



e3p

Biodiversity Metric Report

Three Lions, Meden Vale

Reference: 80-397-R5-6

Date: August 2023



BIODIVERSITY METRIC REPORT

Three Lions
Meden Vale

Prepared for:
Shape Consulting Engineers

Report Ref: 80-397-R5-6
Date Issued: 07/08/2023

E3P

Taylor Road
Trafford Park
Urmston
Manchester
M41 7JQ

+ 44 (0) 161 707 9612
<https://e3p.co.uk/>

Registered in England
CRN: 08725262

QUALITY ASSURANCE

PROJECT NUMBER	80-397		
VERSION	Version 4	Version 5	Version 6
REMARKS	Updated to 4.0 and updated Landscape Plans	Updated Landscape Plans	Updated Landscape Plans
DATE	April 2023	May 2023	August 2023
PREPARED BY	C. Barlow	C. Barlow	C. Barlow
QUALIFICATIONS	BSc (Hons), MSc, MEnvSc, CEnv, MCIEEM, Principal Ecologist	BSc (Hons), MSc, MEnvSc, CEnv, MCIEEM, Principal Ecologist	BSc (Hons), MSc, MEnvSc, CEnv, MCIEEM, Principal Ecologist
CHECKED BY	H. Morgan	H. Morgan	H. Morgan
QUALIFICATIONS	BSc (Hons), MCIEEM, MEnvSc, Senior Ecologist	BSc (Hons), MCIEEM, MEnvSc, Senior Ecologist	BSc (Hons), MCIEEM, MEnvSc, Senior Ecologist
AUTHORISED BY	C. Barlow	C. Barlow	C. Barlow
QUALIFICATIONS	BSc (Hons), MSc, MEnvSc, CEnv, MCIEEM, Associate Director	BSc (Hons), MSc, MEnvSc, CEnv, MCIEEM, Associate Director	BSc (Hons), MSc, MEnvSc, CEnv, MCIEEM, Associate Director

EXECUTIVE SUMMARY

Site Address	Three Lions, Netherfield Lane, Meden Vale, Mansfield, NG20 9PA				
Co-ordinates	E 458032 N 369526				
Site Area	Approximately 0.83 ha				
Current Site Use	The site comprised the Three Lions pub, associated car park and beer garden. The south west of the site consisted of a grassland field bordered by hedgerows and trees to the north. Netherfield Lane bordered the site to the north and residential properties bordered the site to the east and west.				
Proposed Development	Development proposals include the construction of a residential development with associated access and infrastructure. The on-site pub building will be demolished to allow for the construction of residential properties.				
Results	<p>The biodiversity metric results show a gain of habitat and hedgerow units as follows:</p> <table><tr><td>Habitat Units</td><td>0.24</td></tr><tr><td>Hedgerow Units</td><td>0.62</td></tr></table> <p>A total gain of 11.60% in habitat units, and 45.28% in hedgerow units will be incurred on site as a result of development. The trading rules of the metric have been satisfied.</p>	Habitat Units	0.24	Hedgerow Units	0.62
Habitat Units	0.24				
Hedgerow Units	0.62				
Conclusions and Recommendations	A gain has been achieved in both habitat and hedgerow units. To further enhance the site, bat and bird boxes could be provided.				



Table of Contents

EXECUTIVE SUMMARY	2
1.INTRODUCTION	4
1.1. Background	4
1.2. Previous Surveys	4
1.3. Site Location	4
1.4. Objectives	5
2.METHODOLOGY	6
2.1. Biodiversity Metric	6
2.2. On-Site Habitat Baseline Data	6
2.3. Post Development Habitat Creation	6
2.4. Limitations	6
3.RESULTS	0
3.1. On-Site Baseline Condition Assessment Results	0
3.2. Habitat Retention	2
3.3. Habitat Creation Condition Assessment	2
3.4. Strategic Significance	0
3.5. Biodiversity Unit Result	0
4.CONCLUSIONS AND RECOMMENDATIONS	1
5.REFERENCES.....	2
APPENDIX I PHASE 1 HABITAT PLAN	3
APPENDIX II LANDSCAPE PLAN	4



1. INTRODUCTION

1.1. BACKGROUND

E3P has been instructed by Shape Consulting Engineers to undertake a Biodiversity Metric Calculation at Three Lions, Meden Vale hereafter referred to as “the site”.

