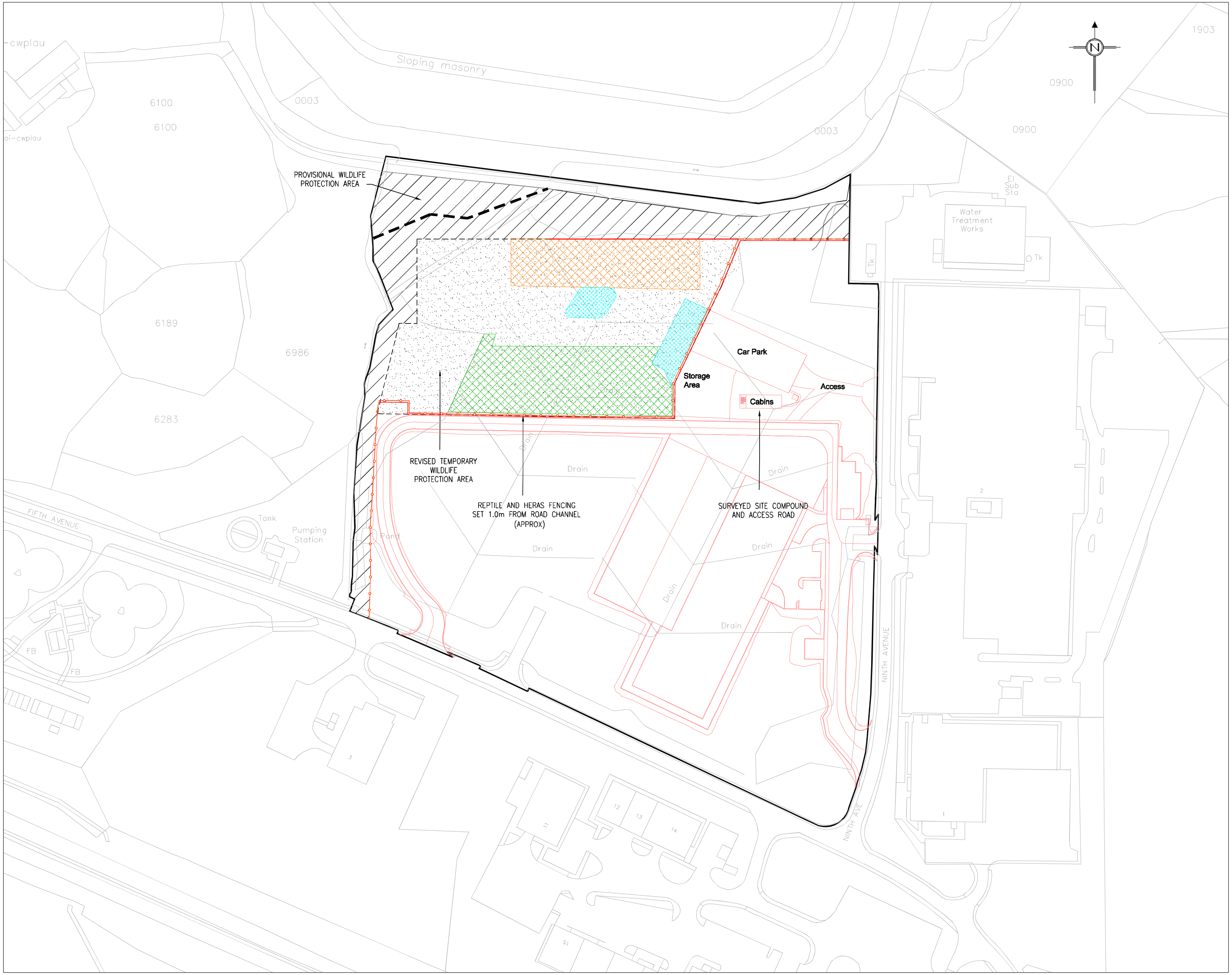
Drawing Title: DRAFT TREE PROTECTION PLAN

	Name	Date
Drawn	ICM	29.01.15
Designed	PF	29.01.15
Checked	SH	29.01.15
Approved	SH	29.01.15

Scale: 1:1000 | Size: A1
File No.: D57006V102.dwg
Drawing Status: PRELIMINARY
Drawing No.: D57006V102 | Revision: B

APPENDIX D

WILDLIFE PROTECTION AREA PLAN



LOCATION PLAN

SCALE 1:1000

NOTES:

