

BULL FIELD, WARISH HALL FARM, TAKELEY, ESSEX

Biodiversity Net Gain Report

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1. INTRODUCTION

1.1. Background & Proposals

- 1.1.1. Ecology Solutions was first commissioned in October 2022 by Weston Homes PLC to undertake a Biodiversity Net Gain Assessment of the proposed development at Bull Field, Warish Hall Farm, Takeley, Essex.
- 1.1.2. A planning application was first submitted for the wider Land at Warish Hall Farm (Planning Ref: UTT/21/1987/FUL), for which Ecology Solutions provided professional advice and produced various documents including an Ecological Assessment (October 2021), Bat Survey Report (November 2021), Biodiversity Net Gain Assessment (October 2021), Bird Hazard Management Plan (June 2021) and Woodland Management Plan (October 2021). A Public Inquiry was subsequently held, for which Proof of Evidence (Appeal Ref: APP/C1570/W/22/3291524) in respect of Ecology and Nature Conservation was provided. BNG was not identified as a reason for refusal.
- 1.1.3. The current application for Bull Field is a smaller parcel of land that falls within the original red line boundary for the wider Land at Warish Hall Farm application, save for the alternative location of the woodland expansion, which has been relocated to its historic location. The proposal for Bull Field is for a residential development of 96 dwellings, south of Prior's Wood, including associated parking, landscaping, public open space, land for the expansion of Roseacres Primary School, pedestrian and cycle routes to Smiths Green Lane together with associated infrastructure.
- 1.1.4. A Section 62A application for the development was submitted in October 2023 (Application Ref: S62A/2023/0019) and was subsequently refused. A challenge to this refusal was subsequently submitted and approved. The Judgment upheld Ground 1 which related to how the Inspectorate applied weight to the BNG Assessment originally submitted alongside the application. As set out at paragraph 80 of the quashed decisions, the Inspector highlighted that there was some uncertainty over the estimated net gain for watercourse units. Although this was clarified during the application process prior to the quashing, in order to avoid any further uncertainty, the previously submitted Biodiversity Net Gain (BNG) Assessment has been updated as part of the resubmission.

1.2. Site Characteristics

- 1.2.1. The Site is located to the north of Takeley, approximately 1.3km southeast of London Stansted Airport and approximately 1.5km northeast of Hatfield Forest Site of Special Scientific Interest (SSSI) and National Nature Reserve (NNR).
- 1.2.2. The immediately adjacent road, Smiths Green Lane bounds the eastern boundary, beyond which lies a line of residential properties. Residential gardens exist immediately adjacent to the southern boundary, along with a portion of the western boundary, with the playing field of Roseacres Primary School bordering to the southwest. A narrow corridor, which will provide the future access road to the Site, extends the Site boundary to the northwest from Bull Field, through the adjacent field known as 7 Acres,

where a recently approved commercial development has now been built (UTT/22/2744/FUL) and onto the premises of the Weston Group Business Centre. Arable fields and associated neutral grassland margins lie adjacent to the remaining western, northern, and eastern boundaries of the Site. The wider area is characterised by residential properties to the south, east, and west, with arable fields to the north.

- 1.2.3. The Site itself is approximately 19.6ha and is predominantly composed of a large arable field, known as Bull Field, intensively managed for arable agriculture, and Prior's Wood, an area of ancient and semi-natural woodland designated as a Local Wildlife Site (LWS). The Site is effectively split along the centre, with Prior's Wood to the north, and Bull Field to the south. Three small ponds exist within Prior's Wood, two in the north and one towards the centre. Bull Field possesses neutral grassland field margins of varying width along its entire perimeter. The narrow corridor extending to the northwest from Bull Field comprises hardstanding. Areas of arable field and associated neutral grassland field margin exist to the north and northeast of the Site, adjacent to Prior's Wood, the area to the north being much larger than the area to the northeast.
- 1.2.4. A series of shallow ditches are located along field boundaries in the east of the Site and are located alongside hedgerows and the woodland edge. Two further hedgerows bound the Site to the south and southwest.

