

ECOLOGICAL APPRAISAL

VICTORIA ROAD WEST



APRIL 2017

CLIENT Miller Homes
PROJECT NAME Victoria Road West
PROJECT NUMBER 4671

LEAD AUTHOR Mandy Rackham
POSITION Ecologist
CONTACT DETAILS Mandy.Rackham@e3ecology.co.uk

APPROVED BY James Streets
POSITION Associate Director
CONTACT DETAILS James.Streets@e3ecology.co.uk

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Unless requested otherwise, the information below will be provided to the Local Environmental Records Centre					
Species	Recorder	Date	Location (4 Fig. NGR)	Abundance	Comment
Dingy Skipper	E3 Ecology	Jul-16	NZ3063	3	-
Herring Gull	E3 Ecology	Jul-16	NZ3063	5	-
Linnet	E3 Ecology	Jul-16	NZ3063	1	-
Willow Warbler	E3 Ecology	Jul-16	NZ3063	1	-
Black-headed Gull	E3 Ecology	Jul-16	NZ3063	25	-
Common Tern	E3 Ecology	Jul-16	NZ3063	2	-
Curlew	E3 Ecology	Oct-16	NZ3063	10	-
Great Black-backed Gull	E3 Ecology	Oct-16	NZ3063	4	-
Grey Wagtail	E3 Ecology	Oct-16	NZ3063	1	-
Herring Gull	E3 Ecology	Oct-16	NZ3063	74	-
Kingfisher	E3 Ecology	Oct-16	NZ3063	1	-
Lesser Black-backed Gull	E3 Ecology	Oct-16	NZ3063	8	-
Mallard	E3 Ecology	Oct-16	NZ3063	7	-
Redshank	E3 Ecology	Oct-16	NZ3063	13	-
Redwing	E3 Ecology	Oct-16	NZ3063	6	-
Song Thrush	E3 Ecology	Oct-16	NZ3063	4	-
Willow Tit	E3 Ecology	Oct-16	NZ3063	1	-
Willow Warbler	E3 Ecology	Oct-16	NZ3063	1	-

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A. SUMMARY

E3 Ecology Ltd was commissioned by Miller Homes in June 2016 to undertake an Ecological Appraisal (EA) of land at Victoria Road West. Further bird, reptile and invertebrate surveys were commissioned in July 2016 and the results are included within this report. In January 2017 a Preliminary Ecological Appraisal of the route of the proposed drainage outflow pipe, from the site was commissioned. Detailed wintering bird surveys were undertaken to assess the potential impacts, of an increased outflow into the River Tyne. An aerial bat/ tree assessment of a single tree within a group of early mature white willow trees was conducted on the 17th October 2016. A badger survey of the site and surrounding habitats was conducted on the 12th December 2016.

The proposal includes development of 334 residential properties within the site. Plans currently include the creation of two access points along the eastern site boundary with associated visibility splays. Installation of a surface water drainage system is planned. The new pipeline for this system will run from the north west corner of the site, across a railway crossing and through the adjacent Hebburn Riverside Local Wildlife Site (LWS) to an existing outflow point.

Consultation with MAGIC website and the Local Records Centre indicated the presence of one Local Nature Reserve (LNR), seven Local Wildlife Sites (LWS) and one Site of Local Conservation Importance (SLCI) present within 2km. Species records include small heath, dingy skipper, wall butterfly, water vole, hedgehog, otter, badger, common pipistrelle, brown long-eared bat, red squirrel and numerous bird species.

Ecological Appraisal indicated that the site is made up of a mixture of blocks of woodland, dense scrub, hard standing, ephemeral grassland, marshy grassland and semi improved neutral grassland. The site overall is considered to support habitats of up to Parish value, with a mosaic of habitats including botanically rich areas which have emerged as a consequence of disturbance. Sections of the site of particular botanical importance include an area of marshy grassland to the south and sections of semi improved neutral grassland. Dingy skipper were noted within sections of grassland and ephemeral short perennial habitat at the east of the site. These sections are therefore classified as being of Parish value due to the presence of this species. Within the context of surrounding habitats blocks of broadleaf trees within the site are considered to be of local value.

The proposed drainage route is considered to support habitats of up to local ecological value, but of predominantly low ecological value comprising mainly poor semi-improved grassland, amenity grassland, tall ruderal vegetation, scattered broadleaf trees and scrub. The sections of semi improved neutral grassland are more species rich and are considered to be of parish value.

The two electricity substations present within the site lack suitable features to support roosting bats. There is a single mature willow tree within the site boundary that was noted to contain potential roosting features. Aerial inspection in October 2016 identified a single feature with moderate bat roosting potential, but no sign of roosting bats. Bat activity surveys within the site identified low levels of overall activity within the site, with no activity recorded in the 30 minutes after sunset and no bats recorded within the vicinity of this tree. The results of the survey work combined with the location of the tree and lack of field signs recorded, suggest that the risk of bats utilising this feature regularly is low and however is recommended that any works to the tree or removal of the tree will be carried out to a bat/tree method statement as a precaution.

Blocks of broadleaf trees, scrub, marshy grassland and semi improved grassland all have the potential to support foraging bat species. The boundary tree lines provide connectivity to

higher quality habitat within the local area. However bat activity surveys carried out within the site identified low levels of activity and overall the site is considered to be of low value to bat species.

An ornithological risk assessment indicated that the site is likely to support a typical range of urban fringe species. Dense scrub and blocks of woodland have the potential to support nesting and foraging bird species. Blocks of semi improved grassland have the potential to support ground nesting birds, though in general are considered too small in the main. The site will provide potential foraging opportunities to species breeding in the wider area, whilst the hard standing provides a loafing and potential roosting area for large gull species. From an initial assessment the site is considered to be of up to Parish ornithological value, with species such as stock dove scarce in the wider area.

Wintering bird surveys of the adjacent area of the River Tyne recorded a typical range of water birds, including small numbers of both redshank and curlew utilising the river margins and mud at low tide. The remaining assemblage recorded was typical to the area and habitats. Willow tit, a species of county value in Durham, was recorded off site within the riverside park.

Potential badger and fox field signs were noted during the updating tree survey of the site in October, however further, more detailed badger survey undertaken in December 2016 recorded no evidence of badger. Woodland blocks have the potential to support sett creation although none have been found during the respective site walkovers. Grassland habitats within the site have the potential to support foraging badger although higher quality habitat is present to the west and south west of the site. No field signs for badger have been confirmed within the site or immediate area and as such overall the site is considered to be of low value to this species.

Evidence of other mammals including rabbit, fox and potential deer field signs have been recorded within the southern section of the site.

Large spoil mounds scattered throughout the site have the potential to provide hibernaculum for reptiles. Woodland margins, scrub and grasslands have the potential to support foraging reptiles. Reptile surveys recorded no reptile species on site, however the site is well connected to other suitable habitat within the local area. Overall the value of the site to reptile species is considered to be low.

Dingy skipper a National Priority invertebrate species, has been recorded on site with a peak count of 3 during the butterfly surveys. Surveys carried out at the appropriate time of the year did not record grayling within the site. Overall the value of the site to Priority invertebrate species is considered to be of Parish value.

There is potential for other National Priority species such as hedgehog to occasionally forage across the site. However the overall value of the site to this species is considered to be low.

Due to the lack of suitable habitat within the site, lack of records within 2km and lack of connectivity to higher quality habitat within the local area great crested newt, water vole, white clawed crayfish and red squirrel are all considered likely to be absent from the site and drainage route. Otter are known to be present along the River Tyne however are considered likely to be absent from the development site and along the proposed drainage route due to a lack of suitable habitats.

The development has the potential to impact upon the adjacent Hebburn Riverside Local Wildlife Site. Increased footfall has the potential to impact upon habitats within these sites. There is also potential for increased disturbance and risk of predation of wildlife as a

consequence of increased numbers of residents and their pets. Impacts of the proposed drainage pipe will affect the adjacent LWS in the short term, as following from the trench excavation, installation of the new pipework, and infilling of the trench the habitats will return in the short term.

Potential impacts of the development are:

- Loss of habitats which, overall, are considered to be of up to Parish value.
- Loss of nesting bird habitats of up to Parish value.
- Disturbance to and or severance of bat commuting and foraging habitats through increased lighting on site.
- Loss of an early mature willow tree with moderate potential bat roosting features, but which following survey is considered to have only a low risk of supporting roosting bats.
- Loss of habitat used by dingy skipper population of Parish value.
- Potential low risk of harm to reptile species during site clearance works.
- Low risk of harm to badger and hedgehog during site works.
- Loss of commuting and foraging habitat for bat species within the local area considered to be of only low value.
- Harm / disturbance to nesting birds if vegetation removal is undertaken during the breeding season (March to August inclusive).
- Potential harm to fox, rabbit and deer during site works.

Key mitigation measures include:

Site design:

- Trees will be retained on site wherever possible. Details are contained within E3 Ecology report 4671 Victoria Road West TPP R06.
- An 'ecological corridor' along the eastern, western and southern boundary will be retained. Native planting will be implemented within this buffer and will be designed to enhance structural diversity, and will include plants bearing flowers, nectar and fruits which are attractive to invertebrates, thereby helping to maintain the food resource for bats and wildlife generally.
- Light spill along the southern and western boundaries will be less than 2 lux. Lighting around retained trees will be minimised as far as is practicable. Where security lights are required, these will be on a short timer and sensitive only to larger objects.
- An existing outflow into the River Tyne will be utilised. Impacts associated with increased flow are considered to be minimal, with the increased flow unlikely to limit bird foraging opportunities or result in large scale loss of sections of mudflat.

Timing of works:

- Vegetation clearance/tree felling will be undertaken outside of the bird nesting season (March to August inclusive) unless a checking survey by a suitably experienced ornithologist confirms the absence of active nests.
- If works are to be undertaken to an existing outflow, works should be undertaken outside the core wintering period October – April, to minimise disturbance to wintering birds.
- Ground works within a 20m buffer of potential fox earths and rabbit warrens will not commence between the months of January and early July unless a checking survey has confirmed these features are not in use.

Working Methods and Best Practice:

- Works on site will be undertaken in accordance with the reptile working method statement appended to this report.

- Works to an early single mature white willow tree with potential roosting features will be carried out to a precautionary method statement for bats.
- Excavation works around fox earths in the southern section of the site will not be undertaken during the period January – early July (inclusive) unless a checking survey has confirmed that these features are not in use.
- A butterfly mitigation and management strategy for the off-site mitigation has been produced. All works should be undertaken in accordance with this document.
- The landscape strategy which is being developed for this site should be designed to include management of the wildlife corridor whilst this feature is established. Ongoing management of this feature should be included in the long term management of the site.
- Any excavations left open overnight will have a means of escape for mammals that may become trapped in the form of a ramp at least 300mm in width and angled no greater than 45°.
- The roots and crowns of retained trees will be protected throughout the development through the provision of adequate construction exclusion zones in accordance with the guidance given by BS5837:2012.
- Japanese knotweed and cotoneaster should be removed from site in accordance with the working method statements appended to this report.

Enhancement Strategy:

- The overall loss of Parish value habitats cannot be mitigated or compensated for within the site due to the lack of green space available within the new development plans. Off-site mitigation for the loss of Parish value habitats and Parish value dingy skipper habitats will also be required. Full details are provided in the separate butterfly mitigation and management strategy.
- Installation of interpretation signage, litter bins, benches and dog fouling bins at strategic locations around the adjacent Local Wildlife Site in order to reduce impacts of additional residents and pets from the proposed development.
- Production of a leaflet for the new residents in order to highlight the importance of the adjacent Local Wildlife Site and encourage participation in the long term management and upkeep of this site.

The local planning authority is likely to require the means of delivery of the mitigation to be identified. It is recommended that mitigation and enhancement proposals are incorporated into the master-planning documents.

If you are assessing this report for a local planning authority and have any difficulties interpreting plans and figures from a scanned version of the report, E3 Ecology Ltd would be happy to email a PDF copy to you. Please contact us on 01434 230982.

B. INTRODUCTION

E3 Ecology Ltd was commissioned by Miller Homes in June 2016 to undertake an Ecological Appraisal (EA) of land at Victoria Road West. Further bird, reptile and invertebrate surveys were commissioned in July 2016 and the results are included within this report. In January 2017 a Preliminary Ecological Appraisal (PEA) of the route of the proposed drainage outflow pipe, was commissioned. Detailed wintering bird surveys were undertaken to assess the potential impacts, of an increased outflow into the River Tyne. An aerial bat/ tree assessment of a single tree within a group of early mature white willow trees was conducted on the 17th October 2016. A walkover of the site and surrounding habitats was conducted on the 12th December 2016 to assess the potential impacts of the proposed development on large mammal species.

The purpose of this report is:

- To identify and describe all potentially significant ecological effects associated with the proposed development
- To set out the mitigation measures required to ensure compliance with nature conservation legislation and to address any potentially significant ecological effects
- To identify how mitigation measures will/could be secured
- To provide an assessment of the significance of any residual effects
- To identify appropriate enhancement measures
- To set out any requirements for post-construction monitoring

The site is located within the southern area of Hebburn, South Tyneside at an approximate central grid reference of NZ3039 6349. The site location is illustrated below in Figure 1.

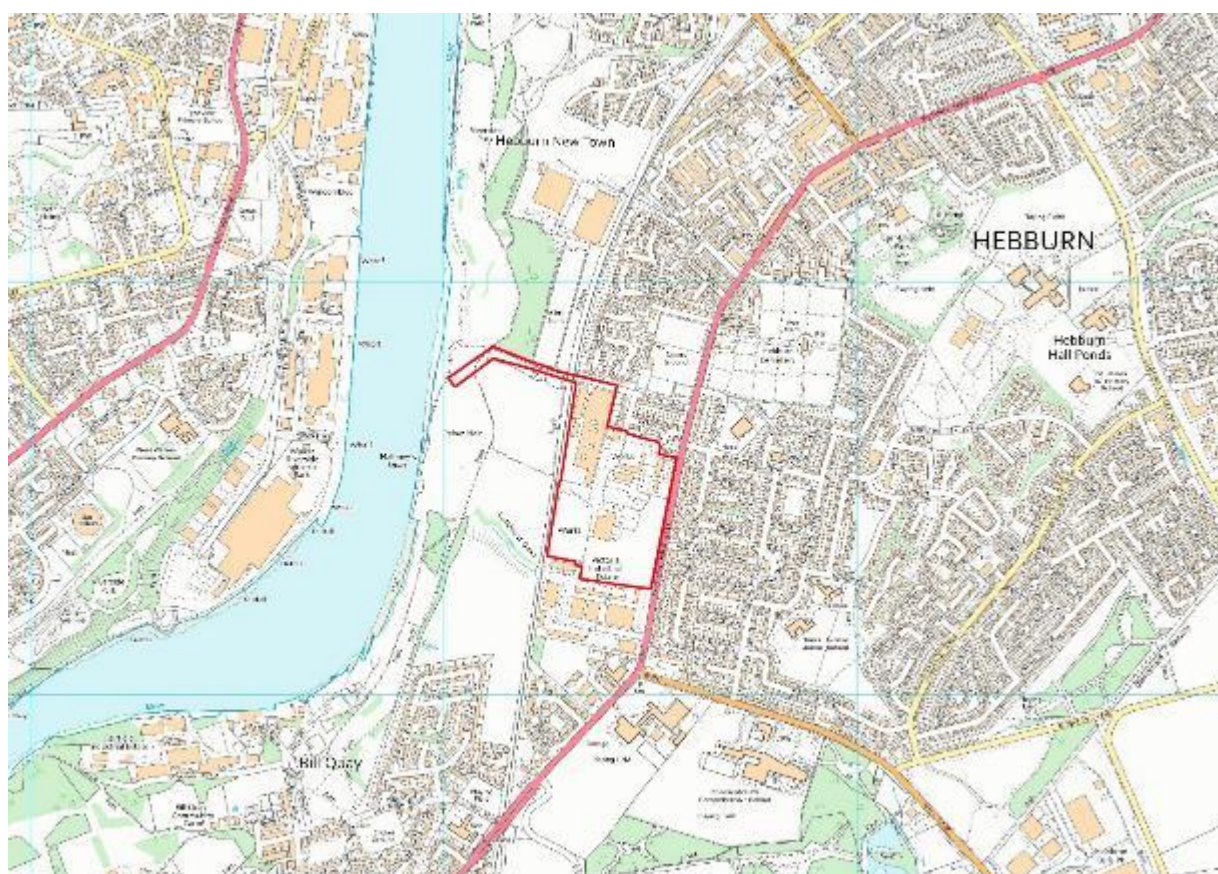


FIGURE 1: SITE LOCATION
(Reproduced from the Ordnance Survey map under licence)

It is proposed to develop 334 residential properties within the site. Plans currently include the creation of two access point along the eastern site boundary with associated visibility splays. Current plans are shown below in figure 2.