1. THIS DRAWING IS A REVISION OF DRAWING D57006V003.

KEY:

- SITE BOUNDARY
- PROVISIONAL WILDLIFE PROTECTION AREA
- REVISED TEMPORARY WILDLIFE PROTECTION AREA
- STREAM RE-ALIGNMENT
- HERAS FENCE (TO BE ERECTED PRIOR TO PHASE 2 COMMENCEMENT)
- REPTILE FENCE
- AREA FOR GRASS CUTTING
- AREA FOR SEEDING (BUND AREA)
- AREA FOR SEEDING (FORMER HARDCORE)

REV	DESCRIPTION	DRN	DES	CHK	APP	DATE
D	AMENDMENTS TO NOTES	PND	STH	CMG	STH	05.10.16
C	MINOR AMENDMENTS	PND	STH	CMG	STH	03.10.16
B	CLIENTS COMMENTS	RE	RE	CG	SH	11.07.16
A	INITIAL ISSUE					04.07.16

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P.F. Project Nr: E57006

Client: enviroparks reuse, recycle recover

Client Project Nr: –

Client Project Title: –

Project: HIRWAUN ENVIROPARKS

Drawing Title: REVISED WILDLIFE PROTECTION AREAS

	Name	Date
Drawn	PND	05.10.16
Designed	STH	05.10.16
Checked	CMG	05.10.16
Approved	STH	05.10.16

Scale: 1:1000 — Size: A1

File No.: D57006V104.dwg

Drawing Status: PLANNING

Drawing No.: D57006V104 — Revision: D

APPENDIX E

LANDSCAPE STRATEGY PLAN

PLANTING SCHEME FOR ZONE A (MAIN SITE ENTRANCE)

- This site landscape zone, which forms the setting for the main site entrance, has a more ornamental and conventional proposed landscape treatment than Zone B and Zone C.

Tree Planting

- This planting will be comprised of multi-stemmed and feathered broadleaved specimen trees, and specimen pines planted for highlight effects.
- Multi-stemmed trees planted for highlight effects will be of the following species:

Betula pendula
Sorbus aucuparia

- Multi-stemmed trees will be supplied rootballed, to a height of between 2 and 3 metres.
- Feathered trees to form the main elements of the structural landscape framework will be of the following species:

Betula pendula
Quercus petraea
Sorbus aucuparia

- Feathered trees to be supplied as bare-rooted, to a height of between 1-2 and 2-5 metres.
- Specimen pines for planting highlight effects to be:

Pinus sylvestris

- All specimen pines to be supplied as rootballed trees, 2-2.5 metres high.
- Each tree will be pit-planted into a mixture of imported topsoil and tree-planting compost, 50% by volume. Completed planting pits will be mulched to a depth of 75mm with green compost complying with BSI PAS 100.
- All feathered trees and pines will be supported by a single short peeled larch stake driven at an angle, so as to support the tree against the prevailing wind, and secured by a single tie.

Structural Shrub Planting

- This planting is designed to provide separation of the main site access approach road from the adjacent service road.
- The shrub species to be planted will be:

Cornus alba 'Sibirica'
Cornus 'Midwinter Fire'
Corylus avellana
Frangula alnus
Ilex aquifolium
Viburnum opulus

- All shrubs to be supplied as bare-rooted transplants 45-60cms high; except for *Ilex aquifolium*, to be supplied as 60-80cms high container-grown plants in 4-litre pots.
- All shrubs to be planted into prepared topsoil planting beds 450mm deep. Prior to planting, all shrub planting areas are to be spread to a depth of 50mm with a layer of green compost complying with BSI PAS 100 and incorporated into the soil by rotavating. Completed planting areas will be mulched to a depth of 75mm with the same type of green compost.

Ground Cover Planting

- This type of planting, consisting of shrubs and herbaceous plants, will be used beneath specimen trees and at car park edges close to the main entrance.
- Species will include:

Cotoneaster conspicuous 'Decorus'
Geranium 'Blokovo'
Prunus 'Otto Luyken'
Viburnum davidii

- All plants to be supplied in 3-litre pots.
- All plants to be planted into prepared topsoil planting beds 450mm deep. Prior to planting, all ground cover planting areas are to be spread to a depth of 50mm with a layer of green compost complying with BSI PAS 100 and incorporated into the soil by rotavating. Completed planting areas will be mulched to a depth of 75mm with the same type of green compost.