1.3. **Biodiversity Net Gain Report**

1.3.1. This document assesses the level of Biodiversity Net Gain within the Site. This report has been prepared with due consideration to the guidance published by the Chartered Institute of Ecology and Environmental Management (CIEEM)^{1,2} in relation to Biodiversity Net Gain. The assessment has been based on the results of the extended phase one habitat surveys undertaken by Ecology Solutions in October 2020 and walkover surveys undertaken in April 2021, February 2023 and September 2024. The results of these surveys can be found in the Ecological Assessment for the wider Warish Hall Farm application and the Ecological Appraisal for Bull Field and should be read in conjunction with this report.

¹ CIEEM (2019). Biodiversity Net Gain. Good Practice Principles for Development, A practical Guide.

² CIEEM, CIRIA, IEMA (2016). Biodiversity Net Gain: Good Practice Principles for Development.

2. BIODIVERSITY METRIC 4.0

- 2.1. The Biodiversity Metric 4.0 was released on 28 March 2023 and uses habitat features as a proxy measure for capturing the value and importance of nature. It uses calculations to assess the importance of each habitat based on its size, ecological condition, and location.
- 2.2. Guidance on which version of the metric tool to use is available on the gov.uk website³. Extracts from the guidance state the following:

You must use the statutory biodiversity metric tool for mandatory BNG.

If you are submitting a new planning application and already started calculations in version 4.0 or before, you will need to copy and paste these into the statutory biodiversity metric tool.

- 2.3. The application (S62A/2023/0019) was submitted in October 2023, prior to 10% net gain becoming a mandatory requirement (12th February 2024). The application was additionally submitted prior to the current Statutory Biodiversity Metric being released (29 November 2023).
- 2.4. As such, the continued use of Metric 4.0 is considered appropriate for the resubmission. Previous correspondence with Natural England (unrelated to S62A/2023/0019 and the wider Warish Hall site (UTT/21/1987/FUL)) confirmed this stance and is reproduced below.

Where a planning application has already been submitted prior to 12th February, it is typically acceptable to continue using whichever metric version the application was initially submitted in.

2.5. **Methodology**

- 2.5.1. Measurements for pre-development baseline habitats were calculated using Natural England's QGIS Net Gain Habitat Mapping template and QGIS Import Tool. Information regarding the habitats present as well as their condition were based on survey information obtained in October 2020, April 2021, February 2023 and September 2024. The Biodiversity Metric 4.0 Technical Annex 2⁴ as well as professional judgement was used to inform the habitats condition criteria.
- 2.5.2. The proposed landscape scheme was provided by LDA Design Consulting Ltd in their Overall Softworks Masterplan (Dwg no. 8749_103) (see Appendix 1).

³ https://www.gov.uk/guidance/biodiversity-metric-calculate-the-biodiversity-net-gain-of-a-project-or-development

⁴ Natural England (2023). *The Biodiversity Metric 4.0, User Guide - Technical Annex 2,* Natural England Joint Publication JP039.

3. RESULTS AND DISCUSSION OF METRIC

3.1. This section should be read in conjunction with the Biodiversity Metric calculation tool, which has been provided separately.

3.2. Baseline Habitat (Pre-Development)

- 3.2.1. Table 3.1 below summarises the baseline habitats present on-site, illustrated in Plan ECO1. The information included within this table is based on information gathered during the habitat surveys undertaken by Ecology Solutions in October 2020 and the subsequent walkover surveys carried out in April 2021, February 2023 and September 2024.
- 3.2.2. Baseline habitats on-site constitute cropland, neutral grassland, hardstanding, woodland, and ponds, resulting in a baseline habitat biodiversity value of 150.12 units. Hedgerows are also present along some of the field boundaries within the Site, with a baseline value of 7.44 hedgerow units. Additionally, a number of drainage ditches are present across the east of the Site, giving a baseline value of 3.42 watercourse units.

