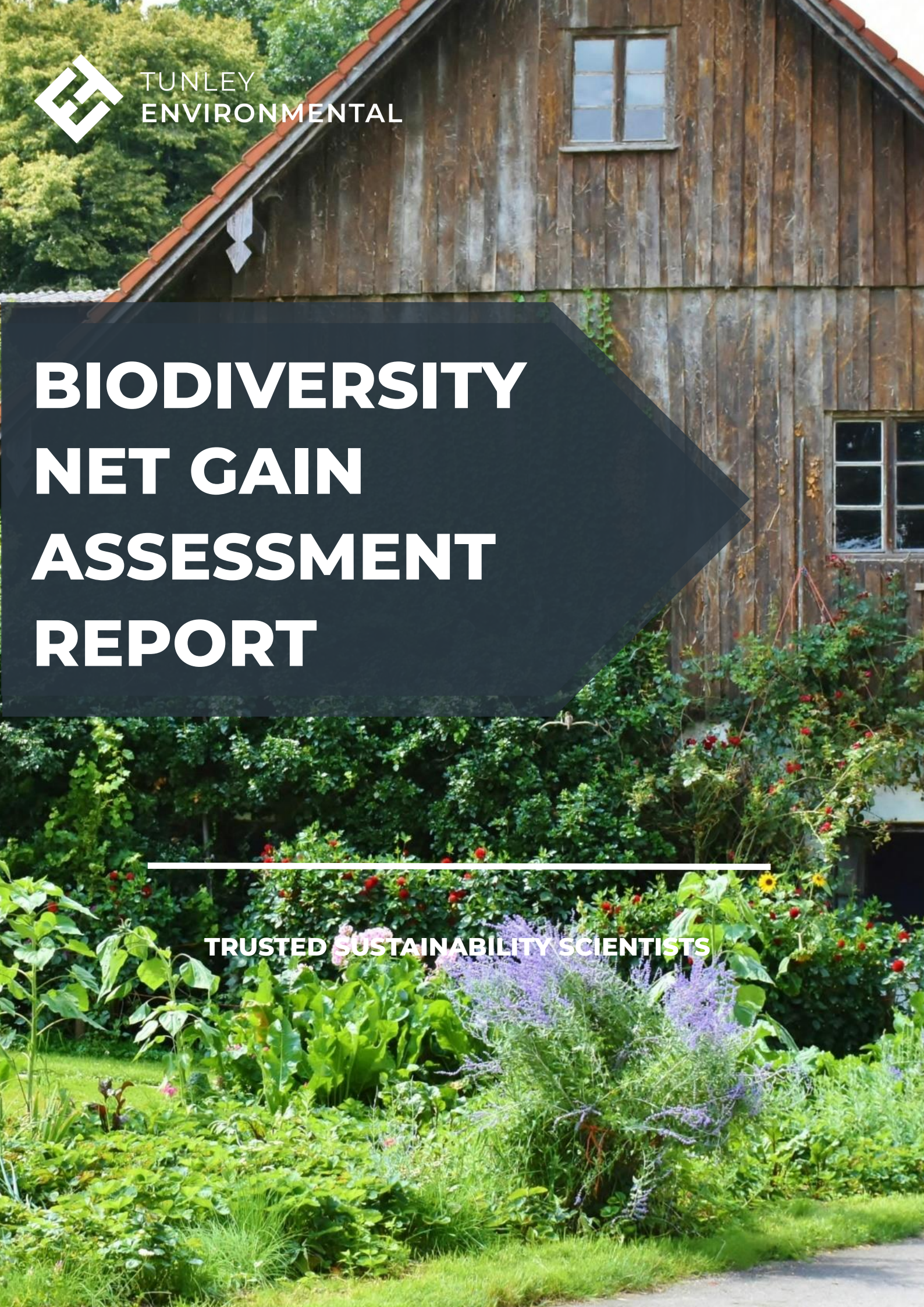


TUNLEY ENVIRONMENTAL

BIODIVERSITY NET GAIN ASSESSMENT REPORT

TRUSTED SUSTAINABILITY SCIENTISTS

BIODIVERSITY NET GAIN ASSESSMENT REPORT

FOR

Land adjacent to 480 Halifax Road, Liversedge, WF15 8DX

in collaboration with

BARNES HOMES

TRUSTED SUSTAINABILITY SCIENTISTS | Copyright © 2024 Tunley Environmental

Contents

Nomenclature 3
Methodology and Quantification Standards 4
Executive Summary 5
Introduction 6
Baseline Results (Pre-development) 7
Biodiversity Net Gain Results 8
Justification for Baseline Habitat Assessment 10
Conclusion 11
Appendix 11
- Data Sources 11
- Habitat Classification and Justification 11
- Magic Map Results 11

Approval 13
IMPORTANT NOTICE: 14

TRUSTED SUSTAINABILITY SCIENTISTS | Copyright © 2024 Tunley Environmental

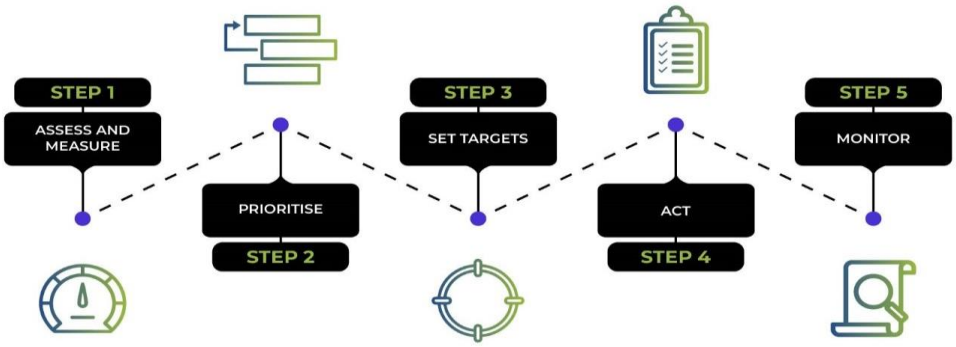
Nomenclature

Nomenclature	Description
Baseline Assessment	Before a development project begins, a baseline assessment is conducted to determine the existing biodiversity of the project site. This assessment establishes the current state of habitats, species, and ecosystem functions.
Biodiversity	The variety of life within a defined area for example, globally or in a specific habitat which can be described by a variety of metrics including species abundance or the living plant index and which we are dependent on to provide us with food, clean water and many more essentials.
Biodiversity Loss	The reduction in the variety and abundance of species in a particular ecosystem or across the entire planet. It can result from factors such as habitat destruction, pollution, climate change, and invasive species.
Biodiversity Net Gain	A concept that aims to ensure that development projects have a positive impact on biodiversity by enhancing or creating habitats.
Biodiversity Net Gain (BNG) Assessment	The quantification of the overall positive impact on biodiversity resulting from a specific activity or project. While biodiversity gain refers to the increase in the numbers, genetic variability, and species variety in a given area, BNG goes a step further by assessing whether the difference between biodiversity losses and gains leads to a net positive impact.
Biodiversity Units	A measure to describe the level of biodiversity present on a given site.