Hedgerow to Car Park Perimeter

- Single species hedgerow comprised of a double staggered row of bare-rooted transplants 60-90cms high, planted at 200mm centres; planted into a prepared trench 600mm wide and 450mm deep, back-filled with a mixture of topsoil and tree planting compost, 50% by volume. All plants to be:

Fagus sylvatica

- Completed planting trench to be mulched to a depth of 75mm with green compost complying with BSI PAS 100.

PLANTING SCHEME FOR ZONE B (FIFTH AVENUE SITE FRONTAGE)

- This landscape zone provides a more naturalistic frontage to Fifth Avenue, strongly based upon the edges of the drainage swales and attenuation ponds. No tree planting is proposed for the southern side of the attenuation ponds and drainage swale, in view of the requirement to maintain open habitats for reptile and butterfly conservation. These areas form a large part of the 'Restored Habitat Area' proposed as part of the discharge of planning conditions relating to biodiversity *(refer to 'Wildlife Protection Plan' document, by Pell Frischmann)*.
- The planting scheme here will be comprised of feathered broadleaved specimen trees to form the main vertical elements of the structural landscape framework; these will be of the following species:

Alnus glutinosa
Betula pendula
Betula pubescens
Populus tremula
Quercus petraea
Sorbus aucuparia

- All plants to be supplied as feathered trees, bare-rooted, to a height of between 1-2 and 2-5 metres.
- Each tree will be pit-planted into a mixture of imported topsoil and tree-planting compost, 50% by volume. Completed planting pits will be mulched to a depth of 75mm with green compost complying with BSI PAS 100.
- All feathered trees will be supported by a single short peeled-larch stake, driven at an angle so as to support the tree against the prevailing wind, and secured by a single tie.

PLANTING SCHEME FOR ZONE C (NORTH-EASTERN SITE BOUNDARY)

- This site landscape zone forms a naturalistic linear boundary treatment to separate the site from the adjacent commercial premises. This planting will be comprised of feathered broadleaved trees to form the structural landscape framework; these will be comprised of the following species:

Betula pendula
Quercus petraea
Sorbus aucuparia

- All plants to be supplied as feathered trees, bare-rooted, to a height of between 1-2 and 2-5 metres.
- Each tree will be pit-planted into a mixture of imported topsoil and tree-planting compost, 50% by volume. Completed planting pits will be mulched to a depth of 75mm with green compost complying with BSI PAS 100.
- All feathered trees will be supported by a single short peeled-larch stake, driven at an angle so as to support the tree against the prevailing wind, and secured by a single tie.

LANDSCAPE TREATMENT FOR SURFACE WATER ATTENUATION PONDS AND DRAINAGE SWALE - ZONE A (MAIN SITE ENTRANCE) AND ZONE B (FIFTH AVENUE SITE FRONTAGE)

- These areas form a large part of the 'Restored Habitat Area' proposed as part of the discharge of planning conditions relating to biodiversity *(refer to 'Wildlife Protection Plan' document, by Pell Frischmann)*.
- Finished attenuation pond and drainage swale subsoil profiles (bases and banks) to be treated by spreading a layer of seed-rich vegetable soil 50mm deep, to be sourced by stripping from the upper 50-75mm of the existing site, so as to provide a basis for the natural regeneration of species-diverse grassland appropriate to the locality.
- Soil conditioner to be a proprietary green compost made from recycled plant waste to meet the requirements of BSI PAS 100: 2011. *Specification for composted materials* . British Standards Institute (PAS 100); to be applied as a 25mm deep layer to the prepared reclaimed soil surface and incorporated to a depth of 100mm using a rotavator prior to over-seeding.
- Finished surfaces to be over-seeded with a fescue-based grassland seed mix: Low Maintenance Mixture 'A4' by *Germinal GB*; sown at 15gms/m2. No pre-seeding fertiliser to be applied.
- Following germination and completion of the first establishment mowing operations, the sward is to be inoculated with the following native wildflower species, so as to provide larval food plants for Marsh Fritillary butterflies:

Succisa pratensis

- All plants to be supplied as plug plants of Welsh native origin, between 55cc and 110cc in volume; planted by hand at 5 plants/m2 into the finished substrate surface.

