Biodiversity Net Gain Assessment

Rear of 35 Twickenham Road, Teddington

November 2022

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25/11/2022

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1. Introduction

Project Background

1.1 Phlorum Limited was commissioned by Foster Kenny Developments to compile a Biodiversity Net Gain Assessment in relation to the proposed development of the land to the rear of 35 Twickenham Road, Teddington, TW11 8AH (hereafter referred to as "the site").

Site Description and Context

1.2 The site is currently a vacant square plot, covered almost entirely by concrete. There was a very small amount of colonising ruderal vegetation on the site, including species such as buddleia (*Buddleja davidii*), bramble (*Rubus fructicosus* agg.), and Canadian fleabane (*Erigeron canadensis*). The site historically, until 2019, contained a line of garages and was covered entirely by hardstanding. Some ruderal vegetation appears to have colonised the plot in recent years due to its state of disuse.

1.3 The site is bound by private gardens to the north and east, and roads to the south and west. The surrounding area is built-up, comprising predominantly residential properties.

1.4 The National Grid Reference for the centre of the site is TQ 16381 71459. The total site area is 235.6m^2 or 0.02356 hectares (ha).

Description of Development

1.5 It is understood that the development proposals are for the construction of two new residential dwellings with car parking spaces and landscaping.

Documentation Provided

1.6 This document has been developed with reference to the findings contained within the previous ecological report:

- Preliminary Ecological Appraisal (Phlorum, 2022).

2. Methodology

Establishing the Baseline Habitat

2.1 Phlorum carried out an ecological site survey on the 4th November 2022 to assess the baseline habitat conditions of the site, following the guidance set by the Joint Nature Conservation Committee, handbook for Phase 1 surveys (JNCC 2010).

Calculating Biodiversity Net Gain/Loss

2.2 The calculation of Biodiversity Net Gain (BNG) was undertaken using 'The Biodiversity Metric 3.1' published by Natural England (2022). The metric uses site habitats, as areas and linear lengths, to calculate a score for the site. Each habitat is scored according to its relative biodiversity value. This value is then adjusted depending on various factors, to calculate the 'biodiversity units' for each habitat.

Baseline Calculation

2.3 Site baseline habitats are assessed based on the following:

- Habitat areas;
- Terrestrial linear lengths; and
- Aquatic linear lengths.

2.4 The baseline habitat map from the ecological scoping survey is used to calculate the individual parcels of habitats on the site, such as habitat areas (e.g. woodland, grassland), terrestrial lengths (e.g. hedgerows) and aquatic lengths (e.g. streams, rivers). Each area is measured in *hectares* and each linear feature in *kilometres*.

2.5 The Biodiversity Metric 3.1 calculator requires habitats present on site to be described using the UKHabs Classification System. As a result, the calculator in the technical data section includes a tool to translate Phase 1 habitats into UKHabs habitats.

2.6 Once the UKHabs habitat names, and areas/lengths have been measured the parcels need to be assessed against the following criteria:

- Habitat Distinctiveness – The calculator creates an automated score based on the type of habitat present. Highly diverse habitats, particularly those habitats of Principal Importance under the NERC Act (2006) or Annex 1 habitats in the Habitats Directive (1992) score 'high', whilst sites with low diversity such as arable crops have 'low' scores.
- Habitat Condition – An assessment of the quality of the habitat parcel assessed during the baseline surveys.
- Strategic Significance – An assessment based on the information set out in local plans or policies.

2.7 The calculator realises the importance of individual trees but there is no UKHabs habitat for these in the area calculation. As a result, the 'Urban tree helper', which allows numbers of trees to be converted to an area in hectares, is used, regardless of if the tree is an urban tree or isolated tree in another habitat. Trees are categorised as 'small', 'medium' or 'large'.

Post Development Calculation

2.8 The post development areas are calculated by initially assessing the areas/lengths of habitats retained, enhanced, and created plus any offsite areas created or enhanced.

2.9 A 'Habitat Condition' and 'Strategic Significance' assessment are carried out on the post-development habitats. Where habitats have been created or enhanced, additional factors are considered, such as time taken for each of these habitats to reach target condition (temporal multiplier) and the difficulty of recreating these habitats (difficulty multiplier).

2.10 The baseline biodiversity score and post-development score are then calculated and compared the biodiversity impact loss or gain is calculated for each habitat (e.g. area habitat, terrestrial linear and /or linear aquatic habitat).

2.11 If needed offsite enhancement and/or creation of habitats can be carried out and assessed.

Caveats

2.12 The BNG calculates habitats and only provide a score to represent the biodiversity on site. As a result, compensation and mitigation should be designed using appropriate expertise and common sense.

2.13 As only habitats are calculated an increase in biodiversity due to increase in fauna (e.g. birds, bats, insects, reptiles, amphibians, or other mammals) is not included. The creation of bird/bat/insect boxes, log piles, and/or hibernacula can significantly enhance the ecosystems on a site, but these enhancements are not calculated by the BNG calculator. The BNG calculator is a good guide to help increase biodiversity, but habitats need both flora (plants) and fauna (animals) enhanced to ensure healthy and sustainable ecosystems.

2.14 The existing levels of protection provided to certain habitats or protected species are not changed by this calculator. The impact on protected species is not considered by the calculator and must be assessed separately.

2.15 In nature the boundaries between ecological habitats are not usually an easily defined line, unless human impact such a hard surface (e.g. buildings/roads), fences, ploughing, and/or felling has occurred. As a result, the habitat areas used are based on best judgement and therefore are subjective.

2.16 The calculator requires area measurements in *hectares* and linear measurements in *kilometres*, which for small sites can result in smaller areas/lengths not being recorded when only 2 decimals places are used.

2.17 As isolated trees and green walls are measured separately, the overall area of all the habitat parcels can be greater than the actual site area.

2.18 The calculator cannot take account of all site-specific features and circumstances that may affect the true value of certain habitats or dictate the nature of habitat creation and enhancement. Such features and circumstances may make it impossible to satisfy trading rules for medium and high distinctiveness habitats, even where a clear net gain for biodiversity is being delivered. Whilst the calculator provides a valuable guide as to how a development will affect biodiversity, it should be considered as a guide to be used in combination with pragmatic and knowledge-based judgement when reaching conclusions as to how effective biodiversity enhancement will be delivered.

3. Biodiversity Net Gain Assessment

Existing Habitats

3.1 The existing habitats identified on site during the ecological survey are shown in Table 1 below.

Table 1: Existing Area Habitat Calculation

PEA habitat	UKHabs habitat	Area (ha)	Habitat Distinctiveness	Habitat Condition	Strategic Significance	Habitat Units
Hardstanding	Developed land; sealed surface	0.02096	Very low	N/A - Other	Low	0
Earth mounds with ruderal vegetation/ Sparse brambles	Ruderal/ ephemeral	0.0026	Low	Poor	Low	<0.01

Development Proposals and Assessment of Impacts

3.2 The proposed post development habitats are shown in Table 2 below, and summary table provided in Table 3.

Table 2: Proposed Area Habitat Calculation

PEA habitat	UKHabs habitat	Area (ha)	Habitat Distinctiveness	Habitat Condition	Strategic Significance	Habitat Units
Hardstanding/ Buildings	Developed land; sealed surface	0.02042	Very low	N/A - Other	Low	0
Plant beds	Introduced shrub	0.00314	Low	Condition Assessment N/A	Low	0.01
Façade-bound green wall	Façade-bound green wall	0.0018	Low	Moderate	Low	0
Trees	Urban tree	0.04069	Medium	Poor	Low	0.11

Headline Results

3.3 The headline results, including total unit and % change are shown in Table 3 below.

Table 3: Headline Results

	Habitat Units (habitat area)	Hedgerow Units (terrestrial linear length)	River Units (aquatic linear length)
On-site baseline	<0.01	0	0
On-site post-intervention	0.12	0	0
Total net unit change	+0.11	0	0
Total net % change	**+2292.03%**	**0%**	**0%**

Results Summary

3.4 The existing area habitats on the site are considered by the Biodiversity Net Gain assessment to have a value of less than **0.01 units**. The post-development area habitats are considered by the Biodiversity Net Gain Assessment to have a value of **0.12 units**. This is a **+0.11 net change** in habitat units which equates to a **2,292.03% net gain**.