FIGURE 2: DEVELOPMENT PROPOSALS (PROVIDED BY POD ARCHITECTS) – SD-10.11

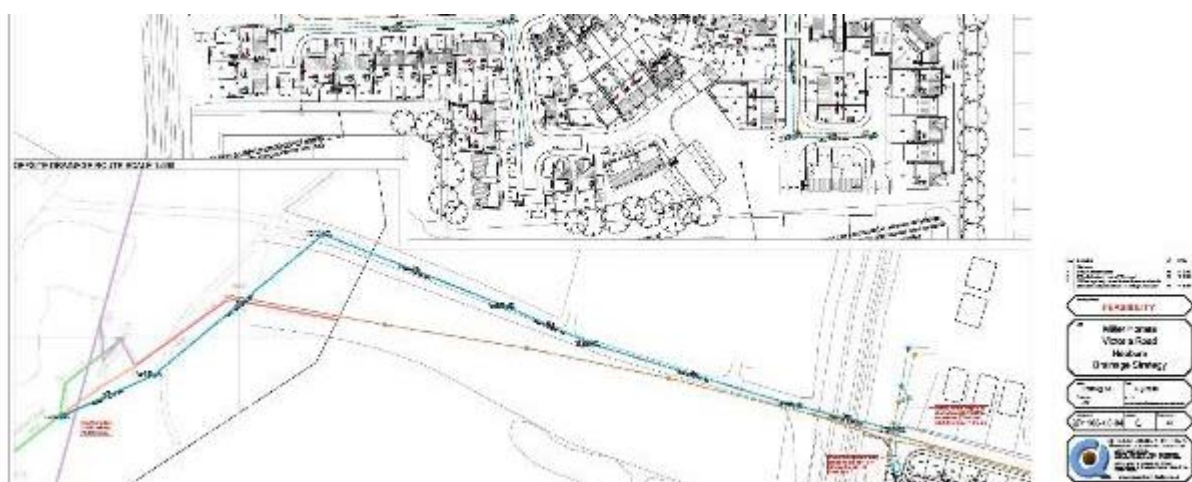


FIGURE 3: PROPOSED OFF SITE DRAINAGE ROUTE

C. PLANNING POLICY AND LEGISLATIVE CONTEXT

C.1 NATIONAL PLANNING POLICY

Table 1 details the key paragraphs from the National Planning Policy Framework (NPPF)¹ relating to the natural environment:

TABLE 1: NATIONAL PLANNING POLICY FRAMEWORK: NATURAL ENVIRONMENT	
Statement	Paragraph
The planning system should contribute to and enhance the natural and local environment by: <ul style="list-style-type: none"> o Recognising the wider benefits of ecosystem services; o Minimising impacts on biodiversity and providing net gains in biodiversity where possible 	109
Planning policies and decisions should encourage the effective use of land by re-using land that has been previously developed (brownfield land), provided that it is not of high environmental value.	111
Local planning authorities should set criteria based policies against which proposals for any development on or affecting protected wildlife sites will be judged. Distinctions should be made between the hierarchy of international, national and locally designated sites so that protection is commensurate with their status and gives appropriate weight to their importance and the contribution that they make to wider ecological networks	113
To minimise impacts on biodiversity, planning policies should: <ul style="list-style-type: none"> o Promote the preservation, restoration and re-creation of priority habitats ecological networks and the protection and recovery of priority species populations, linked to national and local targets 	117
When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principals: <ul style="list-style-type: none"> o If significant harm resulting from a development cannot be avoided, adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused; o Development proposals where the primary objective is to conserve or enhance biodiversity should be permitted; o Opportunities to incorporate biodiversity in and around developments should be encouraged; o Planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees, found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss 	118
By encouraging good design, planning policies and decisions should limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation	125

¹ National Planning Policy Framework (March 2012), Department for Communities and Local Government,

Section 40 of the Natural Environment and Rural Communities Act 2006, places a duty on all public authorities in England and Wales to have regard, in the exercise of their functions, to the purpose of conserving biodiversity.

Planning Practice Guidance² states:

- *'The National Planning Policy Framework is clear that pursuing sustainable development includes moving from a net loss of biodiversity to achieving net gains for nature, and that a core principle for planning is that it should contribute to conserving and enhancing the natural environment and reducing pollution' (para. 007).*
- *'Information on biodiversity impacts and opportunities should inform all stages of development An ecological survey will be necessary in advance of a planning application if the type and location of development are such that the impact on biodiversity may be significant and existing information is lacking or inadequate' (para. 016).*
- *'Where an Environmental Impact Assessment is not needed it might still be appropriate to undertake an ecological survey, for example, where protected species may be present' (para. 016).*
- *'Local planning authorities should only require ecological surveys where clearly justified, for example if they consider there is a reasonable likelihood of a protected species being present and affected by development. Assessments should be proportionate to the nature and scale of development proposed and the likely impact on biodiversity' (para. 016).*
- *'Biodiversity enhancement in and around development should be led by a local understanding of ecological networks, and should seek to include:*
 - *habitat restoration, re-creation and expansion;*
 - *improved links between existing sites;*
 - *buffering of existing important sites;*
 - *new biodiversity features within development; and*
 - *securing management for long term enhancement' (para. 017).*

C.2 PROTECTED SPECIES LEGISLATION

The table below details the relevant legislation for those protected species that may be present on this site.

TABLE 2: SUMMARISED SPECIES LEGISLATION		
Species	Relevant Legislation	Level of Protection
Bats (All species)	<ul style="list-style-type: none"> • Protection under the Wildlife and Countryside Act (WCA) (1981) (Listed on Schedule 5) - as amended • Classified as European protected species under Conservation of Habitats and Species Regulations 2010 • Bats are also protected by the Wild Mammals (Protection) Act 1996 	<p>The WCA (1981) and Habitat Regulations (2010) make it an offence to:</p> <ul style="list-style-type: none"> • Intentionally kill, injure, or take any species of bat • Intentionally or recklessly disturb bats • Intentionally or recklessly damage destroy or obstruct access to bat roosts

² Planning Practice Guidance: Natural Environment (www.planningguidance.communities.gov)

TABLE 2: SUMMARISED SPECIES LEGISLATION		
Species	Relevant Legislation	Level of Protection
Birds	<ul style="list-style-type: none"> Protection under the Wildlife and Countryside Act (1981) as amended with the exception of some species listed in Schedule 2 of the Act 	<p>The WCA (1981) makes it an offence to (with exceptions for certain species):</p> <ul style="list-style-type: none"> Intentionally kill, injure or take any wild bird Intentionally take, damage or destroy nests in use or being built (including ground nesting birds) Intentionally take, damage or destroy eggs Species listed on Schedule 1 of the WCA or their dependant young are afforded additional protection from disturbance whilst they are at their nests
Badger	<ul style="list-style-type: none"> Protection of Badgers Act 1992 Badgers are also protected by the Wild Mammals (Protection) Act 1996 	<p>The Protection of Badgers Act (1992) makes it an offence to intentionally or recklessly:</p> <ul style="list-style-type: none"> Damage a badger sett or any part of it Destroy a badger sett Obstruct access to, or any entrance of a badger sett Disturb a badger whilst it is occupying a badger sett
Common reptiles (Slow-worm, Adder, Grass Snake, Common Lizard)	<ul style="list-style-type: none"> Partially protected by the Wildlife and Countryside Act 	<p>The WCA (1981) makes it an offence to:</p> <ul style="list-style-type: none"> intentionally kill or injure these animals Sell, offer for sale, advertise for sale, possess or transport for the purposes of selling any live or dead animals or part of these animals
Fox	<ul style="list-style-type: none"> Wildlife and Countryside Act (1981) Protected by the Wild Mammals (Protection) Act 1996 	<p>The WCA (1981) makes it an offence to:</p> <ul style="list-style-type: none"> Use live baits and decoys Use of self-locking snares are prohibited Use of bows or crossbows to kill foxes <p>The Wild Mammals Protection Act (1996) makes it an offence to:</p> <ul style="list-style-type: none"> Destroy, block or fill a fox earth that contains a live fox.
<p><i>Under the Countryside and Rights of Way Act 2000 (CROW Act) the offence in section 9(4) of the Wildlife and Countryside Act 1981 of damaging a place of shelter or disturbing those species given full protection under the act is extended to cover reckless damage or disturbance.</i></p>		

C.3 INVASIVE SPECIES LEGISLATION

The table below details the legislation in relation to invasive species and lists those invasive species most likely to be found in this region.

TABLE 3: SUMMARISED INVASIVE SPECIES LEGISLATION		
Relevant Legislation	Description of Offence	Species <i>(Covered by the Legislation and most likely to be found in this Region)</i>
Listed on Part II of Schedule 9 of the Wildlife and Countryside Act (1981 as amended)	<p>Section 14 of the WCA (1981) states:</p> <ul style="list-style-type: none"> if any person plants or otherwise causes to grow in the wild any plant which is included in Part II of Schedule 9, he shall be guilty of an offence. 	<p>Himalayan balsam Cotoneaster Montbretia Japanese knotweed Giant hogweed Rhododendron</p>

C.4 PROTECTED SITE LEGISLATION

Details of the legislation surrounding protected sites are provided in the appendices.

C.5 PRIORITY SPECIES

Although not afforded any legal protection, national priority species (species of principal importance, as listed in Section 41 of the NERC Act (2006)), and local and regional priority species, as detailed within the relevant biodiversity action plans, are material considerations in the planning process and as such have been assessed accordingly within this report.

The table below details the local biodiversity action plan relevant to the area within which this site lies, and the species/species groups and habitats listed as priorities within the plan.

TABLE 4: BIODIVERSITY ACTION PLAN					
Durham Biodiversity Action Plan					
Species			Habitats		
Barn Owl	Coastal Birds	Farmland Birds	Native Hedgerows	Veteran Trees, Parkland and Wood Pasture	Woodland and Scrub
Nightjar	Spotted Flycatcher	Upland Birds	Ponds, Lakes & Reservoirs	Lowland Fen	Rivers & Streams
Urban and Garden Wildlife	Freshwater Fish	Grass Snake	Blanket Bog and Upland Wet Heath	Calaminarian Grassland	Upland Calcareous Grassland
Great Crested Newt	Reptiles	Chalk Carpet Moth	Upland Dry heath and Acid Grassland	Upland Haymeadows	Upland Screes and Rock Habitats
Cistus Forrester	Dark Green Fritillary	Dingy Skipper	Brownfield Sites	Built Structures	Coastal Habitats
Glow Worm	Grayling	Green Hairstreak	Lowland Heath	Lowland Meadows & Pasture	Magnesian Limestone Grassland
Least Minor Moth	Mud Snail	Northern Brown Argus	Transport Corridors	Waxcap Grassland	
Northern Dart	Round Mouthed Whorl Snail	Small Pearl-bordered Fritillary			
White Clawed Crayfish	White-letter Hairstreak	Badger			
Bats	Brown Hare	Dormouse			
Harvest Mouse	Hedgehog	Otter			
Pine Marten	Polecat	Red Squirrel			
Water Vole	Water Shrew	Black Poplar			
Juniper	Pale Bristle-Moss	Yellow Marsh Saxifrage			

D. METHODOLOGY

D.1 SCOPE OF STUDY

The scope of the study, in terms of the survey area and the desk study area, is based on professional judgement. The likely zone of influence of the proposal has been considered, including both potential direct effects such as habitat loss and potential indirect effects such as disturbance. Consideration has been given to potential effects both during the construction and operational phases of the development.

For this site the survey area comprised the red line boundary as defined within Figure 4 with, in addition, a 50m buffer around the periphery appraised where access was available. The desk study included an assessment of land-use in the surrounding area and a data search covering a 2km buffer zone (see below for further detail).

The following types of ecological receptors have been considered:

- Statutorily designated sites for nature conservation
- Non-statutorily designated sites for nature conservation
- Species protected by law
- Species and/or habitats listed under the NERC Act (2009) as being of principal importance for conservation of biodiversity
- Species and/or habitats listed in relevant local biodiversity action plans

Consultation has been undertaken with Clare Rawcliffe of South Tyneside Council regarding the scope of the assessment.

Figure 4 illustrates the survey area whilst, to provide context, Figure 5 illustrates the broad habitats present on site and within an approximate 500m buffer zone.



FIGURE 4: SURVEY AREA
(Reproduced under licence from Google Earth Pro.)



FIGURE 5: SITE AND SETTING
(Reproduced under licence from Google Earth Pro.)

D.2 DESK STUDY

Initially, the site was assessed from aerial photographs and 1:25,000 Ordnance Survey maps. Following this, a data search was submitted to the Local Records Centre in July 2016, requesting data relating to protected or otherwise notable species and non-statutory sites for nature conservation within 2km of the survey area. In addition, a search was made of the Multi Agency Geographic Information for the Countryside (MAGIC) website³ for all statutorily protected sites for nature conservation within 2km of the survey area.

D.3 PRELIMINARY FIELD SURVEY METHODOLOGY

D.3.1 PHASE 1 HABITAT SURVEY

D.3.1.1 SURVEY METHODS

The field survey of the proposed site was conducted using the methodology of the Joint Nature Conservation Committee's Phase 1 Habitat Survey, as outlined in their habitat-mapping manual⁴. Each parcel of land was assessed by a trained surveyor and classified as one of ninety habitat types. These were then mapped and the habitat information supplemented by dominant and indicator species codes and target notes where appropriate. Where areas within the study area do not fall into the Phase 1 Habitat Survey classification, alternative methods of classification have been used.

³ Multi Agency Geographic Information for the Countryside (www.magic.gov.uk)

⁴ Handbook for Phase 1 habitat survey, A Technique For Environmental Audit, JNCC, 2010

D.3.1.2 SURVEY EQUIPMENT

The following equipment was used during the phase 1 habitat survey:

- 8x42 binoculars
- Digital camera

D.3.2 PRELIMINARY PROTECTED AND PRIORITY SPECIES APPRAISAL

D.3.2.1 SURVEY METHODS

Where there is a risk of legally protected species and/or otherwise notable species⁵ being present, an initial appraisal was completed to inform the proposals. This appraisal included the following key elements:

- Structures and trees were assessed for the risk of supporting roosting bats (see below).
- Wetlands, where present, were reviewed for their potential use by great crested newt, otter and water voles,
- If present, any trackways regularly used by badger were noted and any badger sett usage assessed by the presence of freshly dug earth or bedding at the entrance.
- The suitability of the suite of habitats present for use by reptiles was assessed.
- Likely use of the site by birds was assessed from the species seen during the survey, and the habitats present.
- Potential use by otherwise notable species was determined based on the broad habitat types present on site, any recent records obtained through the desk study and the geographical distribution of the species. Where specific habitat requirements for notable species have been recorded on site these have been noted, and used as part of this appraisal. The species groups assessed are limited to birds, freshwater fish, amphibians, reptiles, terrestrial mammals, butterflies and dragonflies.

A preliminary assessment was made of any trees affected by the proposed development. Trees were inspected and assessed for their potential to support roosting bats and were categorised as negligible, low, moderate or high suitability for roosting bats based on guidelines provided within the Bat Conservation Trust Bat Survey: Good Practice Guidelines⁶ and detailed within Table 5.

TABLE 5: GUIDELINES FOR ASSESSING THE POTENTIAL SUITABILITY OF PROPOSED DEVELOPMENT SITES FOR BATS, BASED ON PRESENCE OF ROOSTING HABITAT FEATURES (TREES) <i>(TO BE APPLIED USING PROFESSIONAL JUDGEMENT, TABLE 4.1 BAT SURVEY GUIDELINES)</i>	
Suitability	Roosting Habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.
Low	A tree of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with only very limited roosting potential.
Moderate	A tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
High	A tree with one or more potential roost site that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter,

⁵ To include national priority species as listed in Section 41 of the NERC Act (2006) and local or regional priority species as listed within the relevant Biodiversity Action Plan

⁶ Collins, J. (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition). Bat Conservation Trust

protection, conditions and surrounding habitat.

The assessment is based upon the age and species of the tree, the presence of features with potential to support roosting bats and the location of the tree and habitats present in the surrounding area. Any potential roosting locations and field signs that could indicate bat use, such as droppings, staining and scratch marks were noted.

Where it is considered likely that there is a significant risk of protected or otherwise notable species being affected or where habitats are of particularly high value additional specialist survey work has been recommended. Further survey work may also be recommended where development proposals have the potential to affect statutorily designated sites in the vicinity.

D.3.3 ENVIRONMENTAL CONDITIONS

The table below details the environmental conditions during the preliminary ecological appraisal and further assessment of the potential drainage route.

TABLE 6: SURVEY CONDITIONS				
Date	Temperature	Cloud Cover	Precipitation	Wind Conditions
03.06.16	11°C	100%	NULL	WF0-1 S
04.01.16	5.5°C	30%	NULL	WF1NW

Survey of the main development site was undertaken by Mandy Rackham BA, MSc, MCIEEM on the 3rd June 2016. Survey of the proposed drainage route was undertaken by Mike Perkins BSc MSc on the 4th January 2017.

D.3.4 SURVEY CONSTRAINTS

The quality of the field data will be affected by the season of the survey, with some plant species only being evident or identifiable in certain seasons. However given the nature of the habitats within and adjacent to the site, a robust initial assessment could in this case be completed.

Survey of sections of the proposed drainage route could only be undertaken from the public footpath and as such detailed species lists of grazed paddocks to the south of the route could not be undertaken. Due to the heavily grazed nature of these paddocks this is not considered to be a significant constraint to the survey. Survey was also undertaken of at a time of year when not all plant species are evident or identifiable.

D.4 DETAILED FIELD STUDY METHODOLOGY

D.4.1 BUTTERFLY SURVEY

D.4.1.1 SURVEY METHODS

Three walkover surveys for Dingy Skipper (*Erynnis tages*) were undertaken throughout the proposed development site during the butterflies' flight period in June 2016. Three walkover surveys for Grayling (*Hipparchia semele*) were also undertaken throughout the proposed development site during the butterflies' flight period during July 2016. All surveys were undertaken when weather conditions were relatively warm and still. Species were identified using high quality close focussing binoculars. Butterflies that were seen during separate site visits have been recorded under additional records.

All sections of the study area were evaluated to provide an assessment of their value. This assessment took into account a number of criteria, including the rarity of the species in question, both on a national and local scale, the diversity of species present and the quality of the surrounding habitat.