NATIVE WILDFLOWER PLUG PLANTING FOR ATTENUATION POND AND DRAINAGE SWALE ENHANCEMENT - ZONE A - MAIN SITE ENTRANCE

- Native wildflower plants to form areas of supplementary planting in the base of the attenuation pond and the drainage swale at its eastern end, for enhanced visual effect and to provide additional invertebrate nectar sources/larval food plant material. Species to include:

Cardamine pratensis
Filipendula ulmaria
Lotus pedunculatus
Lychnis flos-cuculi
Pulicaria dysenterica
Ranunculus flammula

- All plants to be of Welsh native origin, supplied as plug plants between 55cc and 110cc in volume; planted at 5-10 plants/m2 into the finished substrate surface. In single-species groups of between 5 and 20 Nr.
- Additional planting in groups of between 5 and 20 Nr of the following species:

Iris pseudacorus

- All plants to be of Welsh native origin, supplied as container-grown plants in 2-litre containers; planted at 5-10 plants/m2 into the finished substrate surface.

MEADOW GRASSLAND SWARDS - ZONES A (MAIN SITE ENTRANCE), B (FIFTH AVENUE SITE FRONTAGE) & C (NORTH-EASTERN SITE BOUNDARY)

- For all meadow grassland areas beyond the attenuation ponds and the drainage swale. These areas are to be sown onto the prepared substrate of 100mm deep imported topsoil.
- Finished ground surface to be seeded with a fescue-based grassland seed mix: Low Maintenance Mixture 'A4' by *Germinal GB*; sown at 25gms/m2. No pre-seeding fertiliser to be applied.

NATIVE WILDFLOWER PLUG PLANTING FOR MEADOW GRASSLAND SWARD ENHANCEMENT - ZONES A, B & C

- For all meadow grassland areas other than within the attenuation ponds and the drainage swale.
- Following successful germination and the completion of the first establishment mowing operations, all meadow grassland swards are to be inoculated with the following native wildflower species, planted in discrete areas, so as to achieve 20% cover by area of the total grassland sward:

Centaurea nigra
Lotus corniculatus
Primula vulgaris
Succisa pratensis

- All plants to be of Welsh native origin, supplied as plug plants between 55cc and 110cc in volume; planted by hand in single-species groups at 5 plants/m2 into the finished substrate surface.

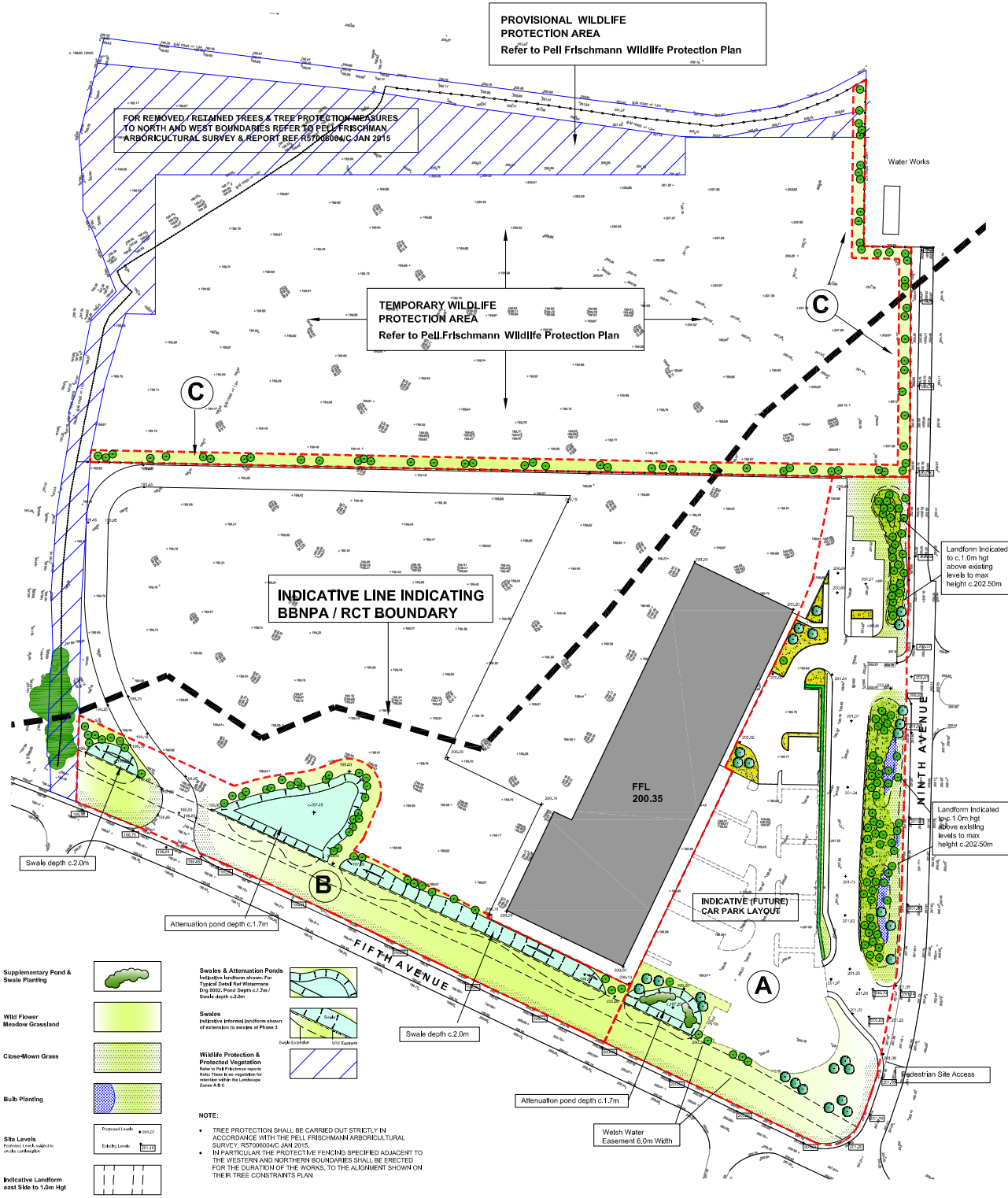
CLOSE-MOWN GRASSLAND SWARDS - ZONES A & B