Baseline Habitat	Baseline Biodiversity Units	Condition Criteria / Fail / Indicator Sco Distinctiveness		Condition	Ecological Features and Condition Notes	After Works
Cropland – cereal crops.	18.75	Low distinctiveness. Condition assessment N/A.		Condition assessment N/A.	Bull Field, a large arable field, makes up the majority of the southern region of the Site, with portions of another on-site arable field adjacent to Prior's Wood to the north and northeast. The narrow corridor extending northwest from Bull Field, which will form the future site access, also comprises a predominantly arable field. The majority of the existing arable land will be lost as a result of the development of the Site. The area towards the northeast of the Site is not included within the development proposals and will, therefore, be retained.	18.64 units lost 0.12 units retained 0 units enhanced
Grassland – other neutral grassland.	10.01	Medium distinctivent C1 – Meets UKHab description (essential for achieving 'moderate' – 'good' condition). C2 – Varied sward height 20% < 7cm & 20% > 7cm.	Pass	Moderate (3 / 6 condition criteria passed = Moderate).	Neutral grassland field margins of variable width exist within the Site boundary. These are often narrow and heavily trodden. Additionally, a wide roadside neutral grassland verge exists adjacent to Smiths Green Road along the eastern boundary of the Site. As a result of only passing three out of six necessary criteria, all the present areas of neutral grassland habitat are considered to achieve 'moderate' condition, according to the following justification.	5.15 units lost 4.86 units retained 0 units enhanced

C3 – Bare ground 1%-5%. C4 – Bracken Pteridium aquilinum < 20% & Scrub < 5%.	Fail Pass	C1 – The grassland field margins and roadside verges within the Site meet the UKHab definition of neutral grassland, defining it as 'vegetation dominated by grasses and herbs on a range of neutral soils usually with a pH of between 4.5 and 6.5'. C2 – Surveys found all grassland areas
C5 – Physical damage and cover of suboptimal species < 5%. No schedule 9 species present. C6 – Vascular plants no. > 10 species / m2 (essential for achieving 'good' condition).	Fail Fail	generally possessed a varied sward height. C3 — Owing to being well-trodden, bare ground pathways are prevalent and are considered to make up more than 5% of the total area of grassland. C4 — While Bracken and scrub are present to some degree, they do not constitute large enough areas to exceed the defined acceptable limits. C5 — Owing to the well-trodden nature of the grassland margins, physical damage is prevalent, with the occasional to frequent presence of a number of sub-optimal species such as Cow Parsley Anthriscus sylvestris, Spear Thistle Cirsium vulgare, Creeping Thistle Cirsium arvense and Common Nettle Urtica dioica. C6 — Random sampling found that grassland areas did not contain a high enough species diversity per m2 to meet the criterion needed to achieve 'good' condition. The majority of the existing neutral grassland areas will be lost as a result of the development of the Site.

					Grassland field margins towards the northeast and southwest, along with the roadside grassland verges, are not included in the development proposals for the Site, and will, therefore, be retained. These areas are not considered viable for enhancement, owing to edge effects from adjacent land use, such as trampling from recreational pressures and pollution from road traffic.	
Developed land; sealed surface.	0	Very low distinct		Condition assessment N/A.	A small area of hardstanding extends from the Weston Group Business Centre towards the boundary of the narrow northwestern corridor that extends for Bull Field. This forms the access road to the Site.	N/A
Lakes – ponds (non-priority habitat).	0.34	Medium distinct A – Good water quality / low turbidity (except where there is livestock).	rail	Moderate (All ponds – 6 / 7 condition criteria passed = moderate).	Ponds P1 and P2 lie to the north, while Pond P7 lies towards the centre of the woodland. All three ponds were wet at the time of the surveys. 0.34 units	0 units lost 0 units retained 0.34 units enhanced
		B – Seminatural habitat (medium distinctiveness or better) surrounds the entire perimeter by at least 10m from the pondiedge.	Semi- ral habitat lium nctiveness etter) ounds the e neter by ast 10m the pond Wa pr Al 'm fo	walkers, increasing the volume of silt and preventing the establishment of aquatic vegetation. All three ponds are deemed to achieve 'moderate' condition, according to the following justification. A – Generally poor water quality and high turbidity across all three ponds, likely owing to disturbance.		