The overall site value to Lepidoptera was assessed against both the national priority species list and Local Biodiversity Action Plan:

Natural Environment and Rural Communities (NERC) butterfly species of principal importance for conservation (National Priority species).

Dingy Skipper	High Brown Fritillary	Small Blue
Pearl-bordered Fritillary	Northern Brown Argus	Large Heath
Small Pearl-bordered Fritillary	Marsh Fritillary	Small Heath
Chequered Skipper	Mountain Ringlet	Duke of Burgundy
Grayling	Wood White	White Admiral
Wall	Glanville Fritillary	Silver-studded Blue
Large Blue Butterfly	Grizzled Skipper	White Letter Hairstreak
Brown Hairstreak	Lulworth Skipper	

Dingy skipper and grayling are both listed within the Durham Biodiversity Action Plan.

D.4.1.2 SURVEY EQUIPMENT

The following equipment was used during the surveys:

- Close focussing binoculars
- Butterfly net

D.4.1.3 SURVEY DATES

DATE	TEMPERATURE	CLOUD COVER	PRECIPITATION	WIND CONDITIONS
14.06.16	15°C	60%	None	WF2 NW
20.06.16	17°C	50%	None	WF2 SW
30.06.16	17°C	80%	None	WF2 SW
08.07.16	22°C	40%	None	WF2 SW
18.07.16	24°C	20%	None	WF0
22.07.16	17°C	40%	None	WF0

D.4.1.4 SURVEY CONSTRAINTS

Due to initial access restrictions to the site, the first surveys were undertaken at the end of the dingy skipper flight period and as such, the peak flight period for the site may have been missed.

D.4.2 REPTILE SURVEY

D.4.2.1 SURVEY METHODS

The survey methodology was based on guidelines for reptile surveying provided by Froglife¹ and the Herpetofauna Workers' Manual⁷. Level of survey effort was discussed and agreed with the Ecologist at South Tyneside Council.

Seventy artificial refugia were individually numbered for reference and distributed within suitable habitats to create basking and refuge sites. Refugia comprised of heavy duty roofing felt of approximately 0.5m x 0.5m square.

Refugia were placed within suitable areas of:

- Dry, species-rich, undisturbed open habitat with a mix of sparse and dense vegetation.
- Disused rabbit burrows on dry south facing banks with some vegetation/tree cover.
- Basking areas next to hedgerows and on grassland matrices.

The artificial refugia were left in situ for one week prior to checking to allow time for the refugia to 'bed-in', and to allow time for reptiles to locate them. The location of the refugia is illustrated in the figure below.



FIGURE 6: REPTILE MAT LOCATIONS
(REPRODUCED UNDER LICENCE FROM GOOGLE EARTH PRO.)

⁷ Gent, T & Gibson, S. 2003. Herpetofauna Workers' Manual. Joint Nature Conservation Committee Peterborough. 2nd Edition.

Six site visits were made between June and July 2016 to check the site for signs of reptile presence. Surveys were undertaken either early in the morning or late afternoon. The majority of the surveys took place in optimal conditions, between 09:00 and 11:30 hours or 16:00 to 17:00 hours⁸, during days with intermittent or hazy sunshine and light cloud. Surveys avoided days with strong winds or rainfall. Following consultation with the Ecologist at South Tyneside Council it was agreed that the reptile surveys would be undertaken immediately prior to each of the butterfly surveys and therefore 6 surveys would be undertaken in total.

Survey techniques included:

- Walking slowly, paying particular attention to the sunny side of vegetation, edges between vegetation types, sheltered spots that act as suntraps and changes in vegetation height.
- Assessing species basking on top of and sheltering under the refugia. Refugia were lifted and replaced carefully, taking care not to squash retreating animals.
- Searching under other refuge sites within the area such as old sheeting, rock piles etc. Slowworms in particular will shelter under discarded items such as rubber car mats, plastic sheeting, and carpet.
- Searching potential basking sites such as south facing slopes, banks, gullies and pits or on top of objects such as discarded metal, wood boards, old tyres etc. with binoculars whilst slowing moving through the site with minimum disturbance. Care was taken to avoid disturbance prior to visual sightings.

The species, sex (where possible), age (where possible) and location of any reptiles observed was recorded, together with a description of the surrounding vegetation structure and connectivity, aspect and topography. Incidental signs of reptiles such as potential burrows, sloughed skins etc., and incidental records of other species such as amphibians were also recorded.

D.4.2.2 SURVEY EQUIPMENT

- Artificial refugia
- Close focusing binoculars
- Digital camera.

D.4.2.3 SURVEY DATES

Artificial refugia were installed on site on the 27th May 2016. Reptile surveys were undertaken on the following dates:

TABLE 9: SURVEY CONDITIONS				
DATE	TEMPERATURE	CLOUD COVER	PRECIPITATION	WIND CONDITIONS
14.06.16	15°C	60%	None	WF2 NW
20.06.16	17°C	50%	None	WF2 SW
30.06.16	17°C	80%	None	WF2 SW
08.07.16	22°C	40%	None	WF2 SW
18.07.16	24°C	20%	None	WF0
22.07.16	17°C	40%	None	WF0

⁸ Froglife 1998. Evaluating local mitigation/translocation programmes: maintaining best practice and lawful standards.

D.4.2.4 SURVEY CONSTRAINTS

Surveys were undertaken prior to the butterfly surveys on site. Starting temperatures for some of the surveys on the 8th July and the 18th July are higher than guidance suggests however due to the number of refugia installed on site and the suitable temperatures of the other surveys it is not considered that this is a major constraint.

D.4.3 ORNITHOLOGY SURVEY

D.4.3.1 BREEDING BIRD RISK ASSESSMENT

A site-based ornithological risk assessment was carried out of the proposed development site on the 30th June 2016. The survey area included all habitats within the proposed development site. The aims of this survey were to produce an assessment as to what species may typically be expected, year round, within the habitats present, and so assess the conservation status and potential impacts. This aim was particularly geared towards assessing the site for species of both national and local conservation concern. The identity and activity of all birds were mapped using the British Trust for Ornithology's standard list of codes for bird species and activities.

Each habitat within the survey area was visited and notes were taken with regard to the suitability of habitats in relation to bird species. This assessment was conducted with regard to breeding, wintering and migrant species likely to be present, with particular emphasis on European protected birds, those on Schedule 1 of the Wildlife and Countryside Act, National priority species and Birds of Conservation Concern (BoCC) Red and Amber lists¹⁰.

D.4.4 WINTERING BIRD SURVEYS

The methodology has been adapted from the generic bird monitoring methods detailed within Gilbert, Gibbons and Evans⁹. The River Tyne adjacent to the site was surveyed from the southern shoreline. The river was surveyed from several different vantage points that allowed good views of both the northern and southern shorelines of the River Tyne, and the river itself.

A total of 5 surveys were completed during the period August 2015 to October 2016. Surveys were scheduled to cover both low tide (to assess foraging areas) and high tide (to assess roosting locations).

The study area was scanned using a telescope and counts of all species were recorded. The surveys prioritised waders and wildfowl (waterbirds), both of which are specialised taxa that are localised or scarce in the South Tyneside Borough and Durham. To minimise the risk of double counting, landscape features were used and care was taken to avoid disturbance to birds near the shoreline. Wherever possible, notes were made of relevant bird movements, behaviour and high tide roost locations. The surveys were completed by experienced ornithologists

The following target species in each season were identified prior to survey work:

Wintering birds (November-February): cormorant, oystercatcher, golden plover, lapwing, dunlin, snipe, curlew, redshank, teal, shelduck, kingfisher, dipper and grey wagtail.

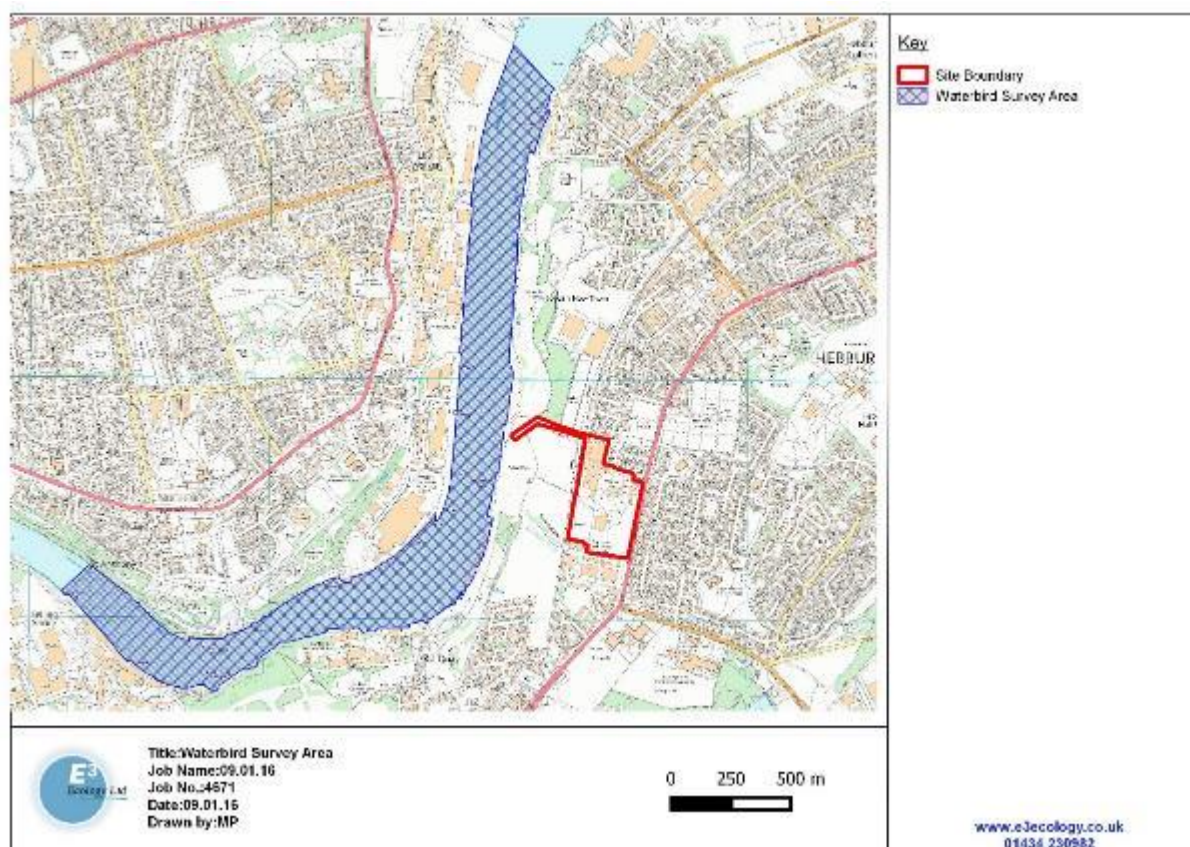
Autumn passage (July-October): cormorant, oystercatcher, ringed plover, golden plover, lapwing, dunlin, ruff, snipe, black-tailed godwit, curlew, spotted redshank, redshank,

⁹ Gilbert, G., Gibbons, D.W. & Evans, J. 1998. Bird Monitoring Methods: A manual of techniques for key UK species. RSPB

greenshank, green sandpiper, common sandpiper, shelduck, teal, kingfisher, dipper and grey wagtail.

Since time of day can cause bias, for example with roost or pre-roost gatherings at dawn and dusk, surveyors recorded date and start and finish times as part of the documentation of a visit.

Surveys sought to avoid any severe weather conditions, such as heavy rain, strong winds, snow and fog, which can reduce visibility to an extent that prevents a proper count from being made.



**FIGURE 7: RIVER TYNE SURVEY AREA
(REPRODUCED UNDER LICENCE FROM ORDNANCE SURVEY MAP)**

D.4.4.1 SURVEY DATE AND WEATHER CONDITIONS

TABLE 10 – BREEDING BIRD RISK ASSESSMENT SURVEY CONDITIONS						
DATE	TEMPERATURE	CLOUD COVER	PRECIPITATION	WIND CONDITIONS	VISIBILITY	TIME
30/06/16	17°C	80%	None	SWF2-3	>2km	1430-1630
11/10/16	12°C	80%	None	WF2	>2km	15:00-16:15
WINTERING BIRD SURVEY CONDITIONS						
DATE	TEMPERATURE	CLOUD COVER	PRECIPITATION	WIND CONDITIONS	VISIBILITY	TIDE STATE
18/08/16	19°C	30%	None	SE1	>2km	Low
31/08/16	18°C	90%	None	W4	>2km	Low
12/09/16	19°C	80%	None	SW4	>2km	High
20/09/16	18°C	70%	None	W1	>2km	Low

TABLE 10 – BREEDING BIRD RISK ASSESSMENT SURVEY CONDITIONS

DATE	TEMPERATURE	CLOUD COVER	PRECIPITATION	WIND CONDITIONS	VISIBILITY	TIME
10/10/16	12 °C	60%	None	E2	>2km	High

D.4.4.2 SURVEY CONSTRAINTS

It is considered that there were no constraints to the undertaking of the surveys.

D.4.5 DAYTIME GROUND BASED BAT RISK ASSESSMENT (TREES)

A preliminary assessment was made of any trees affected by the proposed development. Trees were inspected and assessed for their potential to support roosting bats and were categorised as negligible, low, moderate or high suitability for roosting bats based on guidelines provided within the Bat Conservation Trust Bat Survey: Good Practice Guidelines¹⁰ and detailed within Table 5.

TABLE 11: GUIDELINES FOR ASSESSING THE POTENTIAL SUITABILITY OF PROPOSED DEVELOPMENT SITES FOR BATS, BASED ON PRESENCE OF ROOSTING HABITAT FEATURES (TREES)

(TO BE APPLIED USING PROFESSIONAL JUDGEMENT, TABLE 4.1 BAT SURVEY GUIDELINES)

Suitability	Roosting Habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.
Low	A tree of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with only very limited roosting potential.
Moderate	A tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
High	A tree with one or more potential roost site that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

The assessment is based upon the age and species of the tree, the presence of features with potential to support roosting bats and the location of the tree and habitats present in the surrounding area. Any potential roosting locations and field signs that could indicate bat use, such as droppings, staining and scratch marks were noted.

The ground based tree survey was undertaken by Darryl Birch BSc MArborA on 17th June 2016. For full details of the tree survey see the separate tree report.

D.4.6 AERIAL TREE SURVEY

Aerial trees surveys are undertaken by surveyors licenced to handle and disturb bats. Where ground based survey has identified trees as being of moderate or high suitability for use by roosting bats, these trees are accessed using ropes and a visual inspection is undertaken. Features of interest may include torsional cracks, splits in limbs, loose bark, rot holes, woodpecker holes and features influenced by fungal decay. Such features are inspected using a torch or endoscope, where required, to look for bats themselves or field signs. Where bats or field signs are recorded, the feature is photographed and if possible the species of bat is identified.

The aerial tree survey was undertaken by Darryl Birch BSc MArborA on 17th October 2016. For full details of the tree survey see the separate tree report.

¹⁰ Collins, J. (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition). Bat Conservation Trust

D.4.7 BADGER WALKOVER

A badger walkover survey was undertaken by Darryl Birch on the 12th December 2016.

The aim of the survey was to locate any badger setts, to determine their status as far as practicable, and the extent to which they are currently used, and to identify and map those existing badger paths and foraging territories most commonly used, along with relevant territorial boundaries where these are evident.

These results allow the assessment of the potential damage or disturbance to setts or badger territory caused by factors such as land take required by the development, severance, modification to surface water drainage and pollution, construction disturbance through plant access, construction of storage compounds etc., littering and fouling, and potential changes to land use and increased pedestrian and pet disturbance.

Survey looked for:

- sett entrances, e.g. entrances that are normally 25 to 35cm in diameter and shaped like a 'D' on its side, with those dimensions being maintained at depth
- large spoil heaps outside sett entrances
- bedding or hair outside sett entrances
- badger footprints
- badger paths
- latrines
- badger hairs on fences or bushes
- scratching posts
- signs of digging for food

Public rights of way were used where possible and areas were scanned with binoculars where access was restricted. This allowed for a more detailed assessment of setts and field signs close to the development site. It also aided identification of setts, social groups and potential territorial overlaps and developed an understanding of the wider area with respect to potential for the use by badger.

D.4.8 SURVEY DATE AND WEATHER CONDITIONS

TABLE 12: SURVEY CONDITIONS				
Date	Temperature	Cloud Cover	Precipitation	Wind Conditions
12.12.16	2°C	40%	NULL	0

D.4.9 SURVEY CONSTRAINTS

Survey in December for badger is outside the main territorial and breeding activity period, therefore any sign such as latrines and dung pits, if present would potentially have deteriorated. However if the site did form the home range of a badger clan, fresh sign in the form of footprints, trackways, hair caught on the perimeter fence line and foraging scrapes would still be apparent. Sett entrances would be clearly visible during this period as much of the ruderal and ephemeral vegetation is suppressed, therefore the timing of the survey is not considered to be a significant constraint.

D.5 PERSONNEL

The table below details the personnel who undertook the survey work.

TABLE 13: PERSONNEL

Name	Position	Professional Qualifications	Natural England Survey Licence Numbers
Mark Osborne	Associate Director	CEcol MCIEEM	2015-14412-CLS-CLS (Bats), 2015-14496-CLS-CLS (Bats), CLS 863 (GCN*), CL29/00185 (Barn Owl)
Mandy Rackham	Ecologist	BA MSc MCIEEM	2015-12470-CLS-CLS (Bats) 2015-16704-CLS-CLS (GCN*)
Darryl Birch	Senior Arborist/ Ecologist	BSc MArborA	2015-15102-CLS-CLS (Bats), 2016-21145-CLS-CLS (GCN*)
Silas Walton	Ecologist/ Arborist	BSc MSc	2015-18431-CLS-CLS(GCN*)
Ross Ahmed	Senior Field Ornithologist	BA (Hons) MPhil	CL29/00294 (Barn Owl)
Mike Perkins	Graduate Ecologist	BSc MSc	2015-5121-CLS-CLS (GCN*)
Hannah Norman	Graduate Ecologist	BSc MSc	2015-6915-CLS-CLS (GCN*)
Mark Wilson	Graduate Ecologist	BSc	2015-7492-CLS-CLS (GCN*)

*GCN – Great Crested Newt,

Further details of experience and qualifications are available at www.e3ecology.co.uk.