- These areas are to be sown onto the prepared substrate of 100mm deep imported topsoil.
- Finished ground surface to be seeded with a fescue-based grassland seed mix: Low Maintenance Mixture 'A4' by *Germinal GB*; sown at 25gms/m2. No pre-seeding fertiliser to be applied.

BULB PLANTING INTO CLOSE-MOWN GRASSLAND SWARDS - ZONE A

- Supplied as 'top size' and planted for a naturalised effect in grass swards under trees, at the rate of 75 bulbs per m2. All bulbs to be:

Narcissus pseudonarcissus



KEY

Landscape Zones
Multi-Stemmed Specimen Trees
Feathered Trees
Beech Hedge
Structural Shrubs
Groundcover Planting
Supplementary Pond & Swale Planting
Wild Flower Meadow Grassland
Close-Mown Grass
Bulb Planting
Site Levels
Indicative Landform east Side to 1.0m Hgt
Swales & Attenuation Ponds
Swales
Wildlife Protection & Protected Vegetation

NOTE:

- TREE PROTECTION SHALL BE CARRIED OUT STRICTLY IN ACCORDANCE WITH THE PELL FRISCHMANN ARBORICULTURAL SURVEY, R5700004/C JAN 2015.
- IN PARTICULAR THE PROTECTIVE FENCING SPECIFIED ADJACENT TO THE WESTERN AND NORTHERN BOUNDARIES SHALL BE ERECTED FOR THE DURATION OF THE WORKS, TO THE ALIGNMENT SHOWN ON THEIR TREE CONSTRAINTS PLAN

MANAGEMENT NOTES

- Contractual establishment maintenance will apply to all site areas for a period of not less than 5 years from the date of completion of all planting and seeding works.

Zone A - Main Site Entrance

Establishment Maintenance

- Formative pruning of specimen trees to be undertaken annually.
- All tree supporting stakes and ties to be inspected twice annually and replaced if defective. All tree stakes to be removed at the end of 3 years of establishment.
- Hedgerow to be clipped once annually in September.
- Weed control to all tree bases and planted areas by application of *glyphosate* translocated herbicide to control perennial weeds, using controlled-droplet application methods: 3 Nr applications per growing season.
- Close-mown grass to be mown to a height of 25mm and cuttings dispersed evenly across the sward 12-14 times per year. Bulb areas in mown grass to be left until top growth has died-back in late spring; then mown to 25mm high and all arisings removed from site; mown to 25mm thereafter and cuttings dispersed evenly across the sward.
- Selective mowing of attenuation pond and swale grassland sward to be linked to monitoring of sward development for Marsh Fritillary butterfly conservation.
- Periodic control of growth of pernicious perennial weeds and growth of soft rush and compact rush by spot-treatment with *glyphosate* translocated herbicide, using controlled-droplet application methods or weed-wiper.