This report has been prepared by Associate Director Celia Barlow, BSc (Hons) MSc MEnvSc CEnv, MCIEEM. Celia holds both Class 1 bat and great crested newt Natural England Licences, Field Identification Skills Certificate (FISC) Level 3 and has key experience with amphibians and reptiles. Celia has undertaken a number of online training courses with CIEEM including ‘Calculating and Using Biodiversity Units with Metric 2.0’ and ‘Biodiversity Net Gain Through Development’.

This report should be read in conjunction with ‘Biodiversity Metric 4.0 Calculation Tool - Three Lions.xl’.

1.2. PREVIOUS SURVEYS

E3P completed a Preliminary Ecological Appraisal of the site in September 2020 (report reference: 80-397-R1). The site comprised a pub building with associated hardstanding, with semi-improved grassland, amenity grassland, dense scrub, a hedgerow with trees and scattered trees.

The main pub building was assessed as having high bat roosting potential due to a number of features present, including gaps within the gable end and multiple gaps within the roof tiles which could offer roosting opportunities for crevice dwelling bat species such as common pipistrelle (*Pipistrellus pipistrellus*). A single ash (*Fraxinus excelsior*) tree within the hedgerow with trees was determined to have low bat roosting potential, due to the presence of lifted bark.

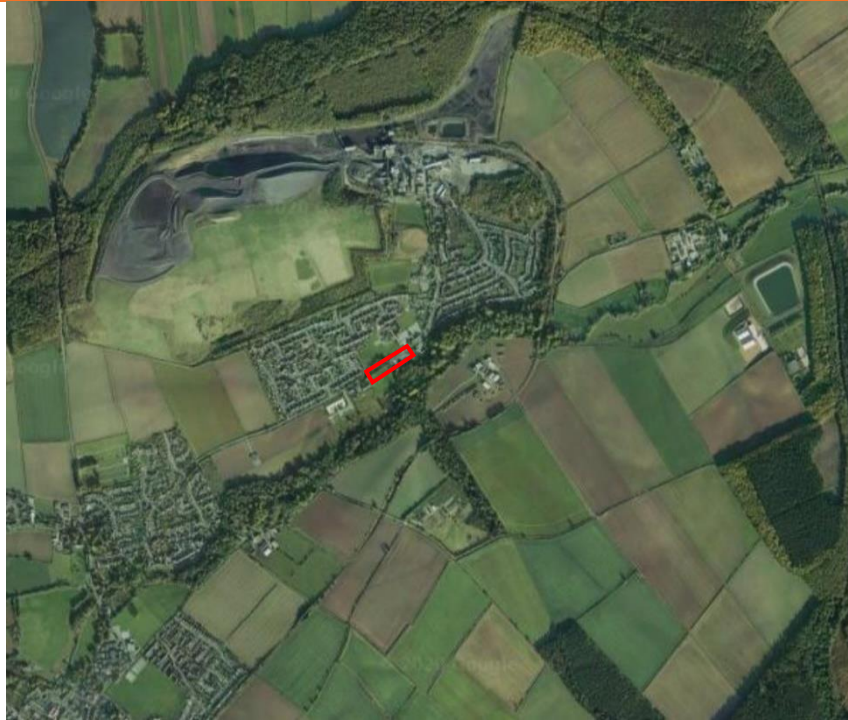
The site was assessed to have suitability for hedgehog (*Erinaceus europaeus*) and nesting birds within the hedgerow and trees that defined the north west section of the site. The site showed no suitability for otter (*Lutra lutra*) and water vole (*Arvicola amphibious*) as no watercourses were located within the site boundary. No field signs of badger (*Meles meles*) were identified within the site, however, the site did have sett building opportunities within the hedgerow with trees.

1.3. SITE LOCATION

The site is located in the village of Meden Vale. Netherfield Lane borders the site to the north, residential housing borders the site to the east and west. Broadleaved woodland borders the site to the south. The River Meden is located approximately 103 m to the south of the site. Please refer to Figure 1.1 for the approximate site location.