D.6 ASSESSMENT METHODOLOGY

The relative value of the ecological receptors (habitats, species and designated sites) was assessed using a geographical frame of reference. For designated sites this is generally a straightforward process with the assigned designation generally being indicative of a particular value, e.g. Sites of Special Scientific Interest are designated under national legislation and are therefore generally considered to be receptors of national value. The assignment of value to non-designated receptors is less straightforward and as recognised by the Guidelines for Ecological Impact Assessment produced by the Chartered Institute of Ecology and Environmental Management¹¹, is a complex and subjective process and requires the application of professional judgement.

When assessing the value of species and habitats, relevant documents and legislation are considered including the lists of species and habitat of principal importance annexed to the NERC Act (2006) and those provided within relevant local Biodiversity Action Plans. Data provided through consultation is also considered. These data sources can provide context at a local, regional and national scale.

The table below provides examples of receptors of value at different geographical scales.

TABLE 14: ECOLOGICAL RECEPTOR VALUATION

Level of Value	Examples
International	An internationally designated site or candidate site.
	A site meeting criteria for international designation.
	A substantial* area of a habitat listed on Annex I of the EC Habitats Directive or smaller areas of such habitat, which are considered likely to be essential to maintain the functionality of a larger whole.
	The site is of functional importance** to a species population with internationally important numbers (i.e. >1% of the biogeographic population)
National	A nationally designated site.
	A substantial* area of a habitat listed as a Habitat of Principal Importance within Section 41 of the NERC Act (2006) or smaller areas of such habitat, which are considered likely to be essential to maintain the functionality of a larger whole.

¹¹ Chartered Institute for Ecology and Environmental Management (2016) Guidelines for Ecological Impact Assessment in the UK and Ireland - Terrestrial, Freshwater and Coastal

TABLE 14: ECOLOGICAL RECEPTOR VALUATION	
Level of Value	Examples
	The site is of functional importance** to a species population with nationally important numbers (i.e. >1% of the national population)
Regional	An area of habitat that falls slightly below the criteria necessary for designation as a SSSI but is considered of greater than county value.
	The site is of functional importance** to a species population with regionally important numbers (i.e. >1% of the regional population)
County	A Local Wildlife Site (LWS) or equivalent, designated at a County level
	A substantial* area of a habitat listed within the relevant County Biodiversity Action plan or smaller areas of such habitat, which are considered likely to be essential to maintain the functionality of a larger whole.
	The site is of functional importance** to a species population of county value (i.e. >1% of the county population)
District	A Local Wildlife Site (LWS) or equivalent, designated at a District level
	A substantial* area of a habitat listed within the relevant District Biodiversity Action plan or smaller areas of such habitat, which are considered likely to be essential to maintain the functionality of a larger whole.
	The site is of functional importance** to a species population of district value (i.e. >1% of the district population)
Parish	Area of habitat or species population considered to appreciably enrich the habitat resource within the context of the parish.
	Local Nature Reserves
Local	Habitats and species that contribute to local biodiversity but are not exceptional in the context of the parish.
Low	Habitats that are unexceptional and common to the local area.
<p>*Substantial defined as 'of considerable size or value within that area based on professional judgement, rather than a small, inconsequential area'</p> <p>** Functional importance defined as 'a feature which, based on professional judgement, is of importance to the day to day functioning of the population, the loss of which would have a detectable adverse effect on that population'</p>	

E. RESULTS

E.1 DESK STUDY

E.1.1 PRE-EXISTING INFORMATION

ORDNANCE SURVEY MAPPING AND AERIAL PHOTOGRAPHY

Figures 1 (A1) and 3 (C1) show that the land use to the north and west of the site is dominated by residential housing with scattered areas of amenity greenspaces. A small industrial estate is located adjacent to the southern boundary of the site. Land to the west of the site is made up of a mixture of grassland and scrub with the River Tyne ~360m from the western boundary of the site.

The most recent aerial photograph of the site (Figure 2, C1, 2015) indicates that habitats on site comprise a mosaic of grassland, bare ground, scrub and small blocs of trees. Historic imagery suggests that the former Siemens factory (comprising a mix of industrial buildings) was present within the site between 2001 and 2013.

MULTI AGENCY GEOGRAPHIC INFORMATION FOR THE COUNTRYSIDE WEBSITE¹²

The table below details the internationally and nationally statutorily designated sites within 2km of the survey area.

¹² Multi Agency Geographic Information for the Countryside (MAGIC) www.magic.gov.uk

TABLE 15: DESIGNATED SITES

Designation	Site Name	Reason for Designation	Distance from Survey Area
Local Nature Reserve	Pelaw Quarry Pond	Urban fringe site with a mosaic of ponds, marshes and woodland	~600m south east.

E.1.2 CONSULTATION

LOCAL RECORD CENTRE

The table below summarises the records provided by the local records centre. The full data search results can be provided on request.

TABLE 16: CONSULTATION RECORDS

Taxon	Species	No. of Records within Search Area	Records of Particular Note
Invertebrate	Small Heath	10	2010 ~1.2km
	Dingy Skipper	17	2010 ~1.2km
	Wall	40	2004 ~400m
Terrestrial Mammal	Water vole	3	2008 ~1.2km
	Hedgehog	29	2014 ~950m
	Otter	4	2014 <2km
	Badger	7	2011 <2km
	Common pipistrelle	11	2014 ~1.1km
	Brown Long-eared	1	2005 <2km
	Red Squirrel	2	2005 ~1.4km
Birds	Black Grouse	1	2012 <2km
	Sparrowhawk	2	2009 ~1.6km
	Redwing	1	2002 ~1.7km
	Skylark	3	2006 ~1.2km
	Grey Herron	2	2009 ~1.6km
	Starling	7	2006 ~1.7km
	Linnet	6	2006 ~950m
	Yellow Hammer	2	2006 ~1.7km
	Reed Bunting	2	2006 ~1.7km
	Hobby	1	2013 ~1km
	Herring Gull	1	2002 ~1.7km
	Grasshopper Warbler	1	2006 ~1.2km
	Goosander	1	2002 ~1.7km
	Whimbrel	1	2002 ~1.7km
	House Sparrow	7	2015 <2lm
	Grey Partridge	3	2006 ~1.2km
	Song Thrush	9	2015 <2km
Fieldfare	1	2002 ~1.7km	
Lapwing	1	2002 ~1.7km	

In addition, the records centre provided information relating to the following non-statutory designates sites which lie within the search area:

TABLE 17: CONSULTATION RESULTS (ERIC NE)

Designation	Site Name	Reason for Designation	Distance from Survey Area
Local Nature Reserve	Pelaw Quarry	Urban fringe site with a mosaic of ponds, marshes and woodland	~600m south east.
Gateshead Local Wildlife Site	Bill Quay	Rough grassland, amenity planting blocks, intertidal riverbanks, riverside cliffs and	~55m south west

		dene. Important for bird species	
	Manor Gardens	Unimproved neutral grassland, marsh, pools and scattered scrub. Important for bird species	~1.2km south
Newcastle Local Wildlife Sites	Walker Riverside	Lowland neutral grassland and scrub	~960m west
	Walker Railway Station	Industrial lowland grassland and scrub with 15 species of butterfly recorded	~1.3km north west
Newcastle Site of Local Conservation Importance	Walker Riverside	Grassland and woodland	~760m west
North Tyneside Local Wildlife Site	River Tyne Tidal Extent	Important for bird species	~600m west
South Tyneside Local Wildlife Sites	Hebburn Riverside	Open grassland and broadleaf plantation rising steeply from the River Tyne. Species rich neutral grassland and marsh	~30m west
	Monkton Pond and Wood	Small pond with woodland adjacent to the metro line.	~1.5km south

The location of these sites is shown in the figure below:

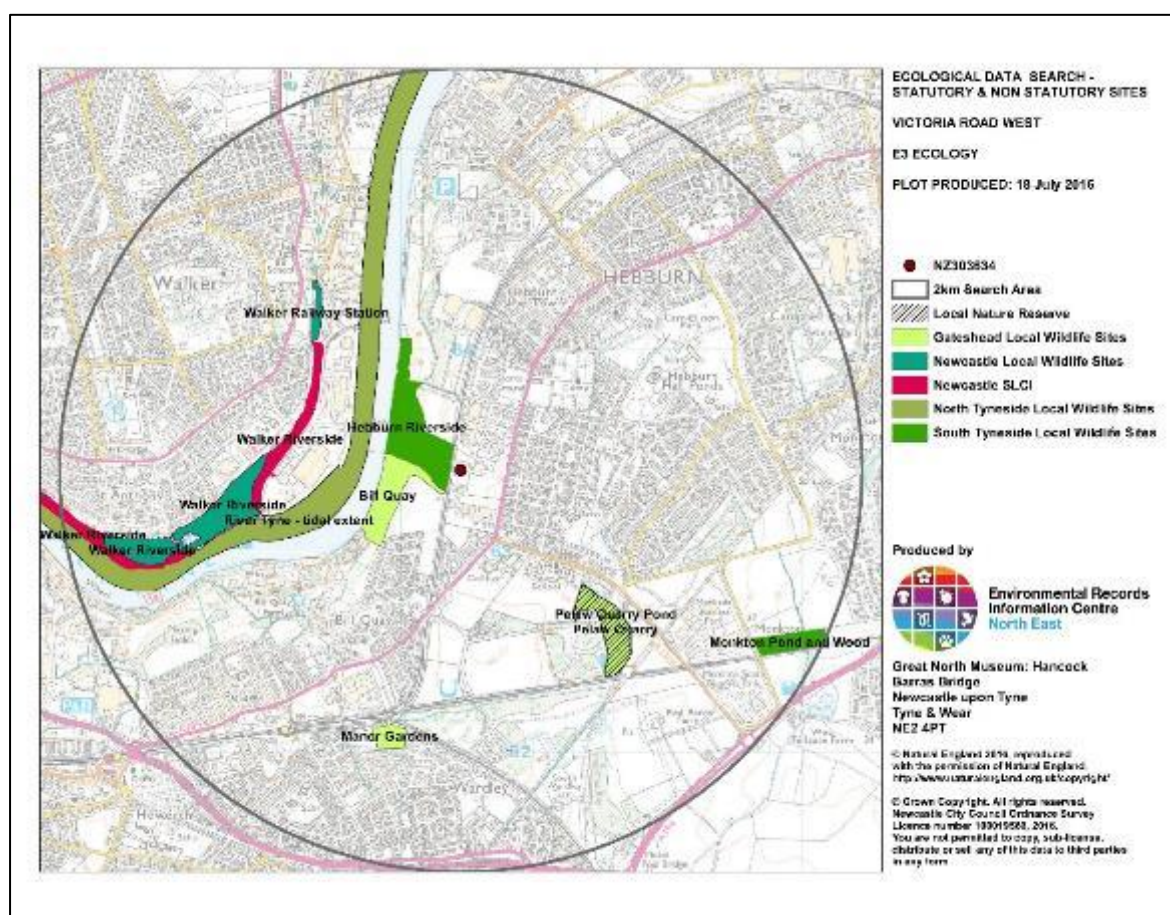


FIGURE 8: CONSULTATION MAP (PRODUCED BY ERIC NE)

E.2 FIELD SURVEY

E.2.1 HABITATS

The development site comprises a mosaic of hard standing with ephemeral vegetation, semi improved neutral grassland, scrub and blocks of trees.

The proposed drainage route includes sections of hard standing, poor semi improved grassland, semi-improved neutral grassland and scrub habitats.

The habitats present within the development area and the potential drainage route are illustrated within Figures 5 and 6 and described in more detail below.

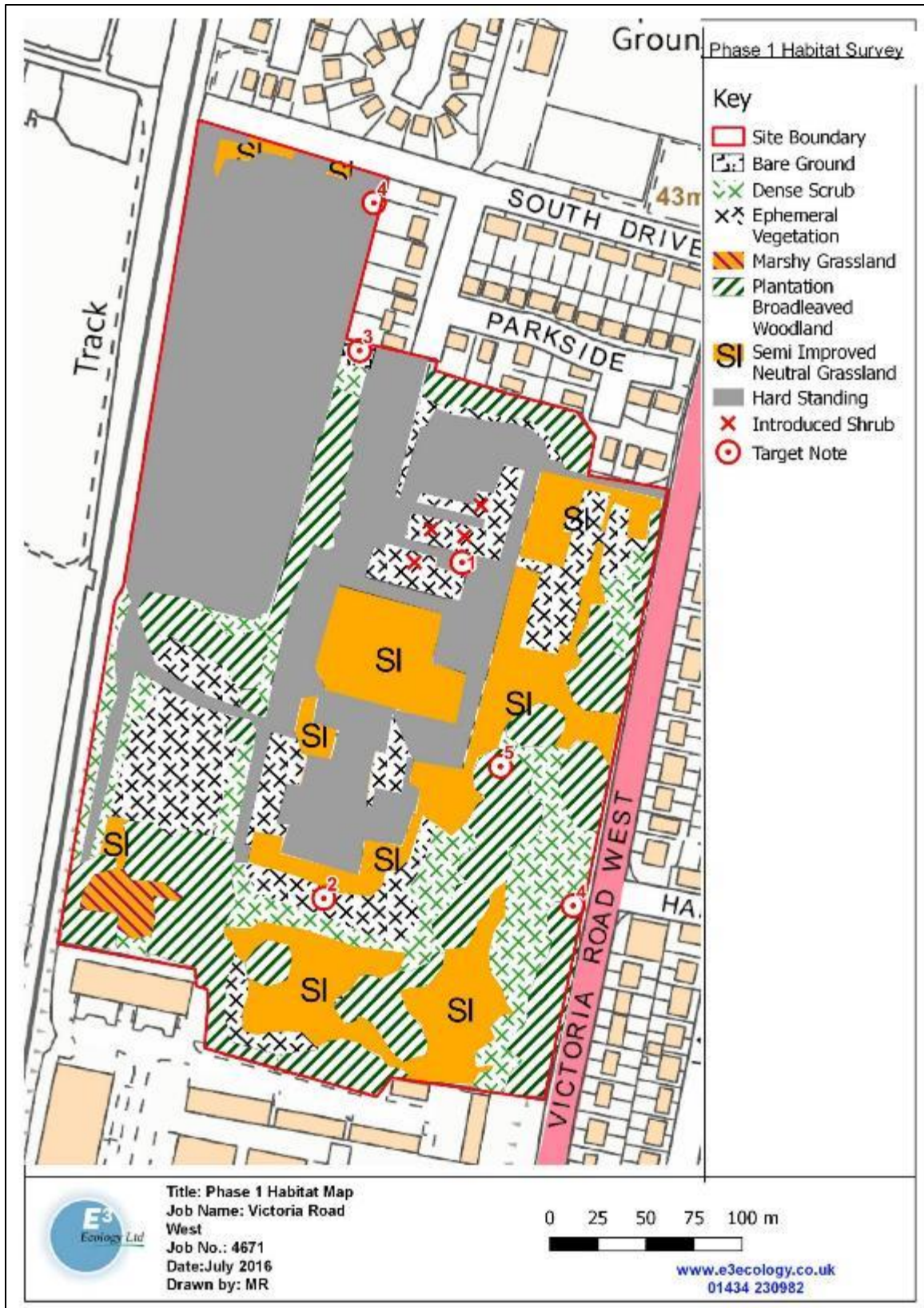


FIGURE 9: HABITAT MAP OF DEVELOPMENT SITE
 (Reproduced from the Ordnance Survey map under licence)

SEMI IMPROVED NEUTRAL GRASSLAND

Blocks of semi improved neutral grassland are scattered throughout the site and have a grass sward of between 10cm and 40cm. Species present within these areas include sweet vernal grass (*Anthoxanthum odoratum*), red fescue (*Festuca rubra*), crested dogs tail (*Cynosurus cristatus*), cocksfoot (*Dactylis glomerata*), meadow grass (*Poa spp*), Yorkshire fog (*Holcus lanatus*), false oat grass (*Arrhenatherum elatius*), Timothy (*Phleum pratense*), creeping bent (*Agrostis stolonifera*), perennial rye grass (*Lolium perenne*), ox eye daisy (*Leucanthemum vulgare*), meadow vetchling (*Lathyrus pratensis*), common vetch (*Vicia sativa*), selfheal (*Prunella vulgaris*), meadow buttercup (*Ranunculus repens*), Alexanders (*Smyrniolum olustratum*), mugwort (*Artemisia vulgaris*), great willowherb (*Epilobium hirsutum*), common valerian (*Valeriana officinalis*), hogweed (*Heracleum sphondylium*), pignut (*Conopodium majus*), yarrow (*Achillea millefolium*), rosebay willow herb (*Chamerion angustifolium*), early purple orchid (*Orchis mascula*), dandelion (*Taraxacum* agg.), cow parsley (*Anthriscus sylvestris*), birds-foot trefoil (*Lotus corniculatus*), white clover (*Trifolium repens*), daisy (*Bellis perennis*), creeping buttercup (*Ranunculus repens*), broadleaf dock (*Rumex obtusifolius*), ragwort (*Senecio jacobaea*), ribwort plantain (*Plantago lanceolata*), black medick (*Medicago lupulina*), stinging nettle (*Urtica dioica*), creeping thistle (*Cirsium arvense*), red clover (*Trifolium pratense*), common century (*Centaureum erythraea*), yellow wort (*Blackstonia perfoliata*), cleavers (*Gallium aparine*), goat's beard (*Tragopogon pratensis*) and hop trefoil (*Trifolium campestre*).