C – Duckwee Lemna sp., of filamentous algae covers < 10% of the surface.		B – All three ponds exist within Prior's Wood, an area of semi-natural and ancient woodland. C – All three ponds possess minimal surface cover of Duckweed or filamentous algae. D – None of the ponds possess artificial
D – Not artificially connected to other waterbodies e.g. ditches, pipes.	Pass	connections to other waterbodies. E – Water levels of the three ponds fluctuate naturally, without artificial intervention. F – All three ponds are lacking in aquatic vegetation, with no non-native species found to be present.
E – Water levels are abl to fluctuate, with no dams pumps, or pipes		G – No naturally or artificially occurring fish populations exist within any of the three ponds. All three ponds will undergo enhancement towards achieving a target 'good' condition.
F – Absence of listed non-native species.	Pass	Management prescriptions to this end will include the implementation of proper visitor management within the woodland, with
G – Not artificially stocked with fish or only native lowdensity assemblage inaturally occurring.	Pass f	designated pathways located away from the ponds, allowing them to develop without potential disturbance from visitors or dog walkers, improving overall water quality.

Woodland and	121.01	High distinctiver	ness	Moderate	Prior's Wood, an area of ancient and semi-	0 units lost
forest – lowland mixed deciduous woodland.		A – Age distribution of trees.	2	(27 / 39 condition criteria passed = Moderate)	The condition assessment of the woodland, consisting of 13 criteria scored from 3-1, 1	0 units retained
		B – Wild, domestic and feral herbivore damage.	2			121.01 units enhanced
		C – Invasive plant species.	3			
		D – Number of native tree species.	3			
		E – Cover of native tree and shrub species.	3			
		F – Open space within woodland.	1			
		G – Woodland regeneration.	1			
		H – Tree health.	3			
		I – Vegetation and ground flora.	1			

		J – Woodland vertical structure. K – Veteran trees. L – Amount of deadwood. M – Woodland disturbance.	2 1 3 2		It is clear that the woodland has been unmanaged for many years and suffers from significant damage from browsing by deer. The woodland will undergo enhancement towards achieving a target 'good' condition. This will involve the implementation of a fifteen-year woodland management plan (ref: 9282.WMP.vf1). Measures within the management plan include the introduction of a coppicing regime for Hornbeam and Hazel, establishment of dead wood habitats, canopy thinning, layering, and Bramble control, with the aim to develop a well-structured native species understorey, rides and glades, and a diverse age and height structure. Additional measures, such as visitor management and fencing of select areas will help to prevent damage from trampling from visitors and grazing herbivores and allow natural	
					regeneration.	
Hedgerows						
Baseline Hedgerow	Baseline Hedgerow Units	Condition Crite Fail / Distinction	veness	Condition	Ecological Features and Condition Notes	After Works
Species-rich	6.52	Medium distinct	iveness.	Good	Species-rich native hedgerows (H1 and H2)	0 units lost
native hedgerow.		A1 – > 1.5m average height.	Both pass	(H1 – 8 / 8 condition criteria passed = good).	bound the Site to the south and southwest, adjacent to the grassland field margins of Bull Field.	6.52 units retained
		A2 – > 1.5m average width.	Both pass		Species present include Hawthorn, Blackthorn Prunus spinosa, Hazel, Field Maple, Bramble,	0 units enhanced

between ground base of canopy for > 90 length. B2 - G make to <10% of length, canopy > 5m. C1 - > width coundisting ground perent herbace.	between ground and base of canopy <0.5m for > 90% of length. B2 - Gaps make up <10% of total length, no canopy gaps > 5m. C1 - >1m width of undisturbed ground with condition passed =	(H2 – 7 / 8 condition criteria passed = good).	criteria Oak.	
vegetation fo >90% of length. C2 – Plant species indicative of nutrient enrichment o soils dominat <20% cover of undisturbed ground.	lant			
	tive of t ment of cominate cover of urbed Both pass			
	90% of dgerow Both pass		ensure the current favourable condition of these hedgerows is maintained.	

		undisturbed ground is free from invasive non-native plant species and recently introduced naturalised species. D2 -> 90% of the hedgerow				
		or undisturbed ground is free of human damage.	Both pass			
Native hedgerow.	0.91	Medium distinct A1 -> 1.5m average height.	iveness Both fail	Poor (H3 and H4 – 2 / 8 condition criteria passed = poor).	Native hedgerows H3 and H4 bound Bull Field to the east, adjacent to the grassland roadside verge, and to the northeast, adjacent to the grassland field margin.	0.01 units lost 0 units retained
		A2 – > 1.5m average width.	Both fail		Owing to excessive maintenance work, both hedgerows have been significantly reduced in form, and can only achieve 'poor' condition,	0.9 units enhanced
		B1 – Gap between ground and base of canopy <0.5m for > 90% of length.	Both fail		according to the following justification. A1 – Both hedgerows are clearly below 1.5m height on average. A2 – Both hedgerows are clearly below 1.5m width on average.	
		B2 – Gaps make up <10% of total length, no	Both fail		B1 – Both hedgerows have been reduced to the point where no canopy is present.	