Post-Establishment Maintenance & Management

- Hedgerow to be clipped once annually in September.
- Meadow grassland areas to be mown to a height of 50mm and the cuttings removed from the site, in late April and mid-September.
- Attenuation pond grassland sward to be cut selectively, in response to the monitoring of butterfly habitat development, with differential mowing of areas to safeguard larval feeding on *Succisa pratensis* plants. The attenuation pond and its immediate vicinity form part of the 'Restored Habitat Area' proposed as part of the discharge of planning conditions relating to biodiversity *(refer to 'Wildlife Protection Plan' document, by Pell Frischmann)*.
- Periodic control of pernicious perennial weeds and rush growth by spot-treatment with *glyphosate* translocated herbicide, using controlled-droplet application methods or weed-wiper.
- Close-mown grass to be mown to a height of 25mm and cuttings dispersed evenly across the sward 12-14 times per year. Bulb areas in mown grass to be left until top growth has died-back in late spring; then mown to 25mm high and all arisings removed from site; mown to 25mm thereafter and cuttings dispersed evenly across the sward.

Zone B - Fifth Avenue Frontage

Establishment Maintenance

- Zone B forms a large part of the 'Restored Habitat Area' proposed as part of the discharge of planning conditions ecology relating to biodiversity *(refer to 'Wildlife Protection Plan' document, by Pell Frischmann)*.
- Formative pruning of specimen trees to be undertaken annually.
- All tree supporting stakes and ties to be inspected twice annually and replaced if defective. All tree stakes to be removed at the end of 3 years of establishment.
- Weed control to all tree bases by application of *glyphosate* translocated herbicide to control perennial weeds, using controlled-droplet application methods: 3 Nr applications per growing season.
- Close-mown grass to be mown to a height of 25mm and cuttings dispersed evenly across the sward 12-14 times per year.
- Mowing of attenuation pond and swale grassland sward to be linked to monitoring of sward development for Marsh Fritillary butterfly conservation. Periodic control growth of soft rush and compact rush by spot-treatment with *glyphosate* translocated herbicide, using controlled-droplet application methods or weed-wiper.

Post-Establishment Maintenance & Management

- Meadow grassland areas to be mown to a height of 50mm and the cuttings removed from the site, in late April and mid-September.
- Attenuation pond sward to be cut selectively, in response to monitoring of butterfly habitat development, with differential mowing of areas to safeguard larval feeding on *Succisa pratensis* plants.
- Periodic control of growth of rush growth and pernicious perennial weeds by spot-treatment with *glyphosate* translocated herbicide, using controlled-droplet application methods or weed-wiper.
- Close-mown grass to be mown to a height of 25mm and cuttings dispersed evenly across the sward 12-14 times per year.

Zone C - North-Eastern Site Boundary

Establishment Maintenance

- Formative pruning of specimen trees to be undertaken annually.
- All tree supporting stakes and ties to be inspected twice annually and replaced if defective. All tree stakes to be removed at the end of 3 years of establishment.
- Weed control to all tree bases and the grassland sward, by application of *glyphosate* translocated herbicide to control perennial weeds, using controlled-droplet application methods or weed wipers: 3 Nr applications per growing season.
- Meadow grassland to be mown to a height of 50mm twice annually, in late April and in mid-September and all arisings removed from site.#

Post-Establishment Maintenance & Management

- Meadow grassland areas to be mown to a height of 50mm, twice annually, in late April and mid-September, and all arisings removed from site.
- Periodic control of growth of pernicious perennial weeds by spot-treatment with *glyphosate* translocated herbicide, using controlled-droplet application methods or weed-wiper.