DEFRA Statutory (Official) Biodiversity Metric	Is a tool developed by the UK Government that provides a standardised approach to quantifying changes in biodiversity resulting from development activities. It assigns values to different habitats and species based on their ecological importance, and it allows for the calculation of a numerical score that reflects the overall biodiversity impact of a development.
Habitat	The specific environment or type of ecosystem in which a particular species of organism lives. Habitats can range from forests and wetlands to grasslands and urban areas.
Habitat Condition	The state or quality of a habitat, taking into consideration factors such as biodiversity, ecological processes, and overall health. Habitat condition assessment is essential in determining the effectiveness of conservation or restoration efforts.
Habitat Distinctiveness	The unique characteristics and features that differentiate one habitat from another. Distinctiveness is often assessed based on the diversity of species, ecological functions, and physical attributes of a habitat.
Habitat Strategic Significance	The local importance of a habitat determined by assessing both its geographic location and the specific type of habitat it represents. This evaluation helps in understanding the unique value and contribution of the habitat in its surrounding ecosystem.
On-Site	Refers to activities, impacts, or features that occur within the boundaries of a specific development or project site. In the context of Biodiversity Net Gain, on-site measures may include habitat creation, enhancement, or protection within the project area.
Off-Site	Relates to actions or effects that occur outside the boundaries of the development or project site. Off-site measures in Biodiversity Net Gain may involve compensatory actions, such as creating or enhancing habitats in a different location to offset any biodiversity loss caused by the development.
Small Site	A small residential site is a development which is less than 1 hectare with less than 9 dwellings, or where the number of dwellings is unknown an area of less than 0.5 hectares. A small commercial site is a development which has created floor space of less than 1,000 m^2 or with a total site area of less than 1 hectare.
Major Development	A major development is any development, either residential or non-residential, which falls out of the requirements of a small site. This means more than 9 dwellings or greater than 0.5 hectares for residential developments or greater than 1,000 m^2 floor space, or over a hectare for non-residential developments.