FIGURE 1.1 APPROXIMATE SITE LOCATION



1.4. OBJECTIVES

The objectives of the Biodiversity Metric are to:

- 🏠 Identify percentage change in on-site habitat.
- 🏠 Identify the number of habitat units lost/gained on-site; and
- 🏠 Determine the need for a conservation offset payment or off-site habitat creation.

The findings of the calculation are detailed within this report, along with recommendations.



2. METHODOLOGY

2.1. BIODIVERSITY METRIC

Department for Environment, Food and Rural Affairs' (DEFRA) Biodiversity Metric 4.0 2023 version was used to undertake the metric calculation. The metric was undertaken following guidance as detailed within The Biodiversity Metric 4.0 User Guide (Natural England, 2023), the Biodiversity Metric 4.0 Technical Supplement (Natural England, 2022) and the Summary of Changes Biodiversity Metric 3.1 to 4.0 (2023).

2.2. ON-SITE HABITAT BASELINE DATA

The baseline data used to inform the condition assessment was collected on 24th September 2020 during the Preliminary Ecological Appraisal (report reference: 80-397-R1).

On-site baseline habitats were measured off the Phase 1 Habitat Plan and Topographical Plan (see Appendix I). The Phase 1 Habitat Plan was scaled and traced in AutoCAD allowing for accurate measurements. All habitats were rounded to two decimal places to facilitate input into the metric. Measurements of trees reflect the root protection areas of the trees as detailed within the Arboricultural Impact Assessment (E3P, 2021) (report reference: 80-397-R2). These areas of proposed habitat were measured using AutoCAD from the DWG drawing.

Phase 1 habitat types were translated into UKHab habitat types using the metrics Technical Data Translation Tool.

2.3. POST DEVELOPMENT HABITAT CREATION

The Plating Plan (Eat Landscape, 2023) was used to measure proposed habitat types on-site (see Appendix II).

2.4. LIMITATIONS

Some areas on the site are double counted, including root protection areas and areas of habitat, where overlap is shown. This means areas of habitat pre- and post-development do not total to the same area.



3. RESULTS

3.1. ON-SITE BASELINE CONDITION ASSESSMENT RESULTS

Table 3.1 shows the details of the habitat condition assessment used for input into the metric calculation tool.

TABLE 3.1 HABITAT BASELINE CONDITION ASSESSMENT RESULTS

HABITAT TYPE (PH1)	HABITAT TYPE (UKHAB)	AREA/LENGTH (HA/KM)	CONDITION ASSESSMENT	DESCRIPTION
HARDSTANDING	Urban; Developed Land; Sealed Surface	0.35	N/A	N/A
SEMI-IMPROVED GRASSLAND	Grassland – Modified Grassland	0.40	Poor	Passes 4-6 criterion, excluding criterion A. As follows: <ul style="list-style-type: none"> ✦ Scrub accounts for less than 20% ✦ Less than 5% physical damage ✦ Cover of bracken less than 20% ✦ Absence of invasive non-native species.
DENSE SCRUB	Heathland and shrub-Bramble Scrub	0.01	N/A	N/A
AMENITY GRASSLAND	Grassland – Modified Grassland	0.07	Poor	Fails essential criterion A as there are less than 6 vascular species present per m2.



HABITAT TYPE (PH1)	HABITAT TYPE (UKHAB)	AREA/LENGTH (HA/KM)	CONDITION ASSESSMENT	DESCRIPTION
SCATTERED TREES (T11, T12, T13, T14, T15, T17, T18)	Individual Tree- Urban Tree (non native)	0.0866	Moderate	Passed the following criteria: <ul style="list-style-type: none"> ✦ B- individual trees automatically pass. ✦ The trees are mature. ✦ Opportunities for invertebrates present. ✦ More than 20% of the tree canopy is oversailing vegetation beneath.
SCATTERED TREES (T16)	Individual Tree- Urban Tree (native)	0.01	Good	Passed the following criteria: <ul style="list-style-type: none"> ✦ The tree is Native ✦ B- individual trees automatically pass. ✦ The trees are mature. ✦ Opportunities for invertebrates present. ✦ More than 20% of the tree canopy is oversailing vegetation beneath.
HEDGEROW WITH TREES	Native Hedgerow with Trees	0.10 (km)	Good	No more than 2 failures in total and no more than 1 in any functional group.



3.2. HABITAT RETENTION

The trees associated with the boundary features will be retained and protected throughout development. The majority of the hedgerow present along the northern site boundary will be retained. Table 3.2 outlines the area of habitat to be retained.

TABLE 3.2 HABITAT RETENTION

HABITAT TYPE (LANDSCAPE PLAN)	HABITAT TYPE (UKHAB)	AREA/LENGTH (HA/KM)	CONDITION
HEDGEROW WITH TREES	Hedgerow	0.095 km	Good
EXISTING TREES	Urban- Urban Tree	0.0856 ha	Moderate

3.3. HABITAT CREATION CONDITION ASSESSMENT

Habitats are indicated on the Planting Plan. Table 3.3 shows the details of the target condition assessment and total areas of habitat creation. It has been assumed that there will be no significant delay in the creation of the proposed habitat features, as such the delay in starting habitat creation has been set to zero.

TABLE 3.3 HABITAT CREATION CONDITION ASSESSMENT RESULTS

HABITAT TYPE (LANDSCAPE PLAN)	HABITAT TYPE (UKHAB)	AREA (HA)	TARGET CONDITION/DESCRIPTION	TARGET TIME TO CONDITION
PLOT AREAS	70 % Urban - Developed Land; Sealed Surface	0.1686	N/A	N/A
	30% Urban- Vegetated Garden	0.0843	N/A	1 year



HABITAT TYPE (LANDSCAPE PLAN)	HABITAT TYPE (UKHAB)	AREA (HA)	TARGET CONDITION/DESCRIPTION	TARGET TIME TO CONDITION
OTHER HARDSTANDING	Urban - Developed Land; Sealed Surface	0.2719	N/A	N/A
PROPOSED NATIVE TREE	Urban – Urban Tree (Small x5)	0.0204	Moderate: <ul style="list-style-type: none"> 🏠 B- individual trees automatically pass. 🏠 The trees are mature. 🏠 Opportunities for invertebrates present. 🏠 More than 20% of the tree canopy is oversailing vegetation beneath 	27 years
PROPOSED ORNAMENTAL TREE	Urban – Urban Tree (Small) (x1)	0.0041	Moderate: <ul style="list-style-type: none"> 🏠 B- individual trees automatically pass. 🏠 The trees are mature. 🏠 Opportunities for invertebrates present. 🏠 More than 20% of the tree canopy is oversailing vegetation beneath 	27 years
ORNAMENTAL SHRUB/ HERBACEOUS PLANTING	Urban – Introduced Shrub	0.0820	N/A	1 year
WILDFLOWER MEADOW TURF	Grassland- Other Neutral Grassland	0.0250	Poor:	2 years



HABITAT TYPE (LANDSCAPE PLAN)	HABITAT TYPE (UKHAB)	AREA (HA)	TARGET CONDITION/DESCRIPTION	TARGET TIME TO CONDITION
			<ul style="list-style-type: none"> ✦ Cover of bracken less than 20% ✦ Absence of invasive non-native species. 	
AMENITY LAWN	Grassland – Modified Grassland	0.1332	<p>Poor</p> <p>Fails criteria A which is essential for achieving moderate condition as there is less than 6-8 species per m².</p>	1 year
NATIVE SHRUB PLANTING	Heathland and Shrub – Mixed Scrub	0.0672	<p>Moderate:</p> <ul style="list-style-type: none"> ✦ The scrub is a good representation of the UK habitat type. ✦ There is an absence of invasive non-native plant species. ✦ The scrub had a well-developed edge. 	5 years
MIXED NATIVE HEDGE	Species-Rich Native Hedgerow	0.1463 km	Poor – Fails a total of more than 5 attributes.	1 year
ORNAMENTAL EVERGREEN HEDGE	Non-native ornamental hedgerow	0.0400 km	Poor - Fails a total of more than 5 attributes.	1 year



3.4. STRATEGIC SIGNIFICANCE

The strategic significance was defined as 'Within area formally identified in local strategy'.

The site comprised the Three Lions pub, with an associated car park and beer garden. The south west of the site contained a semi-improved grassland field lined by hedgerows and trees to the north. Netherfield Lane bordered the site to the north and residential housing bordered the site to the east and west. These areas are anticipated to provide little value to fauna.

Broadleaved woodland bordered the site to the south, with the River Meden flowing through the woodland approximately 30 m south of the site. This watercourse lined with broadleaved woodland is anticipated to offer numerous species with foraging and commuting opportunities and provides connectivity to Thoresby Lake and Sherwood Forest to the east and south-east respectively. The wider area is made up of a series of arable and improved grassland fields and large expanses of woodland.

The Bottoms Church Warsop Local Nature Reserve (LNR) and Local Wildlife Site (LWS) is located adjacent to the south of the site. The site is within the Sherwood Landscape Character Area and within the local Landscape Policy Zone (LPZ) SH28 (River Meden between Meden Vale and Church Warsop).

3.5. BIODIVERSITY UNIT RESULT

The headline results of the metric show a gain of 0.24 habitat units and 0.62 hedgerow units as a result of development. Table 3.4 shows the headline results detailed within the Biodiversity Metric.

TABLE 3.4 HEADLINE RESULTS

HEADLINE	CATEGORY	RESULT
TOTAL NET UNIT CHANGE	Habitat Units	0.24
	Hedgerow Units	0.62
	River Units	N/A
TOTAL NET % CHANGE	Habitat Units	11.60%
	Hedgerow Units	45.28%
	River Units	N/A

The trading rules of the metric have been satisfied as habitats lost have been 'traded up'.



4. CONCLUSIONS AND RECOMMENDATIONS

A gain has been achieved in both habitat and hedgerow units.

The Biodiversity Metric does not take account for additional species enhancements within the site, and to further increase the site's value for wildlife the following could be provided:

- ✦ Creation of hibernacula (following guidance set out within Froglife, 2001) for common amphibians.
- ✦ Hedgehog houses may be installed to enhance the site for hedgehogs.
- ✦ Bat and bird boxes could be integrated into the proposed residential units.



5. REFERENCES

- ✦ Eat Landscape (2023). Plating Plan. D204.002B.
- ✦ E3P (2020). Preliminary Ecological Appraisal. Report Reference: 80-397-R1.
- ✦ E3P (2021). Arboricultural Impact Assessment. Report Reference: 80-397-R2.
- ✦ National Planning Policy Framework (2021). Ministry of Housing, Communities and Local Government.
- ✦ Natural England Joint Publication JP039. (2023). The Biodiversity Metric 4.0. User Guide. Technical Annex 2.
- ✦ Natural England Joint Publication JP039. (2023). The Biodiversity Metric 4.0. User Guide.
- ✦ Natural England. (2023). The Biodiversity Metric 4.0. Technical Annex 1. Condition Assessment Sheets.

END OF REPORT



APPENDIX I

PHASE 1 HABITAT PLAN



Key:

- Site boundary
- Scattered trees
- Dense scrub
- Running water
- Hedgerow with trees
- SI Semi-improved grassland
- Hardstanding
- A Amenity grassland
- Building

Notes

T1 - Low bat roosting potential

Issue 1	Revision 1	Date 15.10.2020	Drawn LT	Authorised HM
Client: Shape Consulting Engineers			Job No. 80-397	Date 15.10.2020
			Drawing No. 80-397-001	Scale 1:2000
Job title: Three Lions, Meden Vale			Drawing title: Phase 1 Habitat Plan	



Environmental Engineering Partnership Ltd
 Manchester Office
 Taylor Road, Urmston M41 7JQ
 Tel: 0161 707 9612
 Email: info@e3p.co.uk
 Website: www.e3p.co.uk

The client must not amend any drawing, design or other Intellectual property produced by E3P Ltd without permission in writing from E3P Ltd in advance of any amendments being made. In the event that such written permission is not obtained in advance of the amendments being made, E3P Ltd shall not be liable for any damage and/or losses occurring as a result of the amended drawing, design or Intellectual property.

APPENDIX II

LANDSCAPE PLAN