3.5 It should be noted that the scores given for units are rounded to 2 decimal places, whilst the percentage net/gain loss score has used the exact unit values.

3.6 This reflects the replacement of the existing hardstanding and small amount of ruderal vegetation with two new buildings, hard landscaping, plant beds, green walls, and 10 new trees.

3.7 Trading rules have been satisfied by this calculation.

3.8 There are no terrestrial linear or aquatic habitat features on the site pre- or post-development.

4. Discussion

4.1 A Biodiversity Net Gain Assessment has been carried out for the proposed residential development to the rear of 35 Twickenham Road, Teddington. The site comprised hardstanding, earth mounds with ruderal vegetation, and sparse brambles.

4.2 It is understood that development proposals are for the construction of two new residential dwellings with associated car parking and landscaping.

4.3 An overall net gain of 2,292.03% in habitat units from the existing baseline has been calculated. This reflects the replacement of the existing hardstanding and small amount of ruderal vegetation with two new buildings, hard landscaping, plant beds, green walls, and 10 new trees. There are no terrestrial linear or aquatic habitat features on the site pre- or post-development.

4.4 Trading rules have been satisfied by this calculation.

4.5 The site currently contains very minimal ecology and has very low biodiversity. This has resulted in a significant net gain for habitat units with the inclusion of some vegetated habitats in the development proposals.

4.6 There may also be significant gains for ecology on the site that are not captured by the BNG Assessment, such as species-specific enhancements including bird and bat boxes.

5. Conclusions and Recommendations

Conclusions

5.1 A Biodiversity Net Gain Assessment has been carried out for the residential development to the rear of 35 Twickenham Road, Teddington. An overall **net gain** of **2,292.03% in habitat units** from the existing baseline has been calculated.

5.2 It should be noted that the BNG assessment does not capture other methods of ecological enhancement such as the inclusion of bat and bird boxes.

Recommendations

5.3 It is recommended that the proposed development is carried out in accordance with the recommendations made within the Preliminary Ecological Appraisal that was carried out for the site (Phlorum, 2022).

6. References

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- Phlorum (2022). *Preliminary Ecological Appraisal: Rear of 35 Twickenham Road, Teddington*. Unpublished report by Phlorum Ltd.