TRUSTED SUSTAINABILITY SCIENTISTS | Copyright © 2024 Tunley Environmental

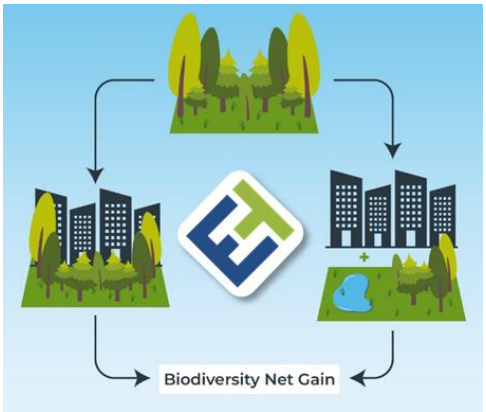
Methodology and Quantification Standards

This Biodiversity Net Gain (BNG) report has been completed using methodology consistent with the Science Based Targets for Nature (SBTN), Nature Positive Initiatives, and DEFRA Regulations.



Science-Based Targets for Nature Steps which Tunley Environmental's Biodiversity Net Gain (BNG) services aligns with to achieve reduced impact on Nature.

Biodiversity was quantified using the DEFRA (Department for Environment, Food & Rural Affairs) statutory (official) biodiversity metric as a tool to assess and measure biodiversity in the context of development projects. This metric is specifically designed to assist in quantification of the impact that development activities have on biodiversity and determine whether Biodiversity Net Gain (BNG) is achieved. Where BNG refers to the idea that the biodiversity value of a site should be enhanced due to development, ensuring a "net gain" in ecological terms. Tunley have completed all calculations within small site metric along with any required documents such as habitat condition. These additional documents will be submitted alongside this form in the excel format for LPA approval.



Tunley Environmental's conceptualisation of Biodiversity Net Gain.

Where applicable, the equivalent small site biodiversity metric was utilised for developments under the requirements for the statutory (official) biodiversity metric. The BNG assessment was further completed using methodology consistent with the international standard BS 8683:2021 (Process for designing and implementing BNG). Information on data sources and assumptions made to support this analysis are provided in Appendix A.

TRUSTED SUSTAINABILITY SCIENTISTS | Copyright © 2024 Tunley Environmental

Executive Summary

Biodiversity is the foundation of the global economy. The World Economic Forum (WEF) estimates that over 50% of the world's GDP, equivalent to 33 trillion pounds, significantly depends on nature and the services it provides. However, biodiversity is amid a severe global crisis. Human-induced changes in land and sea use, overexploitation, invasive species, pollution, and climate change are the primary drivers of rapid biodiversity decline. Human activity threatens approximately a million species with extinction, some within decades, and species are disappearing at a rate of tens to hundreds of times faster than the natural pace.