Issue 1: Feb 2015 - FOR PLANNING

ANTHONY JELLARD ASSOCIATES
LANDSCAPE ARCHITECTURE * LANDSCAPE PLANNING * URBAN DESIGN

Client	Dawnus Construction Ltd		
Project	Enviroparks, Hirwaun		
Drg Title	Landscape Strategy Plan		
Date	February 2015		
Scale	500 @ A0 / Refer to Bar Scale		
Drg.Nr.	AJA.2341-02	**Author:** JC/RKR	**Issue:** 01

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APPENDIX F

2014 REPTILE TRANSLOCATION UPDATE

Table 1 Results of Hirwaun Europarks Reptile Translocation Programme September-October 2014

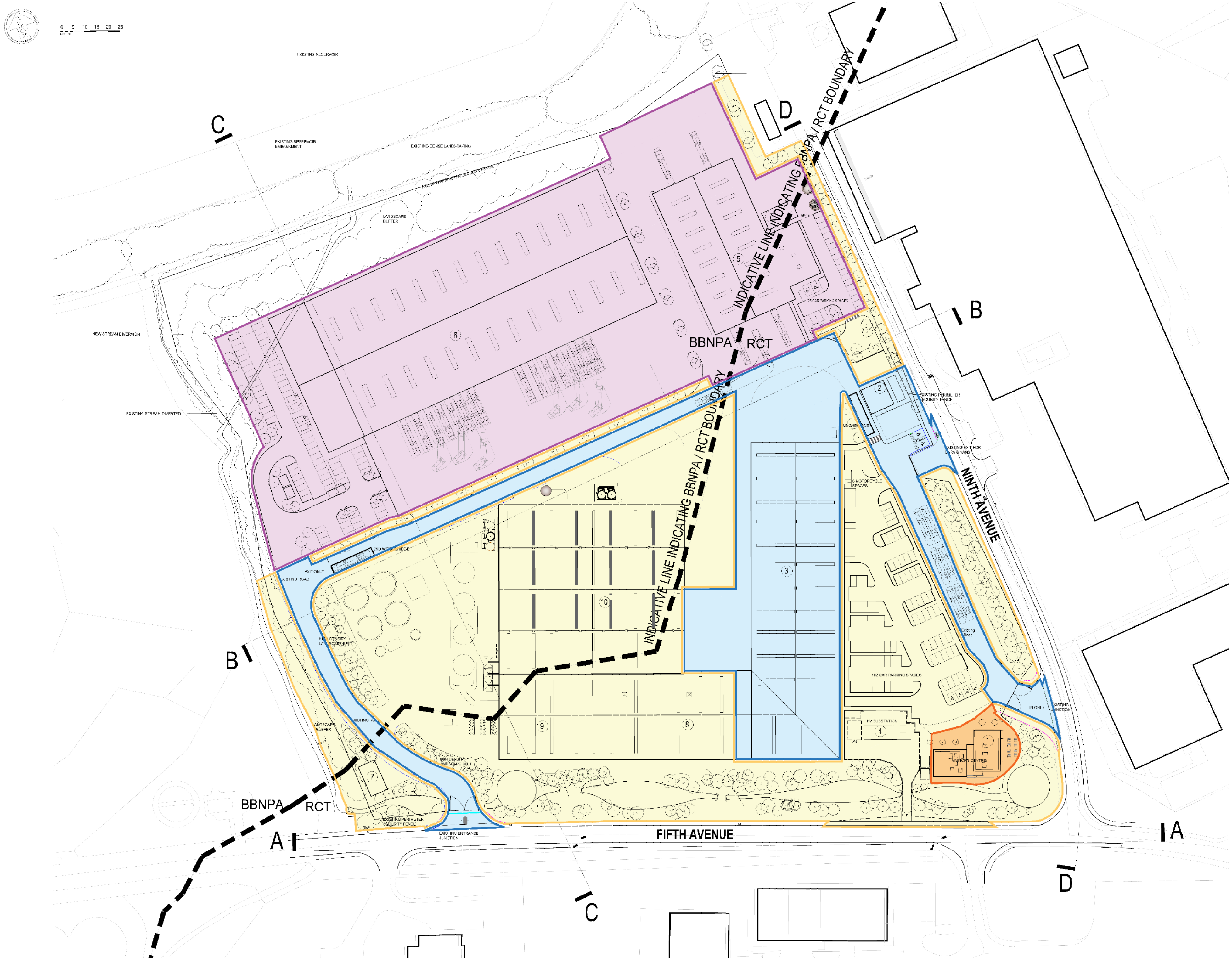
Visit		Adder	Grass Snake	Common Lizard	Slow Worm	Common Toad	Common Frog	Newt Species
1	8/09/2014	0	0	1Female	0	27	6	0
2	9/09/2014	0	0	0	0	15	4	0
3	10/09/2014	0	0	0	0	11	3	0
4	11/09/2014	0	0	1 Female	0	9	6	0
5	12/09/2014	0	0	0	0	7	2	0
6	13/09/2014	0	1 outside fence	1 Male	1Juv	11	5	0
7	14/09/2014	0	0	0	0	9	6	0
8	15/09/2014	0	0	0	0	8	2	0
9	16/09/2014	0	0	1 Female	1 Juv	6	2	0
10	17/09/2014	Not Checked	-	-	-	-	-	0
11	18/09/2014	1	0	0	2 Female	6	1	Palmate Male
12	19/09/2014	0	0	0	0	10	3	0
13	20/09/2014	0	1 small adult	1 Male	0	3	3	0
14	21/09/2014	0	0	0	1 Female	4	1	0
15	22/09/2014	0	0	0	0	3	2	0
16	23/09/2014	0	0	0	2 Male & Female	3	5	0
17	24/09/2014	0	0	0	1Female	7	1	Palmate Female
18	25/09/2014	0	0	0	0	1	2	0
19	26/09/2014	0	0	1 Male	0	4	1	0
20	27/09/2014	0	0	1 Juv	1 Juv	8	3	0
21	28/09/2014	0	0	0	0	6	5	Palmate Female x 2
22	29/09/2014	0	1 Young	0	1 Male	9	1	0
23	30/09/2014	0	0	1 Juv	2 Female	2	2	0