> 5m		B2 – Both hedgerows have been reduced to the point where no canopy is present.
width undis ground perence herbs	sturbed nd with nnial aceous station for % of	C1 — Both hedgerows have been heavily disturbed, with limited ground cover vegetation present. C2 — Both hedgerows have limited ground cover vegetation, with neither exceeding the threshold of plant species indicative of nutrient enrichment. D1 — Both hedgerows are free of invasive non-
spec indic nutric enric soils <20%	ative of ent chment of dominate 6 cover of sturbed Both pass	native plant species. D2 — Both hedgerows have experienced significant disturbance from human activity, and have suffered extensive damage as a result. A small stretch of hedgerow H3 will be lost due to the proposed improved footpath towards the southeastern corner of the Site, creating a
the h and undis grou from non- plant and i	sturbed sturbed invasive sepecies recently duced ralised ies.	small disconnect within the hedgerow. The remaining hedgerows will undergo enhancement through a prescribed management regime, toward achieving a 'good' target condition. Towards this aim, future management will include additional native planting to bolster and fill gaps within the hedgerows, with any maintenance in the form of pruning and weeding being such that it allows the hedgerows to develop the desired

		D2 – > 90% of the hedgerow or undisturbed ground is free of human damage.	Both fail		dimensions, structure, and ground cover vegetation. This will serve to enhance the intrinsic value of the habitat, offering greater opportunities for a range of species, while also improving their functionality as wildlife corridors.	
Watercourses						
Baseline Watercourse	Baseline Watercourse Units	Condition Crite Fail / Distincti		Condition	Ecological Features and Condition Notes	After Works
Ditches	3.42	Medium distinct	tiveness	Poor	Ditch D1, a shallow on-site ditch runs along	0 units lost
		A – Good quality water with low turbidity.	All fail	(All ditches – 3 / 8 condition criteria passed = poor)	the eastern boundary of Bull Field, beyond which exists a roadside neutral grassland verge. 2.29 retains the Ditch D2 bounds the Site along the 1.13	2.29 units retained
		B -> 10 species of emergent, floating, or submerged plants / 20m. C -< 10% cover of filamentous algae and or Duckweed.	All fail			enhanced
			All pass			
		D – Fringe marginal vegetation along > 75% of the ditch length.	All fail			

E – Physical damage is evident along <5% of the ditch.	D1 and D2 fail. D3 and D4 pass.	quite dense, but not encroaching onto the field margin. All four ditches are considered to only achieve 'poor' condition, according to the following justification.
F – Water levels maintained; approx. 50cm depth in minor ditches and 1m in main drains.	All fail	 A – While ditch D1 was found to contain standing water, the water quality was considered poor. All other ditches were dry at the time of the survey. B – None of the ditches possessed aquatic vegetation.
G – < 10% of the ditch is heavily shaded. H – Absence of non-native plant and animal species.	D1 and D2 pass. D3 and D4 fail. All pass	C – None of the ditches possessed aquatic vegetation. D – None of the ditches possessed marginal vegetation, while D4 has become largely overgrown with scrub. E – Ditch D1 has minor (east) / moderate (west) riparian encroachment, and minor watercourse encroachment. Ditch D2 has moderate (north) / moderate (south) riparian encroachment and no watercourse encroachment. Ditch D3 has moderate (east) / moderate (west) riparian encroachment and no watercourse encroachment. Ditch D4 has no encroachment of any kind. F – None of the ditches possess stable water levels of sufficient depth.
		G – Ditches D1 and D2 are relatively unshaded, while Ditches D3 and D4 experience significant shading.