Figures and Appendices

Appendix A

Habitat Map

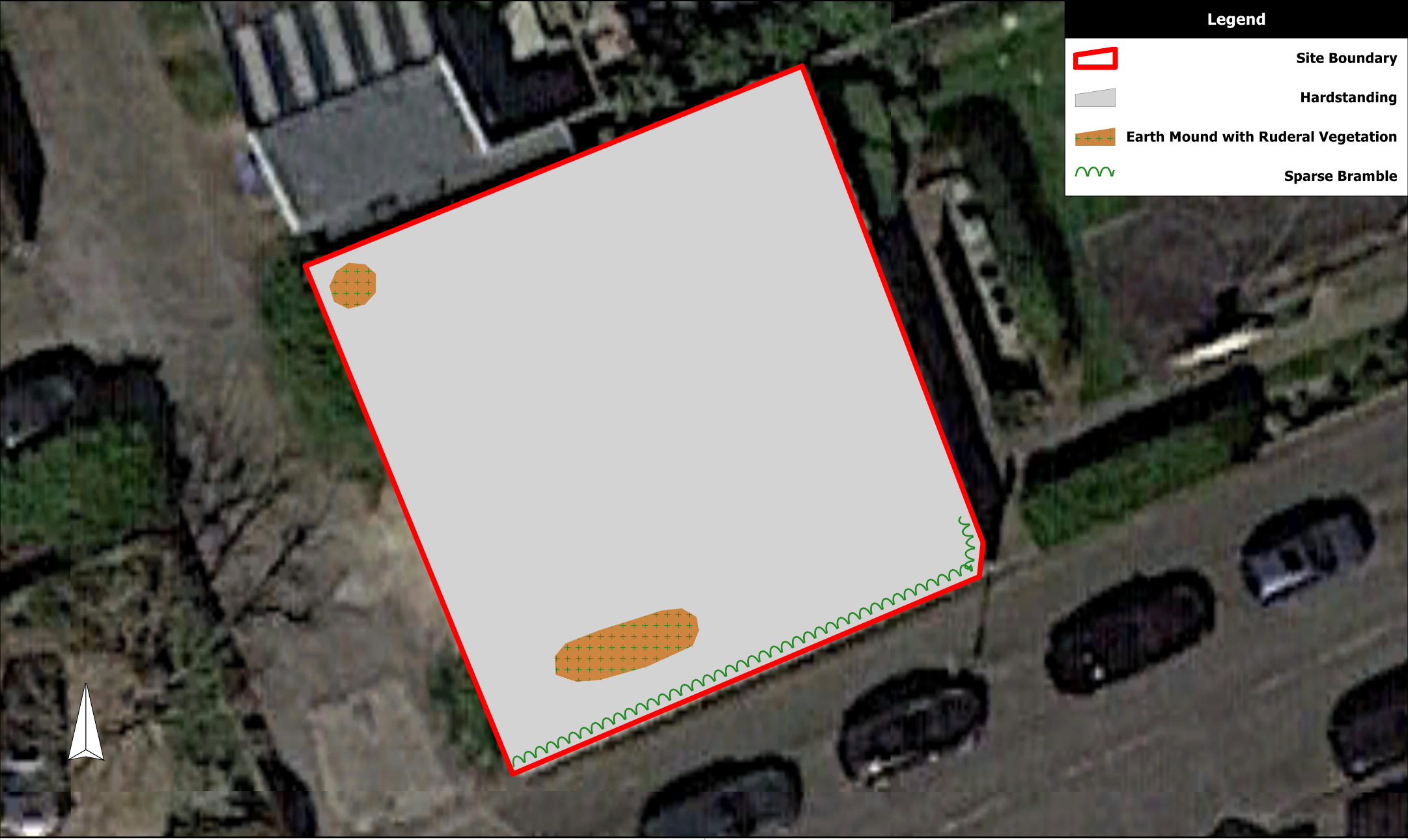

Figure 1: Rear of 35 Twickenham Road Habitat Survey Map

Drawn by: NA
On the: 21/11/2022
Not to Scale
Ref: 11856

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Appendix B

Post Development Landscape Plan

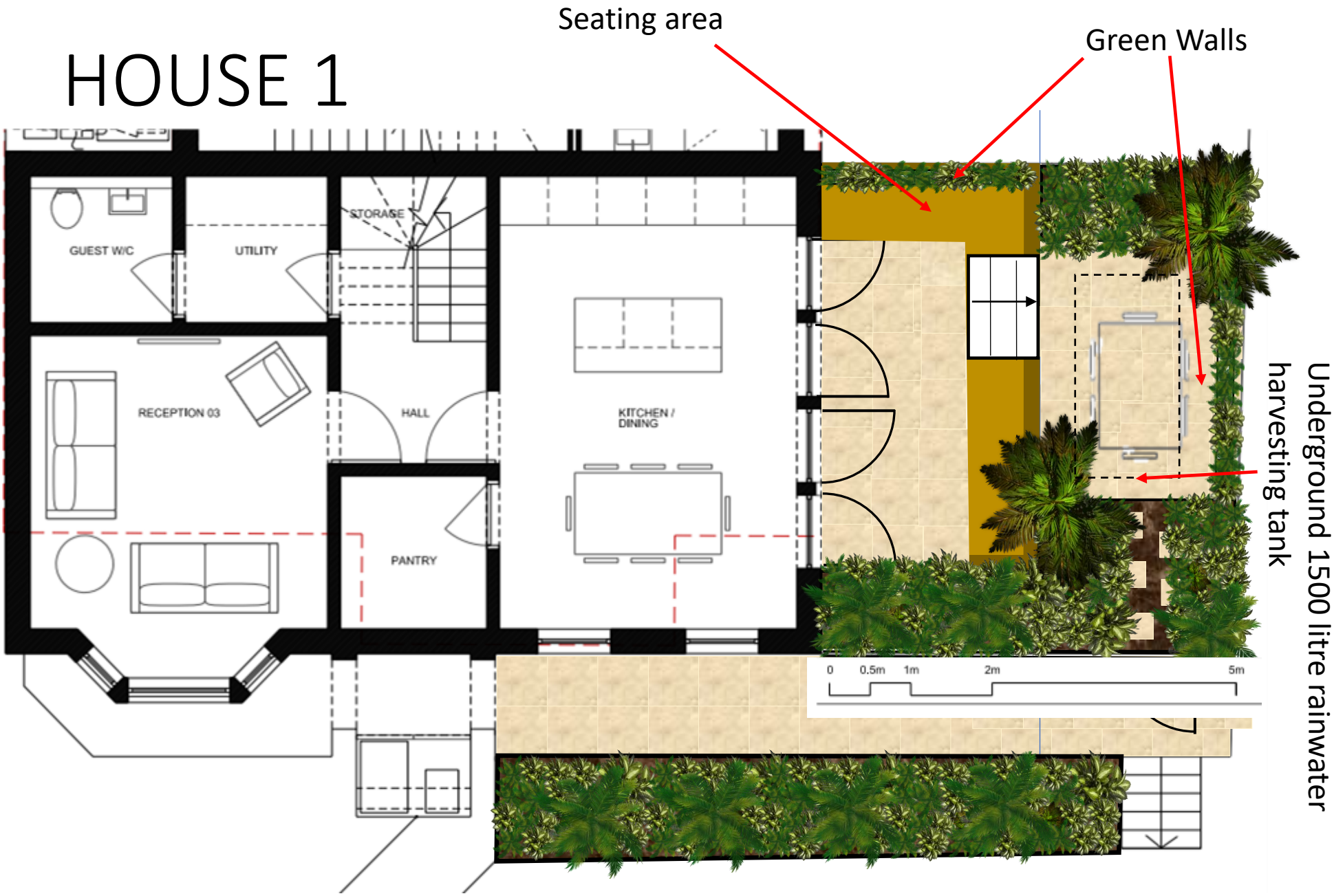
FKD

PROPERTY DEVELOPMENT AND CONSTRUCTION

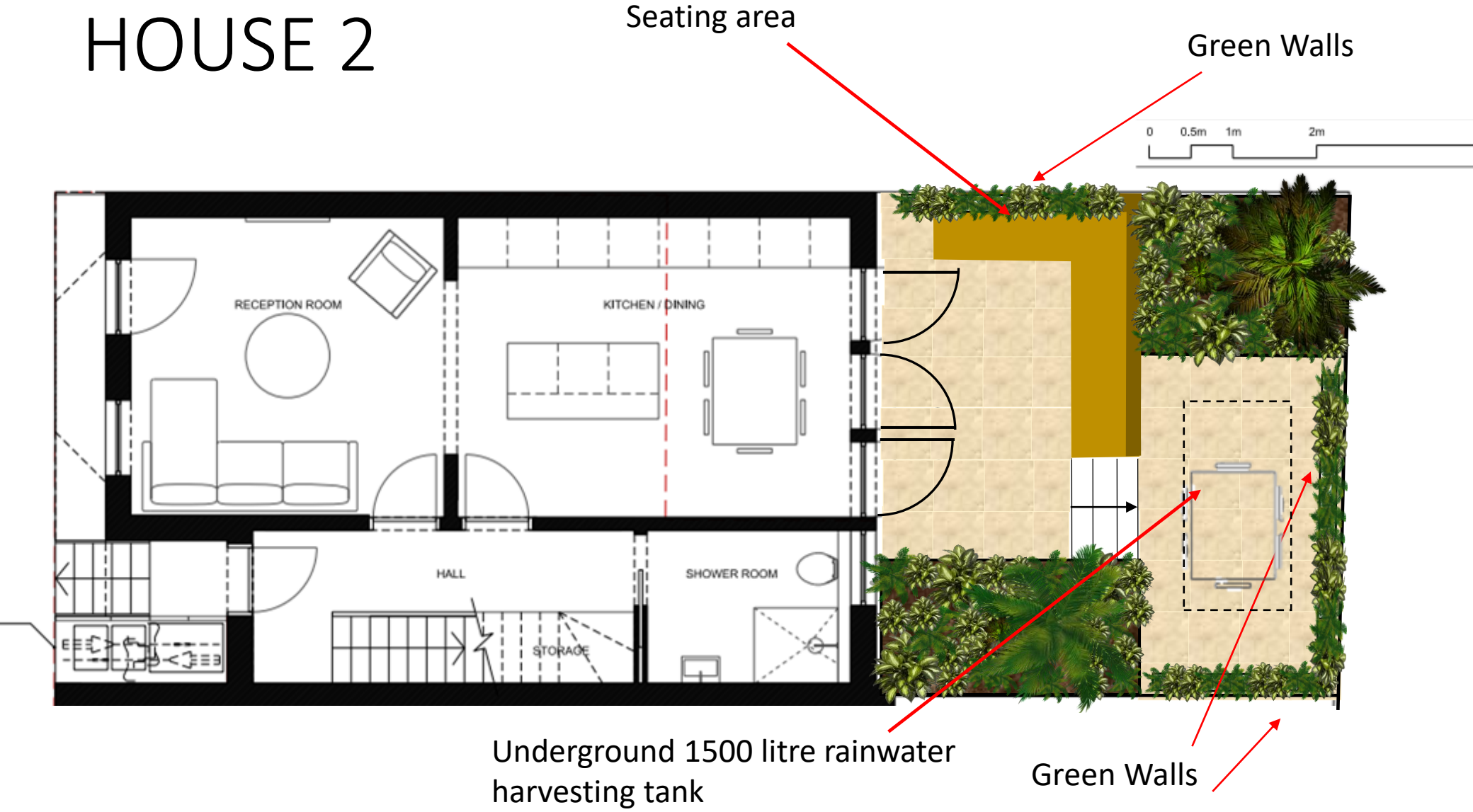
LANDSCAPING PLAN

Rear of 35 Twickenham Road, TW11 8AH

HOUSE 1


Seating area
Green Walls
Underground 1500 litre rainwater harvesting tank
GUEST W/C
UTILITY
STORAGE
RECEPTION 03
HALL
KITCHEN / DINING
PANTRY
0
0.5m
1m
2m
5m

HOUSE 2


Seating area
Green Walls
0
0.5m
1m
2m
RECEPTION ROOM
KITCHEN / DINING
HALL
SHOWER ROOM
STORAGE
Underground 1500 litre rainwater harvesting tank
Green Walls

PLANT SELECTION

TREES (10 trees)

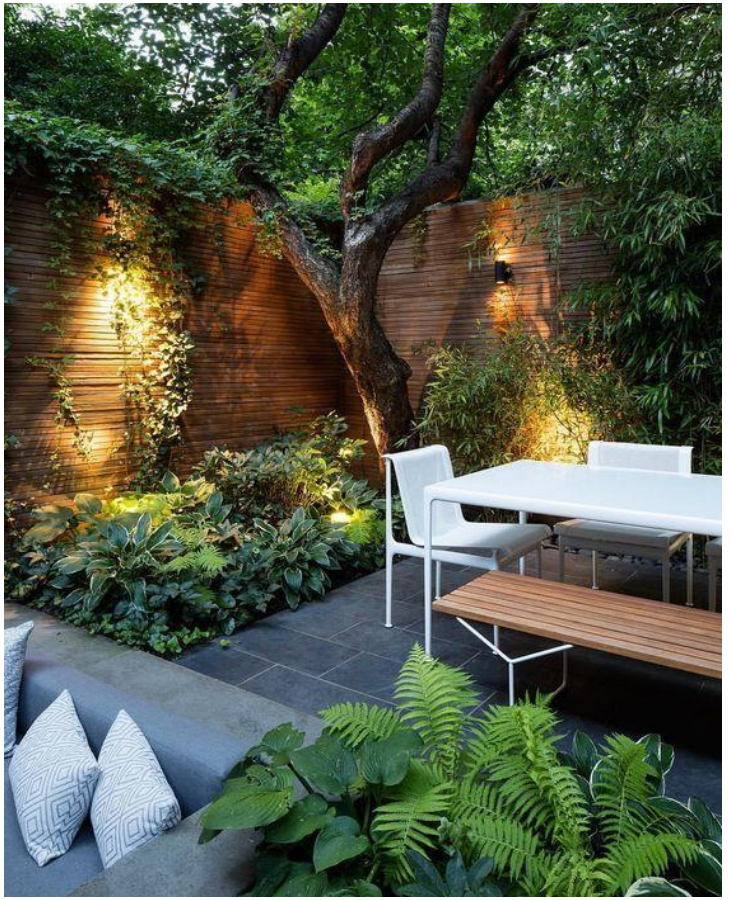
- Catalpa Bignonoides
- Chusan Palm
- Pindo Palm
- Cork Oak
- Dracaena Draco

BEDDINGS (31.4 sqm)

- Canna
- Cordyline australis
- Ferns
- Hosta
- Agastache
- Allium Giganteum
- Aromatic Aster
- Cornflower
- Cosmos

GREEN WALLS (18sqm)

- Amsonia
- Hedra Helix
- Asplenium
- Lavender



Total Site 235.6 sqm

Appendix C

Suggested Compensatory Planting

Suggested Compensatory Planting

This section provides a list of plants which are of proven value to wildlife. The list is not exhaustive and merely provides a guide for suggested planting for wildlife value. Planting should be tailored on a site by site basis. The list includes native species.

This list includes species that may be harmful if handled or ingested. Schedule 9 (Part 2) of the Wildlife and Countryside Act, 1981 (as amended) includes a list of invasive plants, including aquatic species, that should always be avoided in planting schemes.

Large Shrubs

Hawthorn (*Crataegus monogyna*)

Blackthorn (*Prunus spinosa*)

Rose: dog rose (*Rosa canina*), field rose (*R. arvensis*), burnet rose (R*. pimpinellifolia*)

Wild privet (*Ligustrum vulgare*)

Common holly (*Ilex aquifolium*)

Hazel: (*Corylus avellana*)

Viburnum (*Viburnum* spp.): wayfaring tree (*V. lantana*), guelder rose (*V. opulus*),. Note: *V. lantana* can become invasive in more open habitats.

Dogwood (*Cornus sanguinea*)

Broom (*Cytisus scoparius*)

Buckthorn (*Rhamnus cathartica*)

Spindle (*Euonymus europaeus*)

Tutsan (*Hypericum androsaemum*)

Yew (*Taxus baccata*)

Trees

Ash (*Fraxinus excelsior*)

Apple (*Malus* spp.): edible apple (*M. domestica*), crab apple (*M. sylvestris*)

Small-leaved lime (*Tilia cordata*)

Silver birch (*Betula pendula*)

Yew (*Taxus baccata*)

Black poplar (*Populus nigra*)

Beech (*Fagus sylvatica*)

Climbers

Ivy (*Hedera helix*)

Honeysuckle (*Lonicera* spp.): (*L. periclymenum*)

Hop (*Humulus lupulus*)

Bulbs

English bluebell (*Hyacinthoides non-scripta*)

Snowdrop (*Galanthus nivalis*)

Wild Daffodil (*Narcissus pseudonarcissus*)

Wood anemone (*Anemone nemorosa*

Lesser celandine (*Ficaria verna*)

Appendix D

The Biodiversity Metric 3.1 Headline Results

On-site baseline	*Habitat units*	0.01
	Hedgerow units	0.00
	River units	0.00
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	0.12
	Hedgerow units	0.00
	River units	0.00
On-site net % change (Including habitat retention, creation & enhancement)	*Habitat units*	2292.03%
	Hedgerow units	0.00%
	River units	0.00%
Off-site baseline	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Off-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	0.12
	Hedgerow units	0.00
	River units	0.00
Total on-site net % change plus off-site surplus (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	2292.03%
	Hedgerow units	0.00%
	River units	0.00%
Trading rules Satisfied?		Yes ✓

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