24	1/10/2014	0	0	0	1 Female	2	0	0
25	2/10/2014	0	0	0	1 Female	4	1	0
26	3/10/2014	0	0	0	0	2	1	0
27	4/10/2014	0	0	0	1 Female	3	2	Palmate Male
28	5/10/2014	0	0	0	0	3	3	0
29	6/10/2014	0	1 Large Adult	1 Female	0	3	3	0
30	7/10/2014	0	0	1 Male	0	1	3	0
31	8/10/2014	0	0	1Male	1 Male	2	1	0
32	9/10/2014	0	0	0	0	4	2	0
33	10/10/2014	0	1 Adult	0	0	2	0	Palmate Female
34	11/10/2014	0	0	0	0	2	0	0
35	12/102014	0	0	0	0	3	0	0
36	13/10/2014	0	0	0	0	0	0	0
37	14/10/2014	0	0	0	0	0	0	0
38	15/10/2014	0	0	0	0	0	0	0
39	16/10/2014	0	0	0	0	0	0	0
40	17/10/014	0	0	0	0	0	0	0
41	18/10/2014	0	0	0	0	0	0	0
42	19/10/2014	0	0	0	0	0	0	0
43	20/10/2014	0	0	0	0	0	0	0

Totals
Adder- 0
Grass Snake-5
Common Lizard- 11
Slow Worm- 17
Common Toad- 198
Common Frog- 81
Newts- Palmate 6

APPENDIX G

PROPSED DEVELOPMENT PHASING PLAN



ALL DIMENSIONS TO BE CHECKED ON SITE
DO NOT SCALE THIS DRAWING.
ALL DISCREPANCIES TO BE REPORTED IMMEDIATELY.
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KEY

1. VISITORS CENTRE (.. sqm GEA)
2. EXISTING GATEHOUSE (103sqm GEA)
3. EXISTING FUEL PREPERATION AREA (5200sqm GEA)
4. HV SUBSTATION (220sqm GEA)
5. BIOMAX AREA (3742sqm GEA)
6. PROPOSED B2 HIGH ENERGY USE UNIT 10,240sqm (NO OFFICE CONTENT)
7. WATER TREATMENT PLANT
8. FUEL STORAGE HALL (2110sqm GEA)
9. TURBINE HALL (380sqm GEA)
10. GASIFICATION HALL (3270sqm GEA)

PHASING KEY:

- PHASE 1
- PHASE 2
- PHASE 3
- PHASE 4

No.	Revision Description	Date	By

enviroparks

EPT PARTNERSHIP

ARCHITECTS PENSEIRI

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PROJECT
Enviroparks - Hirwaun Ind. Est
Gasification Hall

TITLE
Proposed Phasing Site Plan

Drawn : DJS Date : 22/02/17 Checked : MT

Scale : 1:500
Original sheet size : A0

DRAWING STATUS
- ■ Planning
- □ Tender
- □ Design Development Pre-Construction
- □ Construction
- □ Record

Drawing No: ENV_EPT_GEN_DR_A_6018
Revision: P0

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