Biodiversity net gain is a concept implemented into the *Town and Country Planning Act 1990* that aims to ensure that development projects in the UK, specifically England, have a positive impact on biodiversity by enhancing or creating habitats either on-site or off-site.

The land adjacent to 480 Halifax Road, Liversedge, WF15 8DX is a predominantly vacant site having suffered from fly tipping. The site has two areas of deciduous woodland and no designated sites within 500 m. The site is being developed from its artificial unvegetated; unsealed surface by building three bungalows with landscapes. The site has a total area of 954 m^2 and therefore as stated in the Town and Country Planning Act, this site is classified as a small site.

Tunley Environmental have conducted an independent assessment to quantify the biodiversity value of the site before and after development to assess biodiversity of the site. Using data provided by the baseline 'area habitat' biodiversity units of the site were calculated to be zero units over an area of 954 m^2. This is because the site is comprised of artificial unvegetated, unsealed surface as a result of a series of direct and indirect human activities.

Within the proposed development there are plans to create vegetated garden and developed land; sealed surface; replacing the current unvegetated land. These initiatives will create 0.04 'area habitat' units (from a zero baseline). The project thus qualifies for BNG exemption under "*de minimis*".

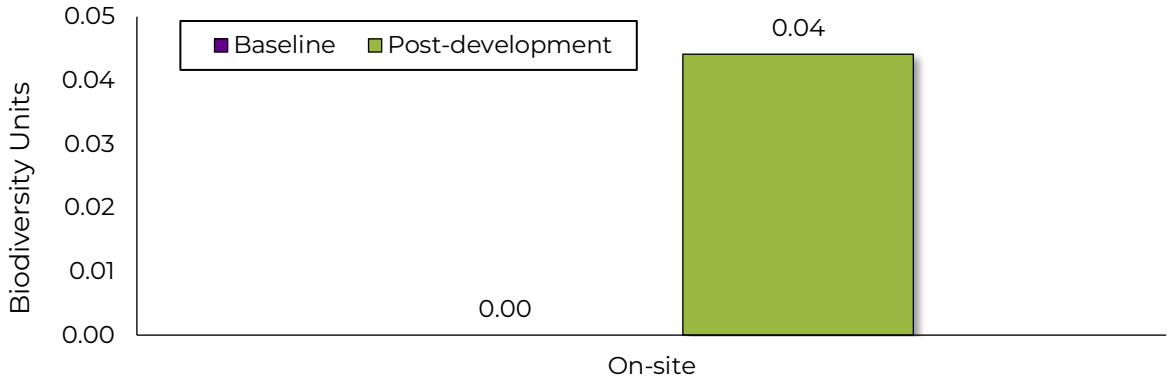


Figure 1. Total biodiversity units of the site after development.

TRUSTED SUSTAINABILITY SCIENTISTS | Copyright © 2024 Tunley Environmental

Introduction

Biodiversity is the foundation of the global economy. The World Economic Forum (WEF) estimates that over 50% of the world's GDP, equivalent to 33 trillion pounds, significantly depends on nature and the services it provides. However, biodiversity is amid a severe global crisis. Human-induced changes in land and sea use, overexploitation, invasive species, pollution, and climate change are the primary drivers of rapid biodiversity decline. Human activity threatens approximately a million species with extinction, some within decades, and species are disappearing at a rate of tens to hundreds of times faster than the natural pace. Between 1970 and 2016, populations of mammals, birds, amphibians, reptiles, and fish have, on average, decreased by 68%. Human activity has dramatically altered 75% of the land surface, significantly impacted 66% of the ocean, and led to the loss of 85% of wetlands.

Recognising the severity of this crisis, the integration of Biodiversity Net Gain (BNG) and ecosystem restoration emerges as a crucial strategy for mitigating the adverse effects of human activities on biodiversity. BNG aims to ensure that development projects not only avoid causing harm to ecosystems but actively contribute to a net positive impact on biodiversity. By implementing measures such as habitat creation, restoration, and protection, BNG seeks to counterbalance the negative ecological footprint of development.

Tunley Environmental has conducted an independent Biodiversity Net Gain (BNG) assessment to identify and quantify the biodiversity of the site before and after the development. This BNG assessment calculates the biodiversity value of the land by evaluating the number of habitats present, the habitat types, size, condition, and location.

Below shows the most recent aerial image of the site at (Figure 2).

Figure 2. Aerial image of the site at Land adjacent to 480 Halifax Road

TRUSTED SUSTAINABILITY SCIENTISTS | Copyright © 2024 Tunley Environmental

Baseline Results

Prior to analysing the biodiversity units post development we must conduct a baseline assessment on the site pre-development. This baseline assessment is conducted to determine the existing biodiversity on the project site. This assessment establishes the current state of habitats, species, and ecosystem functions.

The baseline assessment for the site at Land adjacent to 480 Halifax Road was conducted by analysing site photos to distinguish habitat types as well as implementing Google Earth to accurately analyse site plans alongside dimensions to yield overall meters of the project site by habitat type. Some example images are shown in

Figure 3.

Figure 3. Example images provided to Tunley of the site.

A map of the habitats identified from these images is overlaid into the aerial image above in Figure 4.

TRUSTED SUSTAINABILITY SCIENTISTS | Copyright © 2024 Tunley Environmental

Figure 4. Aerial view of baseline habitat. Satellite image is outdated.

For the proposed site for development, biodiversity units were identified pre-development (Figure 4 and Table 1). The UK habitat classification (UKHab) system is utilised to define habitats inputted within the metric. The habitat identified on-site for this project is artificial unvegetated, unsealed surface. This is due to the site having being cleared out as it suffered from fly tipping and prepared for future construction activities (please see our justification).

Table 1. Explanation of baseline habitat types, habitat characteristics, and habitat area/length.

Habitat Type	Habitat Characteristics	Habitat Area	Unit	Condition	Biodiversity Units
Artificial unvegetated, unsealed surface	Human-made surfaces that are not vegetated and are not sealed with impermeable materials.	954.00	m^2	N/A - Other	0.00

Biodiversity Net Gain Results

The plan below (Figure 5) shows the proposed site landscape developed and designed.

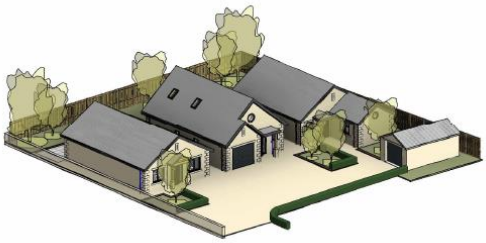


Figure 5. Proposed plan for the site.

TRUSTED SUSTAINABILITY SCIENTISTS | Copyright © 2024 Tunley Environmental

These changes in habitats were taken into account through the calculation of their areas, provided by and verified with an aerial view map, as seen in Figure 6.

Figure 6. Aerial view of the site of post-development.

All of the 954 m² artificial unvegetated; unsealed surface will be lost during development, and the plan creates developed land; sealed surface and vegetated garden (Table 2).

Table 2. Explanation of habitat type, habitat characteristics, and habitat area of all habitats to be created post-development.

Habitat Type	Habitat Characteristics	Habitat Area	Unit	Condition	Biodiversity Units
Vegetated garden	Gardens that support a variety of plants.	228.70	m²	Condition Assessment N/A	0.04
Developed land; sealed surface	Areas where the surface has been sealed by materials such as concrete, tarmac, or buildings.	725.30	m²	N/A - Other	0.00

The incorporation of these new habitats creates 0.04 biodiversity units, which brings the site to a total of 0.04 biodiversity unit post-development.

Of the 954 m² of artificial unvegetated, unsealed surface that will be lost during development, the plan creates a vegetated garden of 228.7 m². Therefore, as stated by *The Biodiversity Gain Requirements (Exemptions) Regulations 2024, regulation 4*([1]) this site is exempt from the BNG regulations:

[1] The Biodiversity Gain Requirements (Exemptions) Regulations 2024 No. 47, Regulation 4. Available at https://www.legislation.gov.uk/uksi/2024/47/regulation/4/made

TRUSTED SUSTAINABILITY SCIENTISTS | Copyright © 2024 Tunley Environmental

"(1) The biodiversity gain planning condition does not apply in relation to planning permission for development which meets the first and second conditions.

(2) The first condition is that the development does not impact an onsite priority habitat.

(3) The second condition is that the development impacts—

> *(a)less than 25 square metres of onsite habitat that has biodiversity value([2]) greater than zero; and*
>
> *(b)less than 5 metres in length of onsite linear habitat."*

(4) For the purposes of this regulation—

> *(a)"priority habitat" means a habitat specified in a list published under section 41 of the Natural Environment and Rural Communities Act 2006([3]);*
>
> *(b)a habitat is impacted where the habitat is lost or degraded such that there is a decrease in the biodiversity value of that habitat;*
>
> *(c)"linear habitat" means the types of hedgerow habitat or watercourse habitat identified for the purposes of the biodiversity metric([4]) (which are measured by length (expressed in kilometres) rather than area)."*

Under the first condition the site does not have any on-site priority habitats and therefore does not impact any priority habitats (please refer to the Magic Map results).

The second condition is satisfied as there is currently zero biodiversity units on site so the development will not impact habitats with biodiversity values greater than zero. In addition, the development does not impact at all any linear habitats.

Justification for Baseline Habitat Assessment

Satellite images of the site are outdated as they were taken in 2020. The site had suffered significantly from fly tipping. Barnes Homes implemented plans to clear the waste and prepared the site for construction work (subject to planning permission granted).

Figure 7. Photos of site demonstrating previous site condition.

[2] See paragraph 3 of Schedule 7A to the Town and Country Planning Act 1990 for the definition of "biodiversity value".
[3] 2006 c. 16; see the list published at https://www.gov.uk/government/publications/habitats-and-species-of-principal-importance-in-england. A hard copy of the list is available from the DEFRA Helpline address given at the end of the explanatory note below.
[4] See paragraph 4 of Schedule 7A to the Town and Country Panning Act 1990.

TRUSTED SUSTAINABILITY SCIENTISTS | Copyright © 2024 Tunley Environmental

According to the UKHab Classification system, the site (as of 19 September 2024) should be classified as “artificial unvegetated; unsealed surface”. This is because:

- The site is unsealed land with no vegetation cover.
- It is currently unvegetated due to a series of direct/indirect human activities (fly tipping, site clear out, vehicles passing/parking during the site clear out, preparing for construction work).

Conclusion

The BNG assessment by Tunley Environmental have confirmed that the site at the land adjacent to 480 Halifax Road, WF15 8DX will not be required to reach the national standard of 10% biodiversity net gain. The exemption is satisfied under the exemption category of developments below the threshold.

Appendix

Data Sources

All data results were analysed through the small site metric from DEFRA. The excel version of the metric will also be submitted alongside this report for further evidence and LPA approval and for compliance with BNG regulations.

Habitat Classification and Justification

We conducted a thorough assessment of all habitat types utilising the guidelines outlined in "The UK Habitat Classification Version 2" (UKHab). UKHab serves as a comprehensive, hierarchical system that integrates seamlessly with existing classifications in the UK and Europe. It’s architecture, inclusive of primary habitats and secondary codes, enhances the accuracy and consistency of habitat assessments by allowing for the direct attachment of additional features such as habitat mosaics and management strategies. This approach not only facilitates the integration of legacy datasets but also enables efficient sharing of habitat data at regional, national, and international levels. BNG Compliance adheres to these classifications, ensuring consistency and compliance with ecological standards. It's essential that a trained and certified ecologist completes the assessment. For more information, please visit: UKHab.

Magic Map Results

The site is with two areas of deciduous woodland and no designated sites within 500 m (but not onsite).

TRUSTED SUSTAINABILITY SCIENTISTS | Copyright © 2024 Tunley Environmental

TRUSTED SUSTAINABILITY SCIENTISTS | Copyright © 2024 Tunley Environmental

Approval

Author:	Dr Luan Ho, MIEnvSc, BEng
Position:	Science Team Co-Lead
Written Date:	20th September 2024
Peer-reviewed by:	Dr Aaron Yeardley, AMIChemE, MEng
Position:	Science Team Co-Lead
Reviewed Date:	20th September 2024
QA approved by:	☒ Approved ☐ Revision: N/A Tara Garraty BSc, MSc, Phd (pending)
Position:	Biodiversity Specialist and Sustainability Scientist
Approval date:	23rd September 2024
Reference:	BarnesHomes_HalifaxRoad-BNG_24-2-A
Revision:	A

Revision History:	Change Description:	Changed by:	Date:	Approved by:	Date:
B					
C					
D					
E					
F					

TRUSTED SUSTAINABILITY SCIENTISTS | Copyright © 2024 Tunley Environmental

IMPORTANT NOTICE:

Tunley Environmental Ltd has prepared this report and any attachments, based on an agreed scope of work, and acts as an advisor to the named Client and exercises all reasonable skill and care in the provision of its professional services, in a manner consistent with the level of care and expertise exercised by consultants in a similar environment.

Reports are commissioned by and prepared for the exclusive use of the named Client. They are subject to and issued in accordance with the agreed terms between the Client and Tunley Environmental Ltd. Tunley Environmental Ltd is not responsible and will not be liable to any other person or organisation for, or in relation to any matter dealt within this Report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in this report (including without limitation), matters arising from any negligent act or omission of Tunley Environmental Ltd, or for any loss or damage suffered by any other party relying upon the matters dealt with or conclusions expressed in this Report.

This report is not intended to be a comprehensive review of the practices of the named recipient nor the viability of its products or services. It is the responsibility of the named recipient to ensure that all its products or services adhere to and are compliant with all applicable laws, regulations and other generally accepted standards of quality and performance. Tunley Environmental Ltd accepts no liability for any failure of the products or services to meet any such standards or for any loss or other damages, (including death or personal injury) caused as a result of any such failure.

When taking any action, Recipients should not rely solely upon the report or the accuracy or completeness of any conclusions and should make their own inquiries and if they are unsure, should obtain independent advice in relation to such matters.

Except where expressly stated, Tunley Environmental Ltd has not verified the validity, accuracy or comprehensiveness of any information supplied to it, used as the background information for the writing of this report. It is assumed that the information provided to Tunley Environmental Ltd was both complete and accurate.

Information contained in the Report is current as at the date of the Report and may not reflect any event or circumstances which occur after the date of the Report. Tunley Environmental Ltd makes no representation or guarantee that their services or this report will result in any enhancement of the Client.

COPYRIGHT STATEMENT: The concepts and information contained in this document (except the client's own copy information) are the property of Tunley Environmental Ltd. Use, copying or distribution to any third party is expressly prohibited. We do not accept any liability if this report is used for an alternative purpose from which it is intended, nor to any third party in respect of this report or of this document in whole or in part, by anyone other than the addressed recipients. Any such third-party disclosures without the written permission of Tunley Environmental Ltd constitutes an infringement of copyright.