	H – None of the ditches exhibited evidence of non-native plant and animal species. Ditches D1 and D2 will be enhanced towards improving their levels of encroachment, as a result of the improved surrounding habitats, with Ditch D1 changing from moderate / minor riparian encroachment to none / minor, and Ditch D2 changing from moderate / moderate	
	riparian encroachment to none / minor, and Ditch D2 changing from moderate / moderate riparian encroachment to moderate / minor.	
	All other ditches will be retained as part of the development.	

Table 3.1 Summary of baseline habitats, hedgerows and watercourses.

3.3. Post-Development

- 3.3.1. Table 3.2 below summarises the proposed on-site post-development habitats, which are further illustrated in Plan ECO2 and Appendix 1. The retention, enhancement and loss of habitats, hedgerows and watercourses is illustrated on Plan ECO3.
- 3.3.2. In addition to the retention and enhancement of areas of baseline habitat, such as Prior's Wood and the on-site ponds, the landscape strategy includes several new habitats, including native and non-native tree planting, woodland planting, woodland edge planting, structural planting, defensive shrub planting, ornamental shrub and herbaceous planting, clipped hedge, bulb planting, species-rich wildflower meadow, wetland meadow, amenity grassland and lawn, with vegetated gardens assumed within the residential gardens. A new ditch, measuring 130m will also be established in the south of the Site.
- 3.3.3. The proposed habitats have been categorised according to the UKHab classification system for the purpose of this assessment.
- 3.3.4. Overall, the proposed post-development habitats would result in an additional 23.55 habitat units, yielding a 15.69% net gain from the baseline condition.
- 3.3.5. In addition to the proposed enhancement of the existing on-site hedgerows (H3 and H4), the post-development landscape strategy proposes the inclusion of three additional native species-rich hedgerows with trees planted along former field boundaries. This results in an additional 4.19 hedgerow units, achieving a 56.29% net gain from the baseline condition.
- 3.3.6. Though no specific measures have been proposed to enhance the on-site ditches and the fact that the ditches are not to form part of the drainage strategy for the development, there is a betterment to Ditches D1 and D2 as a result of the adjacent land use change from arable to grassland. These changes result in an additional 1.21 watercourse units. To achieve a net gain in watercourse units in excess of 10%, a ditch measuring 130m will be established in the south of the Site. Overall, the development will yield a net gain of 15.98% in watercourse units from the baseline condition.
- 3.3.7. The target conditions for proposed habitats, hedgerows and watercourses will be achieved through appropriate management undertaken during the operational phase development. This will ensure that the proposed habitats offer continuing benefits to biodiversity in the future.

Trading Rules

3.3.8. All trading rules in relation to baseline and proposed habitats, hedgerows and watercourses have been satisfied.

Created Habita	Created Habitats				
Proposed Habitat	Landscape Plan Habitat	Target Condition	Biodiversity Units Delivered	Target Condition Notes	
Urban – introduced shrub.	Defensive shrub planting; ornamental shrub and herbaceous planting; clipped hedge.	N/A	0.83	Areas of amenity shrub planting, containing a mix of native and non-native species, will be planted throughout the Site, both in small localised pockets and in linear rows, often adjacent to pathways and houses, but also providing a buffer for newly created neutral grassland areas. This will not only provide public amenity, screening, and edge protection for higher distinctiveness habitats, such as the wildflower meadows, but will also provide a resource for invertebrates, benefitting insectivores such as bats, birds and reptiles. It will also provide potential nesting and foraging opportunities for birds, particularly in relation to berry-bearing shrub species, and sheltering opportunities for Hedgehogs <i>Erinaceus</i>	
				europaeus. A target condition assessment is not applicable.	
Woodland and forest – lowland mixed deciduous	Woodland planting.	Poor	2.05	A large area of new woodland will be planted as an extension to Prior's Wood towards the northeast of the Site, where there currently exists arable field and neutral grassland field margins.	
woodland.				New planting will consist of a range of native tree species of local provenance, planted in accordance with best practice guidance. The species composition of planted trees will be precisely controlled according to an agreed design, creating a species-rich woodland reflecting the woodland character of Prior's Wood.	
				Management and monitoring prescriptions will be designed to ensure the woodland develops successfully, involving, in the immediate term, ground preparation, weeding of competitive vegetation, and protection of planted trees and shrubs using fