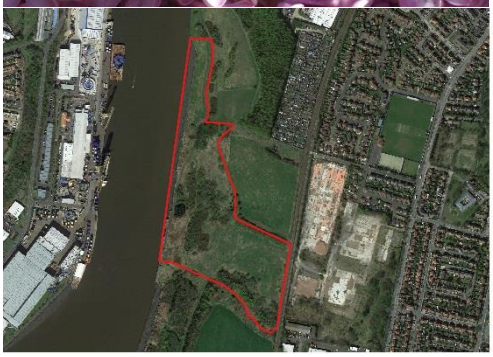
Butterfly Mitigation Strategy And Management Plan

Victoria Road West & Hebburn Riverside Park



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PROJECT NAME	Victoria Rd West
PROJECT NUMBER	4671

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R01	Draft	13.10.16	1st Issue	MP	EG	JS
R02	FINAL	06.12.16	UPDATED PLANS	MR		
R03	FINAL	07.12.16	UPDATED PLANS	DB		
R04	Draft	23.12.16	LPA Comments	MP	MR	JS

Unless requested otherwise, the information below will be provided to the Environmental Records Centre for the North East (ERIC)					
Species	**Recorder**	**Date**	**Location (6 Fig. NGR)**	**Abundance**	**Comment**
Dingy skipper	E3	23.05.16	NZ3063	Peak count - 3	-

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A. SUMMARY

E3 Ecology Ltd was commissioned by Miller Homes in October 2016 to complete an offsite butterfly Mitigation Strategy and Management Plan for Victoria Road, Hebburn to support a planning application for the development of residential properties within the site. In consultation with the Local Authority Ecologist it was determined that mitigation proposals for the development would be offsite within the extended area around the adjacent Hebburn Riverside Local Wildlife Site, as it is not possible to provide compensation habitats on site.

Consultation with MAGIC map 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 of Victoria Rd. West. Two of these, Walker Railway Station LWS and Walker Riverside LWS, have known colonies of dingy skipper. Consultation also identified the following butterfly species within 2km: small heath, dingy skipper and wall.

Survey indicated that the development area comprises a mosaic of blocks of woodland, dense scrub, hard standing, ephemeral short perennial habitat, marshy grassland and semi improved neutral grassland. Ephemeral short perennial vegetation and semi-improved neutral grassland habitats within the site boundaries were noted to include high densities of the larval food plants of the priority species small heath and wall and the priority and local action plan species dingy skipper and grayling. The site was assessed for butterfly species from June-July 2016 adapting the methodology of the UK Butterfly Monitoring Scheme (UKBMS).

An assemblage of thirteen butterfly species were recorded on site, with two of these being of high conservation priority nationally; small heath (Priority species (research only) and a Butterfly Conservation Species of High Priority) and dingy skipper (National Priority species, Butterfly Conservation Species of High Priority and a Durham BAP (Biodiversity Action Plan) species). The peak count for each of these species was five and three respectively. Over the six surveys of the site 208 butterflies were recorded in total. Overall the value of the site to priority invertebrate species is considered to be of Parish value.

As suitable onsite mitigation was not possible, it is proposed to create and manage suitable habitat for priority butterfly species within the neighbouring Hebburn Riverside LWS and council landholding surrounding it. This management plan provides details of locations of proposed mitigation and compensation features as provided within the ecological appraisal survey report and prescriptions for the management of habitats in the long term.

Key mitigation and compensatory measures include:

- A bank / bund will be created within an area of amenity grassland within the extended Hebburn Riverside LWS area (but outside of the LWS boundary). This bank/bund will be seeded and plug planted with larval food plants for priority species and nectar sources suitable to a range of invertebrates. In addition, small turves including bird's foot trefoil plants from the development site, will be identified by the project ecologist and translocated to the butterfly bank with the aim of translocating dingy skipper from the development site to the habitat creation site. The bund will be created prior to the commencement of development on site.
- Existing suitable butterfly habitats within the Hebburn Riverside LWS (to the south of the bund) will be subject to a one-off enhancement programme intended to improve their suitability for priority butterfly species.
- Landscape proposals within the site boundary (onsite mitigation) will include an 'ecological corridor' along the eastern, western and southern boundary. Native planting should 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.

- Translocation of turves will be completed in line with a method statement in order to ensure that the work is completed appropriately and that no invasive species such as Japanese knotweed are translocated into the receptor area.

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 October 2016 to complete a Butterfly Mitigation Strategy and Management Plan for offsite compensation within Hebburn Riverside Local Wildlife Site (LWS) and the extended area around it, to mitigate for the development of land at the neighbouring Victoria Road West.

B.1 BACKGROUND TO DEVELOPMENT

The LWS is located adjacent to the River Tyne in Hebburn, Gateshead at an approximate central grid reference of NZ300639. The extended land holding of the council and area of habitat creation is located to the north of the. The LWS, extended landholding and development site location is illustrated below in Figure 1.

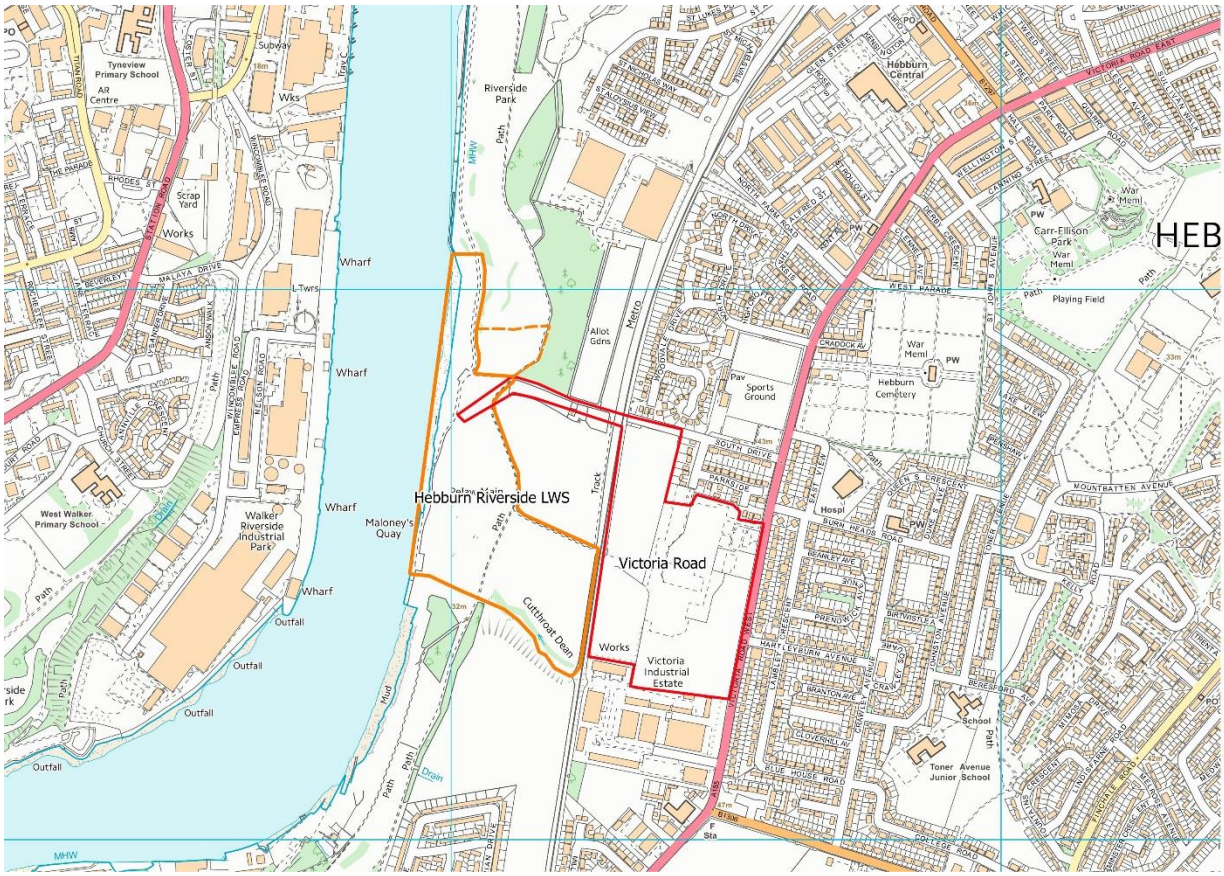


FIGURE 1: SITE LOCATION
(Reproduced from the ordnance survey map under licence)

B.2 CURRENT DEVELOPMENT INFORMATION

It is proposed to develop 334 residential properties within Victoria Rd. west. Plans currently include the creation of two access points along the eastern site boundary with associated visibility splays. Proposals are illustrated below.

FIGURE 2: DEVELOPMENT PROPOSALS (SD-10.01:POD ARCHITECTS)

B.3 PLANNING POLICY AND LEGISLATIVE CONTEXT

B.3.1 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: ○ Recognising the wider benefits of ecosystem services; ○ 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: ○ 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: ○ 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; ○ Development proposals where the primary objective is to conserve or enhance biodiversity should be permitted; ○ Opportunities to incorporate biodiversity in and around developments should be encouraged; ○ 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*

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 Guidance[2] 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).*

[1] National Planning Policy Framework (March 2012), Department for Communities and Local Government,
[2] Planning Practice Guidance: Natural Environment (www.planningguidance.communities.gov)

- *'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).*

B.3.2 PROTECTED SITE LEGISLATION

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

B.3.3 PRIORITY SPECIES

Although not afforded any legal protection, national priority species, 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.

The table below details those butterfly species whose distribution includes the region within which the survey area lies and which are deemed to be a priority at the national level or are listed as local priority species in the relevant local Biodiversity Action Plan. In addition their Butterfly Conservation status is stated along with long term population trends.

TABLE 2: BUTTERFLY PRIORITY SPECIES

Species	National Priority[3]	Durham BAP[4]	Butterfly Conservation Status[5]	Population Trends[6]
Dingy Skipper	✓	✓	High	Occurrence trend :-61% Abundance trend: -19%
Green Hairstreak		✓	Medium	Occurrence trend :-30% Abundance trend: -41%
White-letter Hairstreak	✓	✓	High	Occurrence trend :-45% Abundance trend: -96%
Northern Brown Argus	✓	✓	High	Occurrence trend :-27% Abundance trend: -52%
Small Pearl-bordered Fritillary	✓	✓	High	Occurrence trend :-76% Abundance trend: -58%
Dark Green Fritillary		✓	Medium	Occurrence trend :-33& Abundance trend: 186%
Grayling	✓	✓	High	Occurrence trend :-62% Abundance trend: -58%
Wall	✓		High	Occurrence trend :-77% Abundance trend: -87%
Small Heath	✓		High	Occurrence trend :-57% Abundance trend: -54%

[3] Listed as species of principal importance within the Natural Environment and Rural Communities Act (2006)
[4] Durham Biodiversity Action Plan, Durham Biodiversity Partnership (2007)
[5] As detailed by Butterfly Conservation (www.butterfly-conservation.org)
[6] Butterfly Conservation, The State of the UK's Butterflies 2015

TABLE 2: BUTTERFLY PRIORITY SPECIES				
Species	**National Priority[3]**	**Durham BAP[4]**	**Butterfly Conservation Status[5]**	**Population Trends[6]**
Large Heath	✓		High	Occurrence trend :-58% Abundance trend: 261%

B.4 SCOPE OF STUDY

The scope of the study at Victoria Road West, in terms of the survey area and the desk study area, is based on professional judgement. The scope has been determined based on the site's characteristics, the nature of the surrounding area, the development proposed at the time of reporting and the likely associated zone of influence.

For this site the survey area comprised the red line boundary seen within the accompanying PEA for the site (4671 Victoria Road West PEA R010, E3 Ecology) 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).

B.5 OBJECTIVES OF STUDY

As onsite mitigation for the loss of parish value dingy skipper and invertebrate habitat within the site boundary of Victoria Road West was not possible, the objective of this study was to identify suitable areas within the neighbouring LWS and land around it for offsite mitigation as agreed with the LPA, and to propose habitat creation and enhancement measures within this area.

C. SURVEY AREA AND METHODOLOGY

C.1 SURVEY AREA

Figure 3 illustrates the Victoria Road West, Hebburn Riverside LWS and proposed habitat creation area (extended council landholding) site boundaries whilst, to provide context, Figure 4 illustrates the broad habitats present on site within Victoria Road West and within an approximate 500m buffer zone.

FIGURE 3: VICTORIA ROAD WEST SITE BOUNDARY (RED) LOCAL WILDLIFE SITE EXTENT (ORANGE), EXTENDED LANDHOLDING (ORANGE DASH) (Reproduced under licence from Google Earth Pro.)

FIGURE 4: VICTORIA ROAD SETTING (500M RADIUS) (Reproduced under licence from Google Earth Pro.)

The study area has been based on professional judgement using the habitats on site, the surrounding habitats, geographical knowledge of the local area and the nature of the proposed development.

D. BASELINE STUDY OF VICTORIA ROAD WEST

D.1 DESKTOP STUDY METHODOLOGY

Initially, the site was assessed from aerial photographs and 1:25,000 Ordnance Survey maps. Following this, a data request was sent to the Local Records Centre and the Multi Agency Geographic Information for the Countryside (MAGIC) website[7] was checked for any notable sites.

D.1.1 BASELINE BUTTERFLY SURVEY

D.1.1.1 SURVEY METHODS

A six visit butterfly survey was completed from June-July 2016 focused on areas where potentially suitable habitat for this taxon had been identified. A surveyor walked a transect route, recording all butterflies seen.

The methodology for this transect route is based on that used by the UK's Butterfly Monitoring Scheme (BMS) which in turn is based on techniques assessed by Pollard and Yates (1993)[8], whereby the surveyor counts the numbers of each species of butterfly seen 2.5m either side and 5m in front whilst walking at a steady pace along the transect in weather suitable for butterfly activity. This has been shown to be an accurate method of assessing change in butterfly distributions and population size over time. Transect walks are undertaken between 10.45am and 3.45pm and only when weather conditions are suitable for butterfly activity: dry conditions, wind speed less than Beaufort scale 5, and temperature 13°C or greater if there is at least 60% sunshine, or more than 17°C if overcast.

D.1.1.2 SURVEY EQUIPMENT

- Close focussing binoculars
- Butterfly net
- ID guide

D.1.1.3 ENVIRONMENTAL CONDITIONS

The table below details the environmental conditions during the butterfly surveys.

TABLE 3 : 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

[7] Multi Agency Geographic Information for the Countryside (www.magic.gov.uk)
[8] Pollard, E., and T. J. Yates. "Monitoring butterflies for ecology and conservation. The British butterfly monitoring scheme. Institute of Terrestrial Ecology and Joint Nature Conservation Committee." (1993).

D.1.1.4 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.1.1.5 PERSONNEL

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

TABLE 4: PERSONNEL

Name	Position	Professional Qualifications
Mike Perkins	Graduate Ecologist	BSc MSc
Mark Osborne	Associate Director	BTech (Hons) CEcol MCIEEM
Silas Walton	Ecologist	BSc MSc
Mandy Rackham	Ecologist	BA MSc MCIEEM

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

D.2 ASSESSMENT METHODOLOGY

The relative value of the ecological receptors (habitats, species and designated sites) were 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 Management[9], 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 5: ECOLOGICAL RECEPTOR VALUATION

Level of Value	Examples
International	An internationally designated site or candidate site.
	A site meeting criteria for international designation.
	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.
	The site is of functional importance** to a species population with nationally important numbers (i.e. >1% of the national population)
Regional	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
	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

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

TABLE 5: ECOLOGICAL RECEPTOR VALUATION	
Level of Value	**Examples**
	The site is of functional importance** to a species population of district value (i.e. >1% of the district population)
Parish	A species population considered to appreciably enrich the habitat resource within the context of the parish.
	Local Nature Reserves
Local	A species that contributes to local biodiversity but are not exceptional in the context of the parish.
Low	Habitats that are unexceptional and common to the local area.
*** 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',*	

E. BASELINE VICTORIA ROAD WEST RESULTS

E.1 DESKTOP STUDY

E.1.1 PRE-EXISTING INFORMATION

ORDNANCE SURVEY MAPPING AND AERIAL PHOTOGRAPHY

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.

The most recent aerial photograph of the development site 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 WEBSITE (WWW.MAGIC.GOV.UK)

The MAGIC website identified the following statutory designated sites within 2km of the development site:

Local Nature Reserves:

- Pelaw Quarry Pond ~600m south east.

E.1.2 CONSULTATION

LOCAL RECORDS CENTRE

The table below summarises the butterfly records provided by the local record centre.

TABLE 6: CONSULTATION RECORDS			
Taxon	**Species**	**No. of Records within 2km**	**Closest & Date**
Butterflies	Small Heath	10	2010 ~1.2km
	Dingy Skipper	17	2010 ~1.2km
	Wall	40	2004 ~400m

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

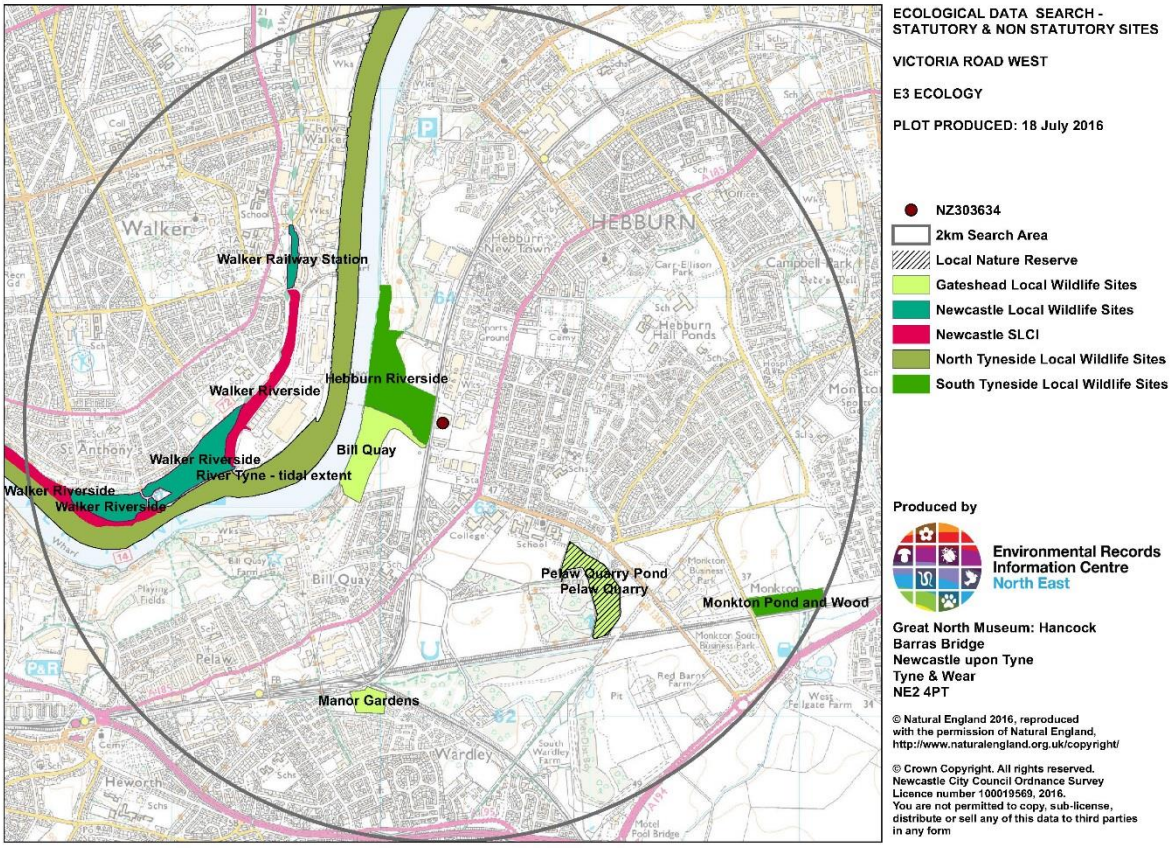


FIGURE 5: DESIGNATED SITES WITHIN 2KM (PRODUCED BY ERIC NE)

Two of these, Walker Railway Station LWS and Walker Riverside LWS, have known colonies of dingy skipper.

E.2 FIELD SURVEY

E.2.1 HABITATS

Survey indicated that the development area comprises a mosaic of blocks of woodland, dense scrub, hard standing, ephemeral short perennial habitat, marshy grassland and semi improved neutral grassland. Ephemeral short perennial vegetation and semi-improved neutral grassland habitats within the site boundaries were noted to include high densities of the larval food plants of the priority species small heath and wall and the priority and local action plan species dingy skipper and grayling. Further information can be found within the accompanying PEA for the site (4671 Victoria Road West PEA R010 E3 Ecology).

The habitats present within the development area and the locations of priority butterfly species are illustrated within the figure below.

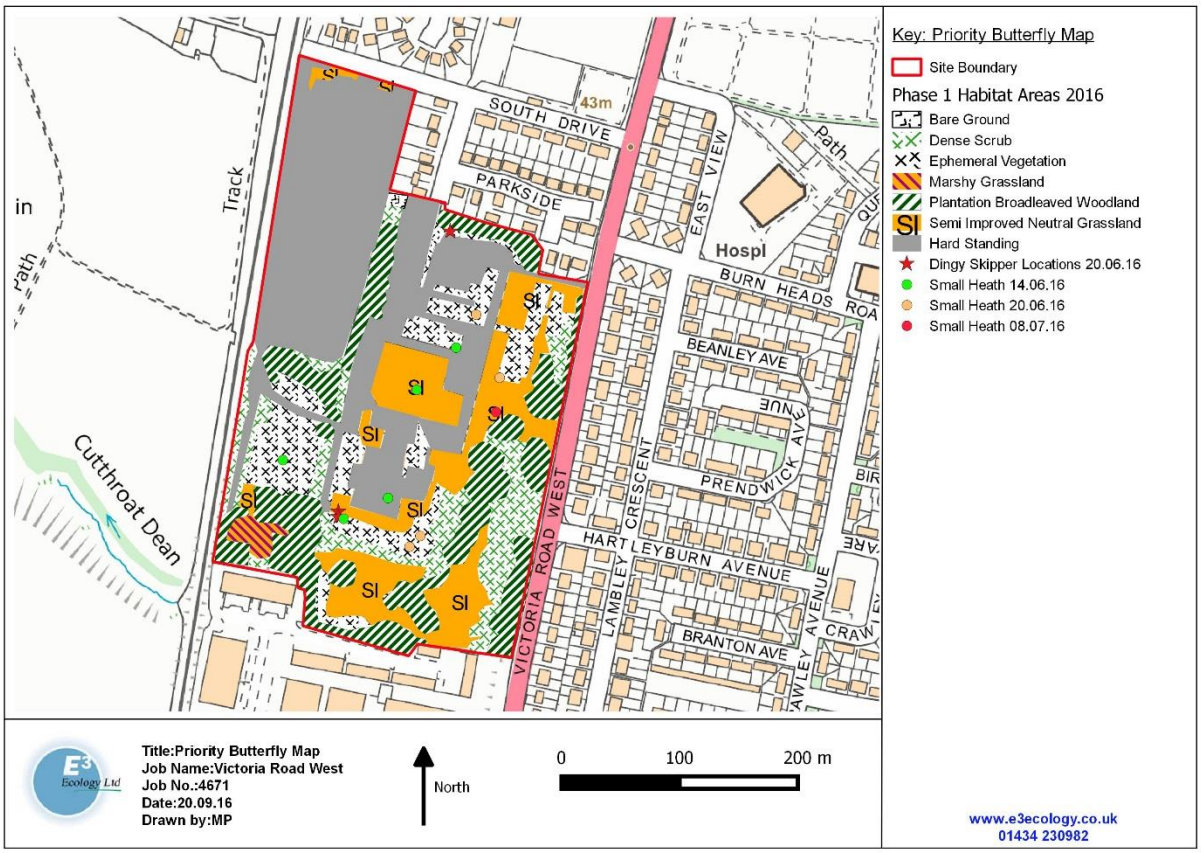


FIGURE 6: HABITAT MAP & PRIORITY BUTTERFLY MAP
(REPRODUCED FROM THE ORDNANCE SURVEY MAP UNDER LICENCE)

E.2.2 BUTTERFLY SURVEY RESULTS

The results of detailed butterfly surveys are presented within the table below. Priority species are in bold.

TABLE 7: 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

F. SITE ASSESSMENT

The table below details the peak counts for all species recorded on site and an evaluation of the conservation status of each species.

TABLE 8: EVALUATION OF SURVEY RESULTS

Species	Peak Count	Butterfly Conservation Priority[10]	Species of Principal Importance [11]	Local BAP[12]	Overview of Regional Status[13]
Large White	3	Low	-	-	Very common resident
Small White	1	Low	-	-	Very common resident
Large Skipper	10	Low	-	-	Common resident
Small Skipper	72	Low	-	-	Resident, small population first established in Co Durham in 1980s has now spread throughout the county and well into Northumberland
Small Heath	5	High	✓	-	Widespread but declining resident
Common Blue	6	Low	-	-	Common resident

[10] As detailed by Butterfly Conservation (www.butterfly-conservation.org)
[11] Listed as species of principal importance within the Natural Environment and Rural Communities Act (2006)
[12] Durham Biodiversity Action Plan, Durham County Council (2007)
[13] Region taken to be north east England

TABLE 8: EVALUATION OF SURVEY RESULTS					
Species	**Peak Count**	**Butterfly Conservation Priority[10]**	**Species of Principal Importance [11]**	**Local BAP[12]**	**Overview of Regional Status[13]**
Dingy Skipper	3	High	✓	✓	Uncommon resident, occurring particularly on former industrial sites.
Small Copper	3	Low	-	-	Resident
Painted Lady	3	Low	-	-	Common migrant
Small Tortoiseshell	6	Low	-	-	Common resident and migrant
Meadow Brown	23	Low	-	-	Very Common resident
Ringlet	48	Low	-	-	Common resident
Speckled Wood	1	Low	-	-	Recently established resident. From initial sightings, mainly in Durham's coastal denes, this species has spread over much of both counties mostly in the years since 2005.

An assemblage of thirteen butterfly species were recorded on site, with two of these being of high conservation priority nationally; small heath (Priority species (research only) and a Butterfly Conservation Species of High Priority) and dingy skipper (Priority species, Butterfly Conservation Species of High Priority and a Durham BAP species). The peak count for each of these species was five and three respectively. Over the six surveys of the site 208 butterflies were recorded in total. The overall value of the site to priority invertebrate species is considered to be of Parish value.

F.1 LIMITATIONS

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.

G. HABITAT MITIGATION, ENHANCEMENT AND CREATION

In order to mitigate for the loss of parish value dingy skipper and invertebrate habitat and as suitable onsite mitigation was not possible, it is proposed to create and manage suitable habitat for priority butterfly species within the neighboring Hebburn Riverside LWS and land around it. The following three points of habitat mitigation, creation and enhancement proposals should be observed as described below. Details of their locations can be seen below in Figures 7 appendix 2:

1. A bank / bund will be created within an area of amenity grassland within the extended Hebburn Riverside LWS area (but outside of the LWS boundary). This bank/bund will be seeded and plug planted with larval food plants for priority species and nectar sources suitable to a range of invertebrates. In addition, small turves including bird's foot trefoil plants from the development site, will be identified by the project ecologist and translocated to the butterfly bank with the aim of translocating dingy skipper from the development site to the habitat creation site. The bund will be created prior to the commencement of development on site.
2. Existing suitable butterfly habitats within the Hebburn Riverside LWS (to the south of the bund) will be subject to a one-off enhancement programme intended to improve their suitability for priority butterfly species.
3. Landscape proposals within the site boundary (onsite mitigation) will include an 'ecological corridor' along the eastern, western and southern boundary. Native planting should 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.

G.1 HEBBURN RIVERSIDE LWS AND COUNCIL LANDHOLDING SITE DETAILS

G.1.1 HABITATS

A site walkover to identify suitable areas for enhancement and creation was carried out on 13th October 2016 by Mike Perkins BSc MSc.

TABLE 9: SURVEY CONDITIONS

DATE	TEMPERATURE	CLOUD COVER	PRECIPITATION	WIND CONDITIONS
13.06.16	12°C	100%	None	1W

The majority of the LWS comprises lowland neutral grassland and scrub with small patches of woodland, grazed semi-improved grassland and an area of amenity grassland. Neutral grassland habitats, where present, contain large amounts of birds-foot trefoil (*Lotus corniculatus*), the larval food plant for dingy skipper, and it is considered likely given the consultation results and the presence of the species at the neighbouring Victoria road west, that these habitats support a population of dingy skipper. However an area of amenity grassland was identified of low suitability for priority butterfly species which was considered suitable for habitat creation. This area bordered the LWS but was outside of it, although it is still within the council landholding. The location of this amenity grassland can be seen in the figure below, whilst the butterfly landscape plan can be seen in Appendix 2.

FIGURE 7: AREA OF PROPOSED HABITAT CREATION (CIRCLED RED) (REPRODUCED UNDER LICENCE FROM GOOGLE EARTH PRO.)

G.2 SITE DESCRIPTIONS

G.2.1 AREA OF HABITAT CREATION

A large expanse of managed short sward amenity grassland. Dominated by perennial rye grass (*Lolium perenne*) with occasional dandelion (*Taraxacum officinale*) and daisy (*Bellis perennis*).

G.2.2 AREAS OF HABITAT ENHANCEMENT

Neutral grassland habitat making up the majority of the LWS was considered suitable to support populations of priority species, including dingy skipper. Large amounts of birds-foot trefoil were noted within the sward of these grassland habitats. The habitats however contained relatively little bare ground and are beginning to scrub over.

G.3 BUTTERFLY BANK/BUND CREATION[14]

A butterfly bank will create habitat for butterflies of open grassland swards. The aim is to create an area of varied aspects where herbs predominate but where there is also abundant bare ground. Many different designs of bank can be effective, but a "C" shaped structure will ensure that a variety of aspects are created. Within the bank the soil layers are inverted so that the nutrient-rich top-soil is buried. The vegetation will then establish in the nutrient-poor sub-soil and the bank will retain bare ground for longer. The work is best undertaken using earth moving machinery. In this case a 3 tonne excavator and a 5 tonne dump truck is recommended.

G.3.1 TIMING

The construction of the bund will take place prior to the commencement of construction on site.

G.3.2 CONSTRUCTION

1. Remove a rectangular area of top-soil approximately 100 m long by 10 m wide, 30 cm deep covering approximately 0.25ha. Place this top-soil to one side to be used later.
2. Within the scraped rectangular area, dig a "C" shaped narrow trench of 100 to 110 m long by 2 m wide and a further 30 to 100 cm deep. Remove this sub-soil to the side (more than 5 m away from trench) in a separate pile from top-soil.
3. Place the previously removed top-soil into the narrow "C" shaped trench to form the base of the bank. Scrape a strip of soil adjacent to the trench (from both sides) on top of this base, sufficient to raise the height to approximately 60 cm above ground level.
4. Scrape and re-arrange the soil at the ends of the bank to make a sloped fan shape.
5. Place the previously removed sub-soil over the created bank to cap it. Compact the soil. This bank should be approximately 2m wide and 0.7-1m high.
6. Cap the bank and fan shaped end with 5-10cm of stone chipping/rubble, (can be sourced from excavations at Victoria Road West if material is non-contaminated and pollutant free).
7. On the flat, scraped area on the south side of the bank leave a 2 m strip of soil right in front of the bank. Then beyond this soil strip, cover another 2 m (or wider) strip of the scraped area with stone chippings to depth of 10 cm. Also cover a similar area at the back (north side) of the bank with stone chippings to depth of 10 cm.

FIGURE 8: PLAN OF BUTTERFLY BANK PROFILE [15]

G.3.3 SEEDING

1. Seed by walking on the top of the bank scattering small pinches of seeds across the top of the bank (20-30 seeds at a time) with a flick of the wrist. By seeding along the top of the bank the growing plants will later drop seeds down the slope and the area will develop a good cover in a highly cost-effective manner.
2. The areas adjacent to the bank, can also be seeded in the same manner.

[14] Adapted from Creating a Butterfly Bank, Butterfly Conservation
[15] Creating a butterfly bank, Butterfly Conservation

3. Bird foot trefoil seed should make up ~75% of the species mix, sown at 4g/m2.

The following species are amongst those that are recommended for reseeding. These include not only the major larval food plants of several species but also their favoured nectar sources.

Core grass species:

TABLE 10: CORE GRASS SPECIES	
COMMON NAME	**LATIN NAME**
Common bent	*Agrostis capillaris*
Red Fescue	*Festuca Rubra*
Cock's foot	*Dactylis glomerata*
Yorkshire fog	*Holcus lanatus*

Core forb species:

TABLE 11: CORE FORB SPECIES	
COMMON NAME	**LATIN NAME**
Bird's-foot trefoil	*Lotus corniculatus*
Yellow rattle	*Rhinanthus minor*
Buttercup sp.	*Ranunculus sp.*
Fleabane	*Pulicaria dysenterica*
Kidney Vetch	*Anthyllis vulneraria*
Wild Marjoram	*Origanum vulgare*
Mouse-ear hawkweed	*Hieracium pilosella*
Black knapweed	*Centaurea nigra*

Forb species include reliable wildflower species that form an important component of diverse butterfly habitats, but which are unlikely to colonise quickly in this location.

Reseeding should be to a maximum of 50% of the area, leaving areas of bare ground and only seeds of local provenance should be used. Food plants will take several years to reach the required size.

The most reliable establishment is obtained from spring to autumn sowings into a warm soil. Seeding by hand can be very effective, scattering small pinches of seed (20-30 at a time) over newly created bare ground. The seed will germinate after two to four weeks when the temperatures are around 15 to 20°C.

Additional sowings may be required in the first few years until the wildflower seed bank increases in the soil.

G.3.4 PLUG PLANTING & TURF TRANSLOCATION

Plug planting allows for a rapid means of adding species diversity, nectar sources and larval food plants to the site. Best practice is to plant several clumps or drifts of one species so that there is plenty available. Bird's-foot trefoil (locally sourced where possible) will be planted in small clumps on the bank consisting of 3-5 plants in areas scattered throughout the bank at a ratio of ~two clumps per 20m^2. Additional smaller amounts of plants bearing nectar sources will also be planted as detailed in appendix 2. The translocation of small birds-foot trefoil turves from the development site to the bank will provide known high quality habitat and potentially translocate the ovum/early instar stages into this new landscape. **The areas to be translocated will be based on input from the project ecologist**. These will be planted in the same manner as the plug plants, as outlined below:

1. Plant within a shallow cup-shaped depression in order to retain water.

2. Plant slightly deeper than normal gardening practices so that the shoot is slightly buried.
3. Match the shape of the hole to the size of the plug.
4. Place stones or aggregate over the planting to reduce the chances of the plugs being disturbed by animals such as rabbits. If the plugs are well watered before the stones are placed then this will limit desiccation and reduce the need for frequent watering. In extreme cases, the young plants can be temporarily protected by wire cages.

G.4 LANDSCAPING OF NEW BUILD

Landscape proposals within the site boundary (onsite mitigation) will include an 'ecological corridor' along the eastern, western and southern boundary. Native planting should 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.

H. MANAGEMENT PLAN

H.1 BUTTERFLY HABITAT

Management Aims:

1. *To establish and maintain new areas of butterfly habitat following seeding, translocation and plugging, maintaining and enhancing biodiversity of the site.*
2. *To maintain and improve existing butterfly habitat on site.*

Overall aims are to maintain a sparse sward interspersed with plenty of bare ground. Some areas of taller vegetation should be allowed to grow.

H.1.1 INTERPRETATION BOARD

A vandal resistant interpretation board about the butterfly bank will be required to inform users of Hebburn Riverside Park what the feature is. The details of this will need to be submitted to and approved by the LPA. The interpretation board must be installed within 3 months of the completion of the butterfly bank.

H.1.2 CUTTING

A single annual cut using a brush cutter in the autumn can maintain butterfly grassland sites. A long rotation should be implemented with approximately one third of the site cut each year based on input from the project ecologist. All cuttings should be removed from site.

H.1.3 WATERING AND AFTERCARE

No watering should be required of the seeded areas. Plug plants need watering regularly in the months after planting, especially in dry sunny spells. Use of herbicides and fertilisers should be avoided. Plug plants which fail will require replacing.

H.1.4 SCRUB CONTROL

Periodic scrub removal may be necessary although some light, well-spaced scrub can provide valuable shelter, especially on more exposed sites. Scrub can be cut on a rotation of 10-15 years to maintain existing levels of cover. Where scrub reduction is necessary, stumps should be treated with herbicide to prevent regrowth.

H.1.5 SCARIFICATION

In the long-term, it may become necessary to re-create patches of bare ground by scraping small patches free of vegetation. Some tall vegetation should remain untouched, while breeding areas (areas with birds-foot trefoil) should be avoided entirely.

Rotationally creating new scrapes should be carried out every few years to produce a mosaic of early successional stages. Scrapes are an effective method of creating disturbed, low nutrient habitats with a mosaic of early successional herbs and bare ground. Scrapes can be created at a small scale using hand tools or with machinery, by removing topsoil to a depth of around 20cm. The edges should be left as gentle rounded angles to diversify aspect and microclimate.

It is recommended areas earmarked for habitat enhancement within appendix 2, are subject to scarification during the same period as habitat creation at the north of the site. Areas for scarification will be based on input from the project ecologist.

H.1.6 MONITORING

Additional survey work is recommended to ascertain the effectiveness of the new habitat creation**. A single walkover survey in 2018 to evaluate the success of habitat creation/ enhancement measures and populations of priority butterfly species is recommended**.

Results of the monitoring survey and any remedial actions proposed must be submitted to the Countryside Officer at South Tyneside Council.

I. MANAGEMENT OF THE SITE

I.1.1 MANAGEMENT OPERATIONS

Site management will be ongoing throughout the year. Management operations will:

- Seek to minimise pollution and the use of chemicals, using alternatives to pesticides, herbicides, peat and artificial fertilisers where possible.
- Seek to develop the wildlife aspects of the site and to promote working methods that are in harmony with, and respectful of, the wildlife of the site.

I.1.2 RESPONSIBILITIES

The initial maintenance of newly created and seeded areas, will be the responsibility of Miller Homes and any contractors appointed by them.

Long-term management operations for the whole of the site after 5 years will pass from Miller Homes to South Tyneside Council.

I.1.3 FINANCIAL RESOURCES

The developers (Miller Homes) of Victoria Road West will be responsible for ensuring that adequate financial resources are available to undertake the necessary management operations on a year-by-year basis for the initial 5 years after completion. After 5 years this will pass to South Tyneside Council.

I.1.4 REVIEW

The management plan must be reviewed on a regular basis, jointly by all interested parties, with all management actions recorded and records retained. This will enable an assessment to be made of success, or otherwise, of the various techniques and operations undertaken at the site.

Revisions to the management plan will be made by mutual agreement of the interested parties. The plan should be flexible in terms of when it is reviewed, in particular responding to changes that arise through internal or external influences that directly affect the management of the site.

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.

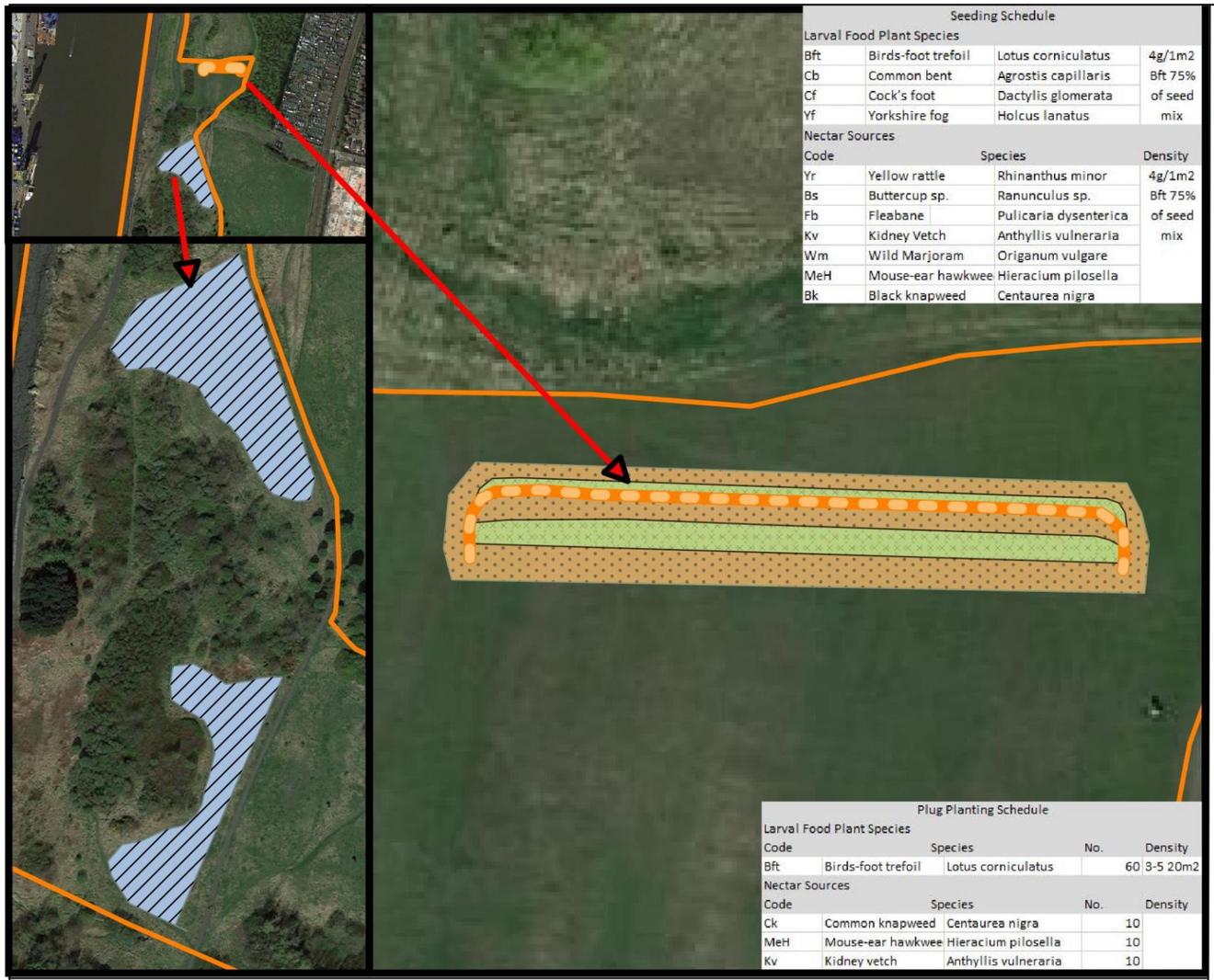
A1.ii Non-Statutorily Designated Sites

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.BUTTERFLY LANDSCAPE PLAN



Seeding Schedule

Larval Food Plant Species			
Bft	Birds-foot trefoil	Lotus corniculatus	4g/1m2
Cb	Common bent	Agrostis capillaris	Bft 75%
Cf	Cock's foot	Dactylis glomerata	of seed
Yf	Yorkshire fog	Holcus lanatus	mix

Nectar Sources			
Code		Species	Density
Yr	Yellow rattle	Rhinanthus minor	4g/1m2
Bs	Buttercup sp.	Ranunculus sp.	Bft 75%
Fb	Fleabane	Pulicaria dysenterica	of seed
Kv	Kidney Vetch	Anthyllis vulneraria	mix
Wm	Wild Marjoram	Origanum vulgare	
MeH	Mouse-ear hawkwee	Hieracium pilosella	
Bk	Black knapweed	Centaurea nigra	

Plug Planting Schedule

Larval Food Plant Species				
Code		Species	No.	Density
Bft	Birds-foot trefoil	Lotus corniculatus	60	3-5 20m2
Nectar Sources				
Code		Species	No.	Density
Ck	Common knapweed	Centaurea nigra	10	
MeH	Mouse-ear hawkwee	Hieracium pilosella	10	
Kv	Kidney vetch	Anthyllis vulneraria	10	

Title:Butterfly Landscape Plan
Job Name:Victoria Road West/Hebburn Riverside
Job No.:4671
Date:14.10.16
Drawn by:MP

Habitat Enhancement areas
1. Areas scarified at the direction of the project ecologist

Plug Planting
1. Bird's-foot trefoil will be planted in small clumps on the bank consisting of 3-5 plants in areas scattered throughout the bank at a ratio of ~two clumps per 20m2.

Key: Butterfly Landscape Plan

- Scraped Area
- Butterfly Bank
- Stone Chippings
- Habitat Enhancement Area

Bank Creation
1. Remove area of top-soil ~100 m long by 10 m wide, 30 cm deep covering. Place this top-soil to one side to be used later.
2. Within this area, dig a "C" shaped narrow trench of 100-110 m long, 2 m wide and 30-100 cm deep. Remove sub-soil to the side (> 5 m away from trench) in a separate pile from top-soil.
3. Place previously removed top-soil into "C" shaped trench. Scrape a strip of soil adjacent to the trench (from both sides) on top of this base, sufficient to raise height to ~ 60 cm.
4. Re-arrange the soil at the ends of the bank to make a sloped fan shape.
5. Place the previously removed sub-soil over the bank to cap. Compact the soil. This bank should be approximately 2m wide and 0.7-1m high.
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Seeding
1. Seed by walking on the top of the bank scattering small pinches of seeds across the top of the bank (20-30 seeds at a time)
2. The areas adjacent to the bank, can also be seeded in the same manner.
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