EPHEMERAL VEGETATION

Sections of the site previously occupied by structures have begun to colonize with ephemeral vegetation as well as between gaps in large sections of hard standing. Species present within these areas include birds-foot trefoil, red fescue, ragwort, yarrow, common chickweed (*Stellaria media*), mouse eared hawkweed (*Pilosella officinarum*), common sorrel (*Rumex acetosa*), common toadflax (*Linaria vulgaris*), mellilot (*Melilotus officinalis*), coltsfoot (*Tussilago farfara*), red clover, buddleia (*Buddleja davidii*) and mare's tail (*Equisetum* sp.). Japanese knotweed (*Fallopia japonica*) (listed as an invasive species under Schedule 9 of the Wildlife and Countryside Act 1981) is also present within the northern eastern section of the site.



MARSHY GRASSLAND

A section of marshy grassland is present within the south western corner of the site. This area is dominated by common sedge (*Carex nigra*) and compact rush (*Juncus conglomeratus*). Other species present within this area include northern marsh orchid (*Dactylorhiza purpurella*), early purple orchid, common spotted orchid (*Dactylorhiza fuchsii*), wood rush (*Luzula* spp), tufted hair grass (*Deschampsia cespitosa*) and mare's tail,



SCRUB

Blocks of dense scrub and scattered scrub are present throughout the site. Species present within these areas include elder (*Sambucus nigra*), laurel (*Prunus laurocerasus*), flowering currant (*Ribes sanguineum*), bramble (*Rubus fruticosus*), Swedish whitebeam (*Sorbus intermedia*), Travelers Joy (*Clematis vitalba*), honeysuckle (*Lonicera periclymenum*), hawthorn (*Crataegus monogyna*), hazel (*Corylus avellana*), silver birch (*Betula pendula*), willow (*Salix* sp), Russian comfrey (*Symphytum x uplandicum*), rhododendron (*Rhododendron ponticum*), dog rose (*Rosa canina*), gorse (*Ulex europaeus*), sea buckthorn (*Hippophae rhamnoides*), privet (*Ligustrum vulgare*), snowberry (*Symphoricarpos albus*) and holly (*Ilex aquifolium*). Cotoneaster which is



listed as an invasive species on Schedule 9 of the Wildlife and Countryside Act is also present scattered throughout the site.

PLANTATION WOODLAND

Strips and blocks of plantation woodland are present along site boundaries and also throughout the site. Dominant species include silver birch, Swedish whitebeam, sycamore (*Acer pseudoplatanus*), cherry (*Prunus avium*), alder (*Alnus glutinosa*), poplar (*Populus spp*), laburnum (*Laburnum spp*), and ash (*Fraxinus excelsior*). Other species include rowan (*Sorbus aucuparia*), Norway maple (*Acer platanoides*) and apple (*Malus spp*). A small number of Scot's pine (*Pinus sylvestris*) are present within the central block of woodland.

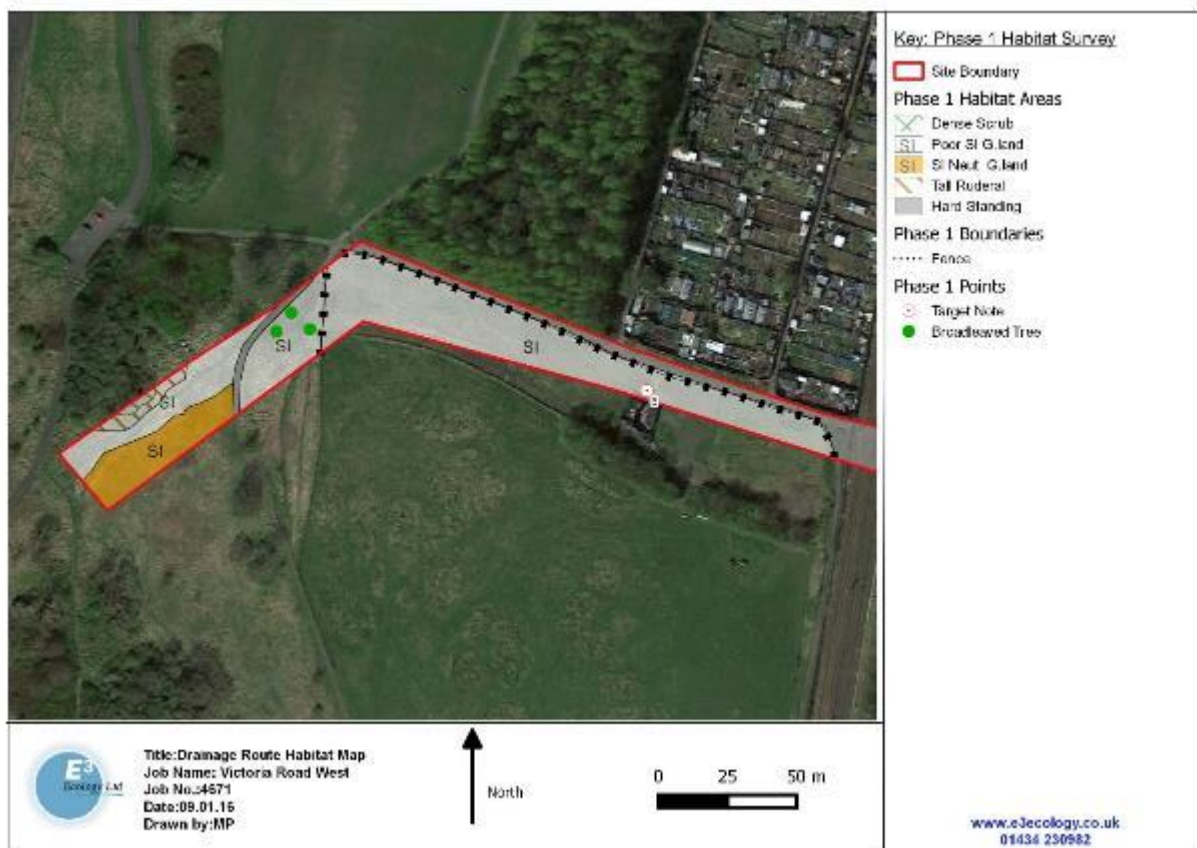


FIGURE 10: HABITAT MAP - POTENTIAL DRAINAGE ROUTE
(REPRODUCED UNDER LICENCE FROM GOOGLE EARTH PRO.)

SEMI IMPROVED NEUTRAL GRASSLAND

A field of semi-improved neutral grassland is present within the local wildlife site at the south west of the drainage route. Drainage from the site will link into an existing outflow located within the LWS. Species present include cocks foot, perennial rye, Yorkshire fog, false oat grass, red fescue, common knapweed, creeping cinquefoil, crested dogs tail, cow parsley, yarrow, red clover, birds foot trefoil, hogweed, creeping thistle, hedge bindweed, ox eye daisy, black medick, tall melliott, greater willowherb (*Epilobium hirsutum*), common mouse-ear (*Cerastium fontanum*), vetch sp. and orchid sp.



POOR SEMI IMPROVED GRASSLAND

Southern boundaries of the proposed drainage route are defined by horse grazed paddocks. A section of poor semi improved grassland is also present adjacent to the River Tyne. Species present within these areas include cocksfoot, white clover, ribwort plantain, perennial rye, dandelion, meadow grass (*Poa* spp), pineapple weed, hairy bitter cress (*Cardamine hirsuta*), ragwort, red clover, broadleaf dock, red fescue, creeping buttercup, and self-heal.



TALL RUDERAL

A small section of tall ruderal vegetation is present adjacent to dense scrub and grassland habitat at the western boundary of the site. Dominant species present include bramble, rosebay willowherb, creeping thistle, stinging nettle, and mugwort. Other species include false oat grass (*Arrhenatherum elatius*), cocks foot, and Timothy grass (*Phleum pratense*).



DENSE SCRUB

A small section of dense scrub is present at the far west of the drainage route. The area is dominated by introduced ornamental varieties.

SCATTERED BROADLEAF TREES

A small number of scattered semi-mature ash trees are present within the poor semi-improved grassland habitats at the central point of the proposed drainage route.



E.2.2 SPECIES

BATS

The only structures present within the site are small brick substations (target note 4) which lack suitable potential roosting features. A single willow tree (target note 5) was noted to include features of moderate potential to support roosting bats.

Broadleaf trees located along the site boundaries have the potential to support commuting bats within the local area. Semi improved grassland, scrub and woodland margins all have the potential to support foraging bat species such as pipistrelles.

OTTER

There are no watercourses within the site. The River Tyne is located ~360m to the east of the development site, however connectivity to the site is severed by the railway line which runs parallel to the western boundary. The site also lack suitable resting up features. It is considered likely that this species is absent from the site. Habitats along the proposed drainage route are considered sub optimal for this species.

GREAT CRESTED NEWT

There are no ponds within the site and Ordnance Survey maps identify no ponds within 500m of the site boundaries. Semi improved grassland, scrub and woodland within the site have the potential to support this species during its terrestrial phase. Consultation identified no records of this species within 2km and due to the lack of potential breeding ponds within 500m it is considered likely that this species is absent from the site and the potential drainage route.

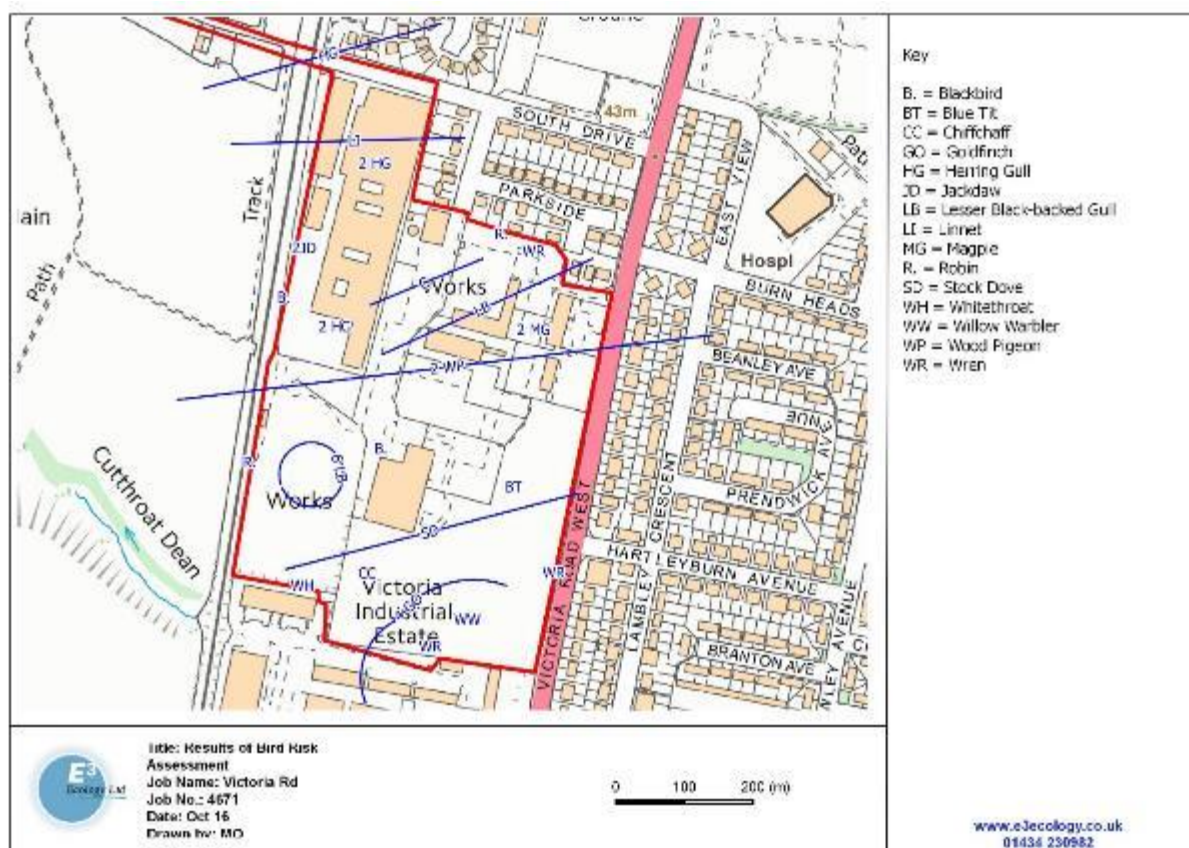
BIRDS

Dense scrub and blocks woodland have the potential to support nesting and foraging bird species. Blocks of semi improved grassland have the potential to support ground nesting birds, though in general are largely considered too small. A single survey and risk assessment of the site recorded a typical urban assemblage, including the following species:

TABLE 18: BREEDING BIRD ASSEMBLAGE EVALUATION			
Species	Number recorded during survey	National Priority¹³	Notes
Blackbird	2		Calling from scrub/likely breeding
Blue Tit	1		Calling from scrub/likely breeding
Chiffchaff	1		Calling from scrub/likely breeding
Goldfinch	4		Overflying site/potential breeding species
Herring Gull	5	✓	Overflying site/loafing/roosting on site
Jackdaw	2		Overflying site
Lesser Black-backed Gull	6		Overflying site/loafing/roosting on site
Linnet	1	✓	Overflying site/potential breeding species
Magpie	2		Overflying site/potential breeding species
Robin	2		Calling from scrub/likely breeding
Stock Dove	1		Overflying site/potential breeding species
Whitethroat	1		Calling from scrub/likely breeding
Willow Warbler	1		Calling from scrub/likely breeding
Wood Pigeon	2		Overflying site/potential breeding species
Wren	3		Calling from scrub/likely breeding
Identified through a Risk Assessment			
Species	National Priority	Notes	
Dunnock	✓	Potential breeding species	
Great Tit		Potential breeding species	
House Sparrow	✓	Potential breeding species	
Kestrel		Potential foraging on site	
Black-headed Gull		Potential loafing and roosting on site	
Sparrowhawk		Potential foraging on site	
Song Thrush	✓	Potential breeding species	
Bullfinch	✓	Potential breeding species	
Fieldfare		Potential winter foraging on site	
Redwing		Potential winter foraging on site	
Notes:			
Red List Species are listed by the BTO/BoCC as species of high national conservation concern.			
Amber listed species are listed by the RSPB as species of medium national conservation concern ¹⁴			

¹³ Species listed on the UK Post-2010 Biodiversity Framework published July 2012, formerly UK BAP

¹⁴ Eaton MA, Aebischer NJ, Brown AF, Hearn RD, Lock L, Musgrove AJ, Noble DG, Stroud DA and Gregory RD (2015) Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. British Birds 108, 708-746



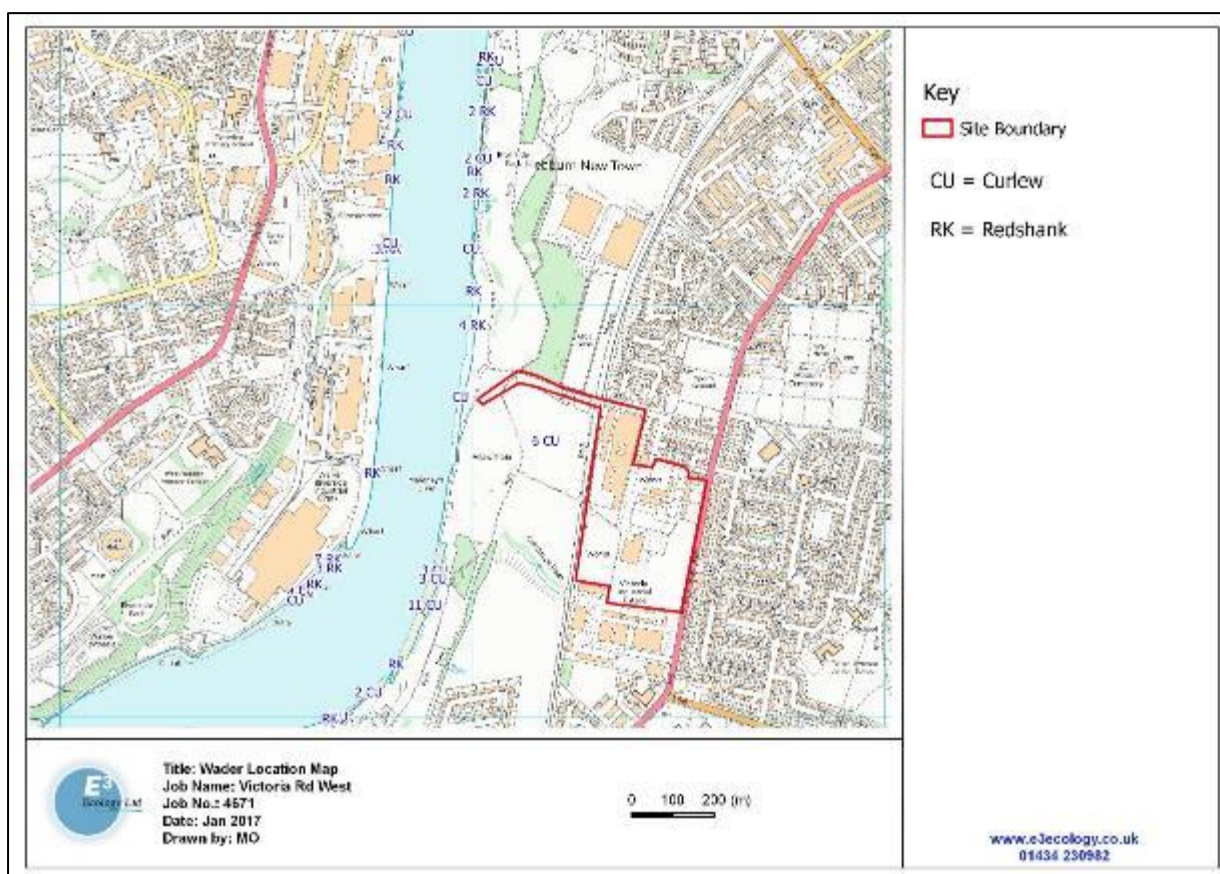
**FIGURE 11: BIRD RISK ASSESSMENT MAP
 (REPRODUCED UNDER LICENCE FROM ORDNANCE SURVEY MAP)**

Areas of the River Tyne to the north of the site were surveyed between August and October 2016 to assess usage by non-breeding waterbirds. In addition to waterbirds, all species encountered were recorded. The following table highlights the species and number recorded during survey.

TABLE 19: SPECIES RECORDED DURING WATER BIRD SURVEYS					
Species	Counts				
	18/08/2016	31/08/2016	12/09/2016	20/09/2016	10/10/2016
Blackbird	1	-	-	-	-
Blackcap	-	-	1	-	-
Black-headed Gull	11	11	25	10	4
Carrion Crow	3	-	-	-	-
Chiffchaff	2	1	1	2	-
Coal Tit	1	-	-	1	2
Common Tern	2	-	-	-	-
Cormorant	1	-	4	3	1
Curlew	2	6	4	10	2
Goldcrest	-	-	-	1	-
Great Black-backed Gull	-	-	-	4	1
Great Spotted Woodpecker	-	-	-	1	-
Greenfinch	2	-	-	-	-
Grey Heron	-	-	-	3	3
Grey Wagtail	-	-	-	1	-
Herring Gull	10	25	74	54	2
Jay	1	-	-	-	-
Kingfisher	-	-	-	1	-
Lesser Black-backed Gull	1	8	2	-	-
Lesser Whitethroat	-	1	1	-	-
Magpie	4	-	-	-	-
Mallard	-	6	-	6	7

Redshank	-	3	10	9	13
Redwing	-	-	-	-	6
Song Thrush	-	-	-	-	4
Willow Tit	-	-	-	-	1
Willow Warbler	1	-	-	-	-
Woodpigeon	6	-	-	-	-
Totals	48	61	122	106	46

The species recorded were largely typical to the habitats present and included small numbers of both curlew and redshank. Gulls are well represented, as the River provides good quality foraging and roosting opportunities. With the exception of the waterbirds, the remaining species were recorded within vegetation at the edges of the river. The following figure illustrates the locations that waders were recorded.



**FIGURE 12: LOCATION OF WADERS WITHIN SURVEY AREA
(REPRODUCED UNDER LICENCE FROM ORDNANCE SURVEY MAP)**

Of the species recorded, 14 are of conservation concern, these species are listed within the following table.

TABLE 20: WINTERING BIRD ASSEMBLAGE EVALUATION		
Species	Peak Count	National Priority Species
Blackbird	1	
Blackcap	1	
Black-headed Gull	25	
Carrion Crow	3	
Chiffchaff	2	
Coal Tit	2	
Common Tern	2	
Cormorant	4	
Curlew	10	✓
Goldcrest	1	

Great Black-backed Gull	4	
Great Spotted Woodpecker	1	
Greenfinch	2	
Grey Heron	3	
Grey Wagtail	1	
Herring Gull	74	✓
Jay	1	
Kingfisher	1	
Lesser Black-backed Gull	8	
Lesser Whitethroat	1	
Magpie	4	
Mallard	7	
Redshank	13	
Redwing	6	
Song Thrush	4	✓
Willow Tit	1	✓
Willow Warbler	1	
Woodpigeon	6	4
Notes: Red List Species are listed by the BoCC as species of high national conservation concern. Amber listed species are listed by the BoCC as species of medium national conservation concern ¹⁵		

BADGER

Potential badger and fox field signs were noted during the updating tree survey in October 2016, however a detailed, species specific survey undertaken in December 2016 recorded no definitive evidence of badger. Woodland blocks have the potential to support sett creation although none have been found during the respective site walkovers. Grassland habitats within the site have the potential to support foraging badger although higher quality habitat is present to the west and south west of the site.

Evidence of other mammals including rabbit, fox and potential deer field signs were recorded on site during the badger survey. Field signs included the remains of a potential fox kill, fox dung and footprints, rabbit burrows, potential deer couches and sections of permeable fence with well worn tracks were also noted.

¹⁵ Eaton MA, Aebischer NJ, Brown AF, Hearn RD, Lock L, Musgrove AJ, Noble DG, Stroud DA and Gregory RD (2015) Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. British Birds 108, 708-746



FIGURE 13: BADGER WALKOVER – DECEMBER 2016
(REPRODUCED UNDER LICENCE FROM GOOGLE EARTH PRO.)

WATER VOLE AND WHITE-CLAWED CRAYFISH

Consultation provided three records of water vole with the nearest record ~1.1km from the site. However there are no water courses within the development site and no suitable connectivity to other watercourses within the local area. It is therefore considered likely that both water vole and white-clawed crayfish are absent from the development area and the proposed drainage route.

REPTILES

Consultation provided no reptile records within 2km however large piles of rubble and stone scattered throughout the site have the potential to provide suitable refugia for this species and connectivity to the wider area is available along the adjacent railway line. Semi improved grassland and scrub also provide suitable foraging habitat for this taxa. However artificial reptile refugia were installed on site and checked on 6 occasions with no reptiles recorded. It is therefore considered that the potential for reptiles to be present is low.

RED SQUIRREL

Consultation provided two recorded of this species with the nearest record ~1.4km from the development site. Although the blocks of broadleaf woodland have the potential to provide sub optimal habitat for this species, the site lacks large blocks of conifer favored by this species. No field signs for this species were noted during the survey and connectivity between the development site and higher quality habitat within the wider area is negligible. It is considered likely that this species is absent from the site.

INVERTEBRATES

The semi improved grassland on site has the potential to support priority invertebrate species and larval food source plants for both dingy skipper and grayling are present within the site. Results of the butterfly surveys are provided in the table below.

TABLE 21: BUTTERFLY SURVEY RESULTS		
DATE	SPECIES	ABUNDANCE
14.06.16	Large White	3
	Small White	1
	Large Skipper	10
	Small Skipper	2
	Small Heath	5
	Common Blue	4
20.06.16	Large White	1
	Small White	1
	Large Skipper	1
	Dingy Skipper	3
	Small Skipper	10
	Small Copper	3
	Small heath	4
	Common Blue	6
Painted Lady	3	
30.06.16	Small Tortoiseshell	1
	Meadow Brown	2
	Large Skipper	1
	Small Skipper	2
	Ringlet	2
	Speckled Wood	1
	Common Blue	3
08.07.17	Small Tortoiseshell	1
	Meadow Brown	7
	Large Skipper	1
	Small Skipper	5
	Ringlet	48

	Small Heath	1
	Common Blue	4
18.07.16	Large White	2
	Small Tortoiseshell	6
	Meadow Brown	15
	Large Skipper	10
	Ringlet	33
	Small Heath	3
	Common Blue	3
22.07.16	Large White	2
	Small White	1
	Small Tortoiseshell	3
	Meadow Brown	23
	Large Skipper	8
	Small Skipper	72
	Ringlet	18
	Common Blue	1

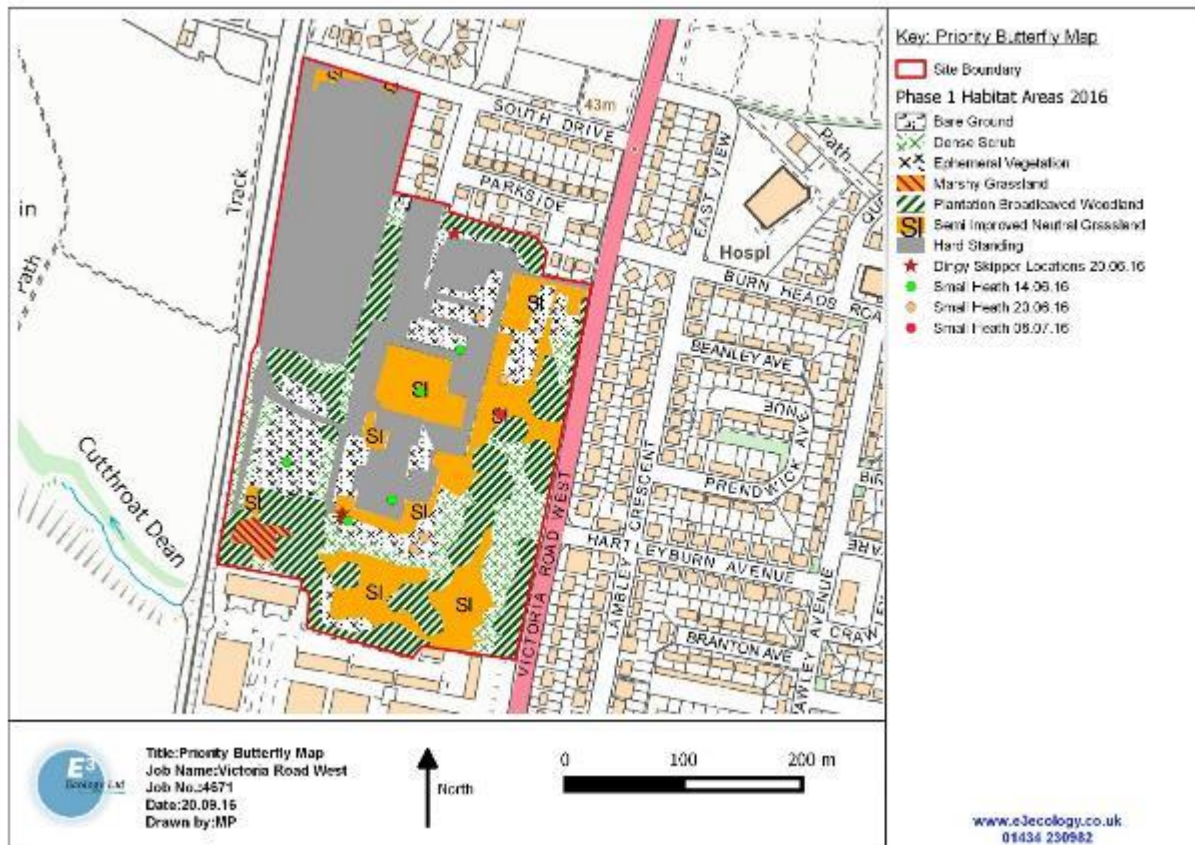


FIGURE 14: BUTTERFLY LOCATION MAP
 (REPRODUCED UNDER LICENCE FROM THE ORDNANCE SURVEY MAP)

A peak count of three dingy skipper were recorded on site on the 20th June. Due to initial access restrictions to the site the dingy skipper surveys were undertaken at the end of this species flight period and it is therefore likely that there is a larger population of this species on site than has been recorded. Grayling surveys were undertaken during the peak flight time for this species however were not recorded within the site.

NATIONAL PRIORITY AND LOCAL BAP SPECIES

There is potential for species such as hedgehog to be present within the site on occasion.

E.2.3 TARGET NOTES

TARGET NOTE 1 – JAPANESE KNOTWEED
Scattered low level Japanese knotweed was noted throughout the ephemeral grassland at the north eastern extent of the site. Japanese knotweed is listed as an invasive species on Schedule 9 of the Wildlife and Countryside Act 1981.



TARGET NOTE 2- EPHEMERAL GRASSLAND

A section of ephemeral grassland in the southern section of the site was predominately made up of a mixture of bare ground and compact rush. This area was not noted to only hold a very small puddle of standing water during any of the preliminary ecological appraisal, however was dry on all subsequent surveys.



TARGET NOTE 3 – BARE GROUND

A section of bare ground with sections of weed control membrane was noted adjacent to the central area of the northern boundary. During the preliminary ecological appraisal consultation with security on site identified that Japanese knotweed in this area had been treated and removed previously.



TARGET NOTE 4 – SUB STATIONS

There are two electricity substations within the site. One located on the eastern boundary and the other on the northern boundary. Both structures are brick built with flat bitumen roofs and timber doors. Both structures are considered to provide negligible roosting potential for bat species.



TARGET NOTE 5 – WILLOW TREE

There is a single mature willow tree within the site boundary that was noted to contain potential roosting features. Aerial inspection in October 2016 identified a single high risk feature, but no sign of roosting bats. However, bat activity surveys within the site identified low levels of overall activity within the site, with no activity recorded in the 30 minutes after sunset and no bats recorded within the vicinity of this tree (or full bat survey results please see the separate bat report). This combined with the location of the tree and lack of field signs recorded it is recommended that any works to the tree or removal of the tree will be carried out to a bat/tree method statement



TARGET NOTE 6 – SMALL STABLES

Small stables and storage sheds are present within the grazed paddocks to the south of the proposed drainage route. These are a mix timber and metal construction with ridged monopitch roofs. Considered to be of negligible bat roost risk.



F. SITE ASSESSMENT

F.1 HABITATS

The site overall is considered to support habitats of up to Parish value, with a mosaic of habitats including botanically rich areas which have emerged as a consequence of disturbance. Sections of the site of particular botanical importance include the southern area of marshy grassland and sections of semi improved neutral grassland. Dingy skipper were noted within sections of grassland and ephemeral short perennial habitat at the east of the site and therefore these sections are also classed as of Parish value due to the presence of this species. Blocks of broadleaf trees within the site are considered to be of local value.

The proposed drainage route is considered to support habitats of low ecological value, being dominated by poor semi improved grassland, tall ruderal vegetation, scattered broadleaf trees and scrub. The sections of semi improved neutral grassland are more species rich and are considered to be of local value.

F.2 NOTABLE SPECIES

The two electricity substations present within the site lack suitable features to support roosting bats. Overall they are considered to be of negligible value to roosting bats. There is a single tree within the site boundary that was noted to contain potential roosting features. Aerial inspection in October 2016 confirmed a single moderate risk feature, but no sign of roosting bats. However, bat activity surveys within the site identified low levels of overall activity within the site, with no activity recorded in the 30 minutes after sunset and no bats recorded within the vicinity of this tree (for full bat survey results see the separate bat report). This combined with the location of the tree and lack of field signs recorded it is recommended that any works to the tree or removal of the tree will be carried out to a bat/tree method statement.

Blocks of broadleaf trees, scrub, marshy grassland and semi improved grassland all have the potential to support foraging bat species and the boundary tree lines provide connectivity to higher quality habitat within the local area. Specific bat surveys have been undertaken and results are presented within a separate report.

Ornithological risk assessment indicated that the site is likely to support a typical range of urban fringe species. Dense scrub and blocks of woodland have the potential to support nesting and foraging bird species. Blocks of semi improved grassland have the potential to support ground nesting birds, though in general are largely considered too small. The site will provide potential foraging opportunities to species breeding in the wider area, whilst the hard standing provides a loafing and potential roosting area for large gull species. From an initial assessment the site is considered to be of up to parish ornithological value, with species such as stock dove scarce in the wider area.

Detailed wintering bird surveys have been undertaken between August and October 2016 to determine usage of the area adjacent by waterbirds and principally waders to further enable an assessment of the potential impacts, of an increased outflow into the River Tyne, via an existing outflow point. Surveys highlighted that the area is used by small to moderate numbers of non-breeding redshank and curlew. As illustrated within figure 12 these species are spread throughout the survey area, with no obvious aggregations recorded as those found in other sections of the river where the extent of mud is greater. Impacts associated with increased flow are considered to be minimal, with the increased flow unlikely to limit foraging opportunities. Observation of bird behavior in other sections of the river indicate that flow from exiting outflows does not impact the birds present.

During these surveys a single willow tit, a species generally considered to be of County ornithological value in County Durham was recorded within scrub adjacent to the river, off site. As this species is likely to move around a relatively wide area, it is considered that the wider riverside park therefore forms part of a network of habitats of up to county value. The general assemblage of the site, including the waders on the River Tyne is likely to be of up to district value.

Potential badger and fox field signs were noted during the updating tree survey in October, however a detailed, species specific site survey undertaken in December 2016 recorded no evidence of badger. Woodland blocks have the potential to support sett creation although none have been found during the respective site walkovers. Grassland habitats within the site have the potential to support foraging badger although higher quality habitat is present to the west and south west of the site. No field signs for badger have been confirmed within the site and as such overall the site is considered to be of low value to this species.

Evidence of other mammals including rabbit, fox and potential deer field signs have been recorded within the southern section of the site.

Large spoil mounds scattered throughout the site have the potential to provide hibernaculum and woodland margins, scrub and grasslands on site have the potential to support foraging reptiles. Specific reptile surveys recorded no reptile species on site, however the site is well connected to other suitable habitat within the local area. Overall the value of the site to reptile species is considered to be low.

The priority invertebrate species dingy skipper has been recorded on site with a peak count of 3 during the butterfly surveys. In total 13 species of butterfly have been recorded within the site. Surveys carried out at the appropriate time of the year did not record grayling within the site. Overall the value of the site to priority invertebrate species is considered to be of Parish value.

There is potential for priority species such as hedgehog to forage across the site on occasion and the overall value of the site to this species is considered to be low.

Due to the lack of suitable habitat within the site, lack of consultation records within 2km and or lack of connectivity to higher quality habitat within the local area great crested newt, water vole white clawed crayfish and red squirrel are all considered likely to be absent from the site and proposed drainage route. Otter are known to be present along the River Tyne however are considered likely to be absent from the development site and along the proposed drainage route due to a lack of suitable habitats.

F.3 LIMITATIONS

Due to initial access restrictions to the site the dingy skipper surveys were undertaken at the end of this species flight period and it is therefore likely that there is a larger population of this species on site than has been recorded.

Access to some sections of the potential drainage route were restricted. Habitats within these areas were assessed from the public footpath.

G. IMPACT ASSESSMENT

The likely effects of the proposed development, without appropriate targeted mitigation and/or compensation, are detailed below.

G.1 POTENTIAL IMPACTS AND/OR EFFECTS¹⁶

G.1.1 HABITATS

- Loss of habitats which are overall considered to be of up to Parish value.
- Loss of nesting bird habitats of up to Parish value.
- Disturbance to and or severance of bat commuting and foraging habitats through increased lighting on site.

G.1.2 SPECIES

- Loss of an early mature willow tree with roosting features moderate potential of moderate potential for roosting bats, but of low risk to support the species.
- Loss of habitat used by dingy skipper population of Parish value.
- Potential low risk of harm to reptile species during site clearance works.
- Low potential risk of harm to badger and hedgehog during site works.
- Loss of potential commuting and foraging habitat for bat species within the local area.
- Harm / disturbance to nesting birds if vegetation removal is undertaken during the breeding season (March to August inclusive).
- Potential harm to fox, rabbit and deer during site works.

G.2 POTENTIAL IMPACTS AND/OR EFFECTS ON STATUTORY AND NON STATUTORY SITES DESIGNATED FOR NATURE CONSERVATION

The development has the potential to impact upon the adjacent Local Wildlife Sites and the adjacent river corridor.

Direct Impacts:

The proposed drainage route will directly impact upon the Hebburn Riverside Local Wildlife Site during construction. However the proposed route would include the short term loss of the existing tarmac footpath and sections of grazed paddocks of low ecological value. The area of semi-improved neutral grassland will be subject to turf removal followed by excavation of a trench for the drainage outflow. The turves will then be placed back in their original locations. Therefore significant long term effects on these habitats are considered unlikely.

Wintering bird surveys highlighted that the area is used by small to moderate numbers of non-breeding redshank and curlew, with these species spread throughout the survey area with no obvious aggregations as those found in areas where the extent of the mud is greater. An existing outflow point will be utilised. Impacts associated with increased flow are considered to be minimal, with the increased flow unlikely to limit foraging opportunities.

Previous surveys undertaken by E3 Ecology Ltd along other sections of the River Tyne for similar developments concluded that existing outflows along other sections, and where larger number of birds have been recorded, do not appear to impact the birds present. As such

¹⁶ An impact is defined as an action resulting in changes to an ecological feature. For example, construction works removing a hedgerow. An effect is defined as the outcome to an ecological feature from an impact. For example, the effect on a dormouse population of the loss of a hedgerow.

impacts on bird species due to the increased out flow as a result of this development are also considered to be minimal. Therefore no significant impacts on bird species within this area are anticipated. During consultation with the Local Authority Ecologist it was agreed that no further monitoring surveys would be required.

Indirect Impacts:

The proposed residential development will result in an increase in local population and an assumed increase in numbers of domestic dogs and cats. Using the average household size of the North East of England of 2.2 people¹⁷ an increase of 735 people to the local area is expected as a result of the development. The 2016 Pet Population Report¹⁸ indicated that in the north east of England 23% of households own dogs, with an average of 1.4 dogs per household. For the new development this would equate to 108 dogs (when rounded to a whole number).

With a potential additional 735 people moving into the site, there is potential for additional footfall including dog walkers within the Local Wildlife Site. The busy Metro railway line may discourage a proportion of new residents from accessing the Local Wildlife Site via the access point at the North West corner of the new development. Hebburn Local Wildlife Site has been designated for its open grasslands and plantation woodlands and there are a number of existing tarmac and other paths are present through the site. Increased footpath signage, litter bins and dog fouling bins installed within the Local Wildlife site to address the potential impacts are recommended.

This report also suggests that 12% of households in the north east own cats, with an average of 1.6 cats per household. For the new development this would equate to 64 cats. In addition, studies in the UK have found that cat owning households were significantly more likely to have a garden than through without cats, reflecting householders desire to provide outside access for cats. Plans for the proposed development include gardens for all residential dwellings on site, with communal areas for the apartment blocks. The same study also found that the vast majority of cat owning households in the UK were outside of urban areas¹⁹. Only 26.9% of cat owning households lie within urban areas, which perhaps reflects a perception that cats are at an increased risk of road accidents in urban areas and reflecting the householders' awareness of the need for space to exercise. Garden and amenity spaces within the proposed development have the potential to be used by cats, aiding movement around the outskirts and within the new development. At its closest point the adjacent Local Wildlife Site is ~190m to the west, however the busy metro line between the two sites is likely to impede the dispersal of domestic cats to the adjacent Local Wildlife Site. Therefore the overall impact for additional cats within the Local Wildlife site is not considered likely to be significant.

There is also potential for an increase in anti-social behavior within the adjacent Local Wildlife Site due to the increase in new residents. The creation of a residents association or a 'friends of' group made up of residents from the new development, who have a common interest within the Local Wildlife Site has the potential to increase the reporting of incidents and potentially reduce the likelihood of antisocial behavior in general. A leaflet highlighting the importance of the adjacent Local Wildlife site and encouraging the participation in the long term management and upkeep of the site, could be provided to the new residents in order reduce the overall impacts of the new residential development.

¹⁷ Census 2011 Northumberland Knowledge Factsheet – County Durham (Local Authority)

¹⁸ <http://www.pfma.org.uk/pet-population-2016>

¹⁹ Murray, J. K., Browne, W. J., Roberts, M. A., Whitmarsh, A., & Gruffydd-Jones, T. J. (2010). Number and ownership profiles of cats and dogs in the UK. *The Veterinary Record*, 166(6), 163.

H. RECOMMENDATIONS

The mitigation strategy aims to minimise effects on biodiversity by:

- avoiding significant negative impacts where possible through good design; and
- developing approaches to mitigate any remaining unavoidable impacts.

Where any significant residual impacts on biodiversity are anticipated, compensation may then be proposed. This approach is in-line with CIEEM recommendations²⁰.

H.1 AVOIDANCE AND MITIGATION STRATEGY

H.1.1 SITE DESIGN

- Trees will be retained on site wherever possible. Details are contained within E3 Ecology report 4671 Victoria Road West TPP R06.
- An 'ecological corridor' along the eastern, western and southern boundary will be retained. Native planting will be implemented within this buffer and will be designed to enhance structural diversity, and will include plants bearing flowers, nectar and fruits which are attractive to invertebrates, thereby helping to maintain the food resource for bats and wildlife generally.
- Light spill along the southern and western boundaries will be less than 2 lux. Lighting around retained trees will be minimised as far as is practicable. Where security lights are required, these will be on a short timer and sensitive only to larger objects.
- An existing outflow into the River Tyne will be utilised. Impacts associated with increased flow are considered to be minimal, with the increased flow unlikely to limit bird foraging opportunities or result in large scale loss of sections of mudflat. Previous surveys undertaken by E3 Ecology along other sections of the River Tyne for similar developments concluded that existing outflows along other sections (with similar outflow rates to those expected as a result of this development), and where larger number of birds have been recorded, do not impact the birds present. As such impacts on bird species due to the increased out flow as a result of this development are also considered to be minimal. Therefore no significant impacts on bird species within this area are anticipated and no modification to the design of the out flow are required.

H.1.2 TIMING OF WORKS

- Vegetation clearance/tree felling will be undertaken outside of the bird nesting season (March to August inclusive) unless a checking survey by a suitably experienced ornithologist confirms the absence of active nests.
- If works are to be undertaken to an existing outflow, works should be undertaken outside the core wintering period October – April, to minimise disturbance to wintering birds.
- Ground works within a 20m buffer of potential fox earths and rabbit warrens will not commence between the months of January and early July unless a checking survey has confirmed these features are not in use.

H.1.3 WORKING METHODS AND BEST PRACTICE

- Works on site will be undertaken in accordance with the reptile working method statement appended to this report.

²⁰ Chartered Institute for Ecology and Environmental Management (2016) Guidelines for Ecological Impact Assessment in the UK and Ireland - Terrestrial, Freshwater and Coastal

- Works to an early single mature white willow tree with potential roosting features will be carried out to a precautionary method statement for bats.
- Excavation works around fox earths in the southern section of the site will not be undertaken during the period January – early July (inclusive) unless a checking survey has confirmed features are not in use.
- A butterfly mitigation and management strategy for the off-site mitigation has been produced. All works should be undertaken in accordance with this document.
- The landscape strategy which is being developed for this site should be designed to include management of the wildlife corridor whilst this feature is established. Ongoing management of this feature should be included in the long term management of the site.
- Any excavations left open overnight will have a means of escape for mammals that may become trapped in the form of a ramp at least 300mm in width and angled no greater than 45°.
- The roots and crowns of retained trees will be protected throughout the development through the provision of adequate construction exclusion zones in accordance with the guidance given by BS5837:2012.
- Japanese knotweed and cotoneaster should be removed from site in accordance with the working method statements appended to this report.

H.2 ADDITIONAL RECOMMENDATIONS

- The overall loss of Parish value habitats cannot be mitigated or compensated for within the site due to the lack of green space available within the new development plans. Off-site mitigation for the loss of Parish value habitats and Parish value dingy skipper habitats will also be required. Full details are provided in the separate butterfly mitigation and management strategy.
- Installation of interpretation signage, litter bins, benches and dog fouling bins at strategic locations around the adjacent Local Wildlife Site in order to reduce impacts of additional residents and pets from the proposed development.
- Production of a leaflet for the new residents in order to highlight the importance of the adjacent Local Wildlife Site and encourage participation in the long term management and upkeep of the site.

During discussion between E3 Ecology and the Local Authority ecologist it was agreed that no further monitoring of the outflow area was required.

APPENDIX 1. STATUTORILY AND NON-STATUTORILY DESIGNATED SITES

A1.i Statutorily Designated Sites

Ramsar Sites

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. The Convention recognizes wetlands as important ecosystems and includes a range of wetland types from marsh to both fresh and salt water habitats. The wetlands can also include additional areas adjacent to the main water-bodies such as river banks or coastal areas where appropriate.

Special Protection Areas (SPAs)

SPAs are classified by the UK Government under the EC Birds Directive and comprise areas which are important for both rare and migratory birds.

Special Areas of Conservation

SACs are designated under the EC Habitats Directive and are areas which have been identified as best representing the range and variety of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the Conservation of Habitats and Species Regulations 2010 (as amended) unless they are offshore.

Sites of Special Scientific Interest

SSSIs are designated as sites which are examples of important flora, fauna, or geological or physiographical features. They are notified under the Wildlife and Countryside Act 1981 with improved provisions introduced by the Countryside and Rights of Way Act 2000.

National Nature Reserves (NNRs)

NNRs are designated by Natural England under the National Parks and Access to the Countryside Act 1949 and the Wildlife and Countryside Act 1981 and support important ecosystems which are managed for conservation. They may also provide important opportunities for recreation and scientific study.

Country Parks

Country Parks are statutorily designated and managed by local authorities in England and Wales under the Countryside Act 1968. They do not necessarily have any nature conservation importance, but provide opportunities for recreation and leisure near urban areas.

A1.ii Non-Statutorily Designated Sites

Local Nature Reserves (LNRs)

LNRs are designated under the National Parks and Access to the Countryside Act 1949 by local authorities in consultation with Natural England. They are managed for nature conservation and used as a recreational and educational resource.

Non-Governmental Organisation Property

These are sites of biodiversity importance which are managed as reserves by a range of NGOs. Examples include sites owned by the RSPB, the Woodland Trust and the Wildlife Trusts.

Local Wildlife Sites (LWSs)

These are sites defined within the local plans under the Town and Country Planning system and are material considerations of any planning application determination. They are designated by the local authority although criteria for designation can vary between authorities.

APPENDIX 2. JAPANESE KNOTWEED METHOD STATEMENT

Japanese knotweed (*Fallopia japonica*) is present on this site. As the species is a highly invasive species, control and eradication measures must be implemented in order to ensure that the species does not spread throughout the area.



What are the environmental issues associated with Japanese Knotweed?

Under the Wildlife and Countryside Act 1981 / Wildlife (Northern Ireland) Order 1985 it is an offence "to plant or otherwise encourage" the growth of Japanese Knotweed. This could include cutting the plant or roots and disturbing surrounding soil if not correctly managed.

Any Japanese Knotweed polluted soil or plant material that you discard, intend to discard or are required to discard is classed as 'controlled waste' and should be accompanied by appropriate Waste Transfer documentation.

Japanese Knotweed should be disposed of in a licensed, lined landfill site. Be sure that you notify your waste haulier that the waste to be removed contains Japanese Knotweed. You should also contact the landfill site several days before any material containing Japanese Knotweed is taken there to allow a suitable area to be prepared for its disposal.

Control of Japanese Knotweed

Although there are a number of options available for the treatment of Japanese Knotweed, the majority of these require a number of years in order to be effective. The two methods outlined below are the most effective in the time scales generally required by the construction industry.

1. Spraying with herbicide

Spraying the plant with an appropriate herbicide is the most effective option available, however it can take several years and rarely achieves eradication without mechanical disturbance. Herbicide treatment can give the appearance of control but the rhizome network (roots below ground) may still be viable and disturbing the ground will cause the plant to regrow. Soil movement should not be attempted until no rhizome remains in a viable condition.

Spraying can only be carried out during the growing season when there is green, leafy material present. Herbicide treatments take effect within a few weeks but eradication can take a minimum of two sprays in one growing season to achieve. Often, when a contractor takes control of a site, the working programme is tight and does not allow sufficient time for this method of eradication to be used. Even so, a spraying programme may be an option for weakening the plant before removal or treating regrowth and remaining plants in the spring.

Anyone planning to spray a herbicide must be "competent in their duties and have received adequate instruction and guidance in the safe, efficient and humane use of pesticides." This means that the person who will be undertaking the spraying must hold a Certificate of Competence for herbicide use or should work under the direct supervision of a certificate holder. A Certificate of Technical Competence can be obtained by attending a short course at an agricultural college or similar institution

The most effective active ingredient for use on Japanese Knotweed is called Glyphosate. This is the active ingredient found in 'Round Up' and other similar herbicides. It is effective on Japanese Knotweed because it does not kill the plant immediately. Instead, the herbicide soaks through the leaves and is taken into the plant root system. The greater the number of green leaves present, the larger the quantity of herbicide that can be absorbed into the plant. It can take up to ten days for the plant to begin to die off after treatment and you should always watch for regrowth.

2. Digging and Spraying

A quicker method of removing Japanese Knotweed involves the clearing of above ground leaf/stem material and the removal of ground material polluted with roots. Care should be taken to ensure that all Japanese Knotweed roots are removed - this is one situation where it pays to remove too much material – which can involve clearing the area 3m around the plant to a depth of 3m, in order to ensure that the entire root system has been removed.

Even with great care, a certain amount of regrowth in the spring would be expected and any should be treated with an appropriate herbicide as discussed above. Make sure you read on for tips on how to prevent spreading Knotweed fragments around the site during the works.

Disposal of Japanese Knotweed – Removal from Site

- Polluted material should be removed from the site for disposal, unless otherwise agreed with the Environmental Regulator and Client.
- As Japanese Knotweed is considered to be a pollutant, you can apply to Customs and Excise for a 'Landfill Tax Exemption' for polluted soil.
- Any bags/skips containing Japanese Knotweed or polluted soil leaving the site should be covered to avoid spread along public highways.
- Waste Transfer documentation will be required for any polluted material leaving the site.
- Check with the disposal site in advance that they can receive material containing Japanese Knotweed. Be aware, the disposal site may require notice to allow an area to be prepared for this material away from the landfill liner.

Working Methods in Areas Where Japanese Knotweed is Present

- Knotweed polluted areas should be clearly marked out on site. Areas that do not need to be disturbed during the works should be fenced off, allowing a buffer of at least four metres to allow for the likely extent of the roots.
- Use of tracked machinery should be limited until areas polluted with Japanese Knotweed have been cleared and/or identified and cordoned off.
- If tracked machinery must be used in areas where Japanese Knotweed is known to be present, then consider using a strong geotextile overlain with hardcore as a base for vehicles to travel on.
- Areas where Japanese Knotweed has been identified should be cleared slowly, one at a time with ongoing assessment of the extent of polluted ground. Only essential vehicles should be present in areas polluted with Japanese Knotweed.
- Never stockpile potentially polluted material within 10 metres of a watercourse.
- On leaving areas of the site known to contain Japanese Knotweed, any tracked machinery that has been used should be thoroughly cleaned within a designated area. This area should be as close as possible to the polluted area on which the machinery has been working to avoid the spread of the species. This area should be monitored in the spring for Knotweed growth and a spraying programme implemented if necessary. Any machinery used in clearing polluted areas should be similarly cleaned.

- Care should be taken to ensure that polluted material is not dropped or transferred to other areas of the site.
- Japanese Knotweed polluted spoil should only be placed on top of a fabric/membrane in an approved, fenced area. Once the polluted material is removed from these areas, it should be monitored for regrowth, particularly during the growing season and, if necessary, treated with an appropriate herbicide as discussed above.
- All site operatives should be made aware of the requirements associated with the removal/disposal of this species in order to help limit accidental spread.
- All haulage lorries or dumpers carrying Japanese Knotweed polluted material should be covered.
- Never use a strimmer, mower (without collection bucket) or chipper on Japanese Knotweed material.
- If you are working between November and March in an area where Japanese Knotweed is known to be present, then dead shoots from the previous year can be a good indication of its location. Even if there is no growth evident above ground, the below-ground parts of the plant will still be alive. Breaking up this root network and transporting either off site or around your site on vehicle tracks will spread the plant. Use the precautions outlined above to reduce the risk of spreading the plant.

APPENDIX 3. COTONEASTER METHOD STATEMENT

Background

Cotoneasters have been cultivated in the UK for almost 200 years and more than 100 species are known. However where they become established they can become dominant to the exclusion of native species.

Cotoneasters generally reproduce mainly by seed but can also grow from shallow roots of other plants. The seed dispersal strategy used by this genus is generally targeted at birds, which eat the seeds and then disperse seeds in their droppings. Typically these seeds then germinate in the first year after being deposited. Cotoneaster fruit in the autumn, and this can continue through the winter, providing a winter resource for birds.



What are the environmental issues associated with Cotoneaster?

Under the Wildlife and Countryside Act 1981 / Wildlife (Northern Ireland) Order 1985, which was updated in 2010, under section 14(2) it is an offence "to plant or otherwise encourage" the growth of a number of species of *Cotoneaster*. This could include cutting the plant or roots and disturbing surrounding soil if not correctly managed.

Any polluted soil or plant material which is viable that you discard or intend to discard should be appropriately disposed of at a licensed landfill.

Control of Cotoneaster sp

Although there are a number of options available for the treatment of these species, the majority of these require a number of years in order to be effective. The two methods outlined below are the most effective in the time scales generally required by the construction industry.

Physical Control

Small, individual plants can be removed by hand, ideally before the fruits ripen to prevent further spread. If cotoneaster plants are removed before the fruits ripen, any fruits that fall to the ground will be unlikely to spread viable seed.

Larger plants or groups of plants can be removed with mechanical equipment with the roots dug out. It is essential that the stumps and roots are completely removed, as both can re-sprout. In such a situation it pays to remove too much material – which can involve clearing the area 2m around the plant to a depth of 1m, in order to ensure that the entire root system has been removed.

Ongoing maintenance of such areas needs to be undertaken to ensure that there is no re-growth through seedlings.

Even with great care, a certain amount of regrowth in the spring would be expected and any should be treated with an appropriate herbicide as discussed above.

Chemical Control

Cotoneasters can be treated with glyphosphate to control spread. Smaller plants can be sprayed directly while larger individuals should be mechanically cut to the stump with the stump then painted with glyphosphate.

Anyone planning to spray a herbicide must be "competent in their duties and have received adequate instruction and guidance in the safe and efficient use of pesticides." This means that the person who will be undertaking the spraying must hold a Certificate of Competence for herbicide use or should work under the direct supervision of a certificate holder. A Certificate of Technical Competence can be obtained by attending a short course at an agricultural college or similar institution.

The most effective active ingredient for use is called glyphosate. This is the active ingredient found in 'Round Up' and other similar herbicides. It is because it does not kill the plant immediately. Instead, the herbicide soaks through the leaves and is taken into the plant root system. The greater the number of green leaves present, the larger the quantity of herbicide that can be absorbed into the plant. It can take up to ten days for the plant to begin to die off after treatment and you should always watch for regrowth.

Disposal of *Cotoneaster* sp – Removal from Site

- Polluted material should be removed from the site for disposal, unless otherwise agreed with the Environmental Regulator and Client.
- As the species is considered to be a pollutant, you can apply to Customs and Excise for a 'Landfill Tax Exemption' for polluted soil.
- Any bags/skips containing these species should be covered to avoid spread of seeds along public highways.
- If contaminated soil is not treated on site or retained on site, Waste Transfer documentation will be required for any polluted material leaving the site.
- Check with the disposal site in advance that they can receive material containing these species. Be aware, the disposal site may require notice to allow an area to be prepared for this material away from the landfill liner.
- Chipped waste that is removed from the site should not be disposed of in adjacent waterbodies or left on adjacent land.

Working Methods in Areas Where *Cotoneaster* spp is Present

- Polluted areas should be clearly marked out on site.
- Use of tracked machinery should be limited until areas polluted with these species have been cleared and/or identified and cordoned off.
- Areas where these species have been identified should be cleared slowly, one at a time with ongoing assessment of the extent of polluted ground. Only essential vehicles should be present in polluted areas.
- Never stockpile potentially polluted material within 10 metres of a watercourse.
- Care should be taken to ensure that polluted material is not dropped or transferred to other areas of the site.
- Remaining contaminated soil should be monitored for regrowth, particularly during the growing season and, if necessary, treated with an appropriate herbicide as discussed above.
- All site operatives should be made aware of the requirements associated with the removal/disposal of this species in order to help limit accidental spread.
- All haulage lorries or dumpers carrying these species should be covered.
- Never use a strimmer, mower (without collection bucket) or chipper on these species material.

APPENDIX 4. BAT/TREE METHOD STATEMENT FOR THE DEVELOPMENT OF VICTORIA ROAD WEST, TREE GROUP 5.

This statement must be copied to the site owner, designer, clerk of works, and to those contractors whose work may affect reptiles, including those involved in all elements of the work detailed above. A signed copy should be kept at the site offices.

This method statement contains information regarding:

- Bat legal status
- Phased impact mitigation programme
- Bat roost site characteristics
- Site working methods
- Emergency measures
- Additional arboreal wildlife considerations

<i>We have read and fully understood this method statement. All key aspects have been explained to the site operatives by the Project Ecologist and site staff.</i>			
	Print Name	Signature	Date
Supervisor:			
Operative:			
Operative:			
Operative:			
Operative:			
Operative:			
Operative:			

**BA
 TS**

*Relevant
 Legislation
 Within
 England
 all
 bat
 species
 are
 specially*

protected under the Conservation of Habitats and Species Regulations (2010). As a result there is a requirement to consult with Natural England before undertaking any works that may disturb bats or their roost sites.

Under the Conservation of Habitats and Species Regulations it is illegal to.

- Deliberately kill, injure or capture bats.
- Deliberately obstruct access to a bat roost.
- Damage or destroy a bat roost.
- Deliberately disturb bats; in particular any disturbance which is likely to impair their ability:
 - to survive, to breed or reproduce, or to rear or nurture their young; or
 - in the case of animals of a hibernating or migratory species, to hibernate or migrate; or
 - to affect significantly the local distribution or abundance of the species to which they belong.

Under the Wildlife and Countryside Act (1981) the above offence of disturbing bats includes low level disturbance and as such under this act it is also an offence to:

- Intentionally or recklessly disturb a bat while it is occupying a roost.
- Intentionally or recklessly obstruct access to a roost.

Under the above legal protection, only the offences under the Conservation of Habitats and Species Regulations (2010) are strict liability offences; the remaining offences, under the Wildlife and Countryside Act (1981), are offences only where they are carried out "intentionally or recklessly".

Under the Countryside and Rights of Way Act 2000 (CROW Act) the offence in section 9(4) of the Wildlife and Countryside Act 1981 of disturbing bats is extended to cover reckless damage or disturbance.

If works risk recklessly harming bats then the police can order all construction/renovation work to cease until the issue is properly addressed. Additionally they may consider prosecution.

Fines of up to £5000 for each individual bat affected and confiscation of vehicles/equipment used can be imposed for deliberate or reckless disturbance of bats or damage to a roost site.

Under these regulations Natural England licences are required for any works that may adversely affect bats.

Phased bats-in-trees impact mitigation programme.

This is a dynamic document which should be signed off on completion of each phase, as evidence that the work was completed to the correct standard, to minimise as far as is practicable residual impacts on bats roosting in trees.

Phase	Action	Executor	Date completed
1 Pre-commencement of any works that would impact on bats in trees	<ul style="list-style-type: none"> Preliminary Ecological Appraisal (PEA) of the site which will include ground assessment and categorisation of all the trees present which are likely to be affected by proposed works. Each tree will be given a risk category according to Bat Conservation Trust (BCT) criteria for roosting bats in trees Groups of trees will be assessed regarding the potential residual effects of a development as a whole on bat ecology. This will be in terms of site lighting and disruption to vegetation linkages in relation to established trees. Recommendations for further aerial survey or ground-based emergence survey if necessary. 	<ul style="list-style-type: none"> Project Ecologist 	
2 Negligible or low risk trees BCT category 2 and 3	<ul style="list-style-type: none"> No further ecological constraints to tree works. Tree work to commence. Trees to be felled. 	<ul style="list-style-type: none"> Project Ecologist Project team Site contractor Arboricultural contractor 	
3 Phase 2 survey Moderate or high risk trees BCT Category 1 and 1*	<ul style="list-style-type: none"> Aerial survey/ ground-based emergence survey Reporting of findings 	<ul style="list-style-type: none"> Project Ecologist Licensed Climbing team 	
4 Tree works to a method statement	<ul style="list-style-type: none"> If no bats or sign of bats are found following detailed survey, any works to trees will be carried out to a method statement following a site induction. 	<ul style="list-style-type: none"> Project Ecologist 	
5 Licencing and mitigation strategy	<ul style="list-style-type: none"> If bat roosts or signs of roosting bats were found, Application for a Natural England European protected species mitigation licence before any works are carried out. Development of a mitigation strategy in relation to belts and groups of trees to limit the impacts of a new development on commuting and foraging routes. 	<ul style="list-style-type: none"> Project Ecologist Project team 	
6 Works conducted under licence	<ul style="list-style-type: none"> Aerial re-inspection of roost sites. Installation of site mitigation e.g. bat boxes Completion of tree works within 5 days to a detailed method statement and work plan following site induction. 	<ul style="list-style-type: none"> Project Ecologist Licensed Climbing team Project team Site contractor Arboricultural contractor 	
7 Post development monitoring	<ul style="list-style-type: none"> Re-survey following completion of development for presence of roosting bats and established bat foraging and commuting routes. Assessment of effectiveness of mitigation. Sign off NE Licence 	<ul style="list-style-type: none"> Project Ecologist 	

Bat Roost Sites

Bats prefer to avoid open areas instead using features such as hedgerows, river corridors and woodland which offer them some cover from predators. Where such features exist in proximity to the trees being surveyed there is a greater potential for bat use which includes roosts.







Many bats are tree roosting at some stage through the year, and hibernating bats can be present in cavities in trees during the winter when tree felling and thinning operations are being undertaken.

Trees with the greatest risk of containing roost sites are those that are mature with a complex structure and aerial dead wood. Bats may roost in rot holes, splits, hollow branches, and old woodpecker holes, beneath flakes of bark and within ivy. Roost sites within trees are not always easy to detect, therefore a precautionary approach should always be employed and the working methods, as outlined below, used.

Signs

Bats can use tiny cavities with entrances no larger than 11mm within which to roost. Signs that may indicate that bat roosts may be present in trees include:

- Obvious holes, cavities and splits.
- Partially detached platey bark.
- Crossing stems or branches with suitable space between for roosting.
- Ivy stems with diameters in excess of 50mm with suitable space to the rear.
- Bird or bat boxes on trees.
- Dark staining on the tree below a hole, caused by natural oils in bats' fur.
- Tiny scratch marks around the hole from the bats claws.
- Droppings below a hole or on the bark of the tree – similar to rodent's droppings, but crumble to a powder of insect fragments.
- Social calls (squeaking) or chattering coming from a hole, particularly on a hot day or at dusk.
- The accumulation of prey debris such as insect wings.
- Holes may on close inspection contain droppings or the distinctive musky smell of bats or ammonia.
- The presence of bats alive or dead.

	
<p>Lateral hazard beam with upward cavity forming</p>	<p>Partially occluded wound leading to upward cavity with wood pecker and rodent excavation</p>
	
<p>Partially occluded lightning strike wound with large upward chamber</p>	<p>Horizontal 'hazard beam' with lateral cavities</p>
	

Partially occluded wound on main stem with rodent excavation leading to chamber	Uncluttered wound on main stem, partially occluded with upward chamber
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Working Methods

Standard working methods, to minimise the risk to bats, and avoid causing reckless damage or disturbance, should include the following:

Timing

- No works will be undertaken on moderate or high risk trees until aerial inspections have been undertaken. These can be carried out at any time of the year.
- Ground based dusk emergence or dawn swarming surveys will occasionally be necessary for hazardous trees or trees within a hazardous location where aerial access is not possible. These can be conducted during the activity period (May to October inclusive).
- Aerial surveys of moderate or high risk trees undertaken during the hibernation period will be valid until the approximate commencement of the maternity period (October to May inclusive).
- Aerial surveys conducted at any other time of the year will be valid for 5 days after which further confirmation surveys will be required prior to works.

Pruning

- Any branches with torsional splits, are torn off or have visible cavities will be examined first, to ensure that bats are not roosting within the spaces.
- It may be necessary to wedge torsional splits, hazard beams or splits under tension where roosting bats are suspected, to prevent any bats from being crushed when the pressure is released.
- These branches will be lowered to the ground and left overnight, to allow the bats to escape.

'Soft fell'

- Felling of trees with a moderate or high risk of supporting bat roosts will only be undertaken by arboriculturalists with training and experience in working with bats or under the supervision of the project ecologist.
- Where felling or limb removal is essential, larger limbs containing cavities or splits will be checked for bats.
- If bats are not initially detected the relevant limbs will not be dropped, but 'sectioned' and lowered, to the ground using a lowering rig.
- Ideally these branches should, where practicable, be cut using a handsaw, without the use of ear defenders, to allow for the arborist to hear bat alarm calls if a roosting chamber has been breached.
- Parts of the main stem/ trunk that have potential bat roost features, will be 'sectioned' leaving a large proportion above and below the cavity, to prevent cutting into a previously undetected roosting chamber.
- These sections will be lowered to the ground using a lowering rig.
- Sound limbs and timber can be removed and dropped without constraint.
- All timber should be left overnight before removal from site. This will provide an opportunity for any roosting bats still inside to come out of a state of torpor and escape.

If bats or bat sign are detected during any of these operations:

STOP ALL WORK and CONTACT THE PROJECT ECOLOGIST at E3 Ecology (01434 230982) or the Bat Conservation Trust 'Bat Helpline' (0345 1300228).

Emergency measures

If it is necessary to move the bat(s) to avoid imminent harm; gloves should be worn and the bats should be carefully placed into a cardboard box and kept in a quiet place that will not be affected by the work.

Following communication with the relevant party, the bat(s) will then be passed on to a licenced bat handler or E3 Ecology to be released after dark, close to the roost site.

Otherwise the bat(s) should not be disturbed.

Additional wildlife considerations when working with trees

Be aware that other arboreal breeding and nesting species including bird (nests), red squirrel (dreys), dormouse (nests) and pine marten (dens) (where present) are protected should they be encountered during the course of tree works.

If any of these species are found, works will stop immediately and the Project Ecologist contacted for further guidance.

APPENDIX 5. PRECAUTIONARY REPTILE WORKING METHOD STATEMENT

THIS STATEMENT MUST BE COPIED TO THE SITE OWNER, DESIGNER, CLERK OF WORKS, AND TO THOSE CONTRACTORS WHOSE WORK MAY AFFECT REPTILES OR NEWT, INCLUDING THOSE INVOLVED IN ALL ELEMENTS OF THE WORK DETAILED ABOVE. A SIGNED COPY SHOULD BE KEPT AT THE SITE OFFICES.

This method statement contains information regarding:

- **Species identification ecology**
- **Working methods**

Reptiles

	Print Name	Signature	Date
Supervisor:			
Operative:			
Operative:			
Operative:			
Operative:			

Relevant Legislation All native reptiles, adder, grass snake,

smooth snake, common lizard, sand lizard and slow worm, are protected in Britain under the Wildlife and Countryside Act 1981 and its subsequent amendments and listed on Schedule 5. It is an offence to:

- Intentionally kill, injure or sell (or advertise to sell) any of the 6 native species.

There is no licensing process for works that may result in reptiles being killed, but Natural England would generally look to developers to adopt approaches which minimise the risk of protected species being killed and which help to maintain their conservation status in the local area.

Ecology

The favoured habitats for most reptile species are heathland, scrub, rough grassland, coastal dunes and moorland. Typically, snakes have a large home range, sometimes covering several kilometres in a year, while lizards will only range over 10's of metres giving a home range of below 1000 square metres.

Particularly high-risk areas of habitat within this site are:

- Areas of dense scrub and adjacent coarse grassland
- Hedgelines and banks
- Rubble

Between October and March, reptiles hibernate below ground, often in large mammal burrows or other refuges both natural and man-made. Most species emerge from hibernation from early March and remain active through until September, during which period reptiles are most commonly seen basking in the open when temperatures are between 8 and 16°C. Most species will avoid extremes of temperature by taking refuge under ground, both at night and when temperatures become too high during the day. Young are born/hatch between July and September.



Working Methods

Standard working methods, to minimise the risk of harming or killing reptiles should include the following:

- Any areas of rocks, brick rubble, rubbish or fallen timber that have been present within the area to be cleared for over 3 months are to be searched by hand before the start of works in that area
- Vegetation should be cleared progressively using hand tools to provide animals with an opportunity to move out of the area. Areas of tall grassland should be strimmed, and scrub cut down to ground level and removed.
- Following vegetation clearance the area should be left for several days to allow any animals to move out of the area before any excavation commences.
- Areas of standing water will not be allowed to persist for more than a week during the construction period.
- If reptiles are found during the clearance operations they should be moved to adjacent areas of suitable habitat that are not affected by development.
- The use of insecticides/herbicides in areas where reptiles may be present should be minimised.

In case of queries please contact the project ecologists E3 Ecology Ltd 01434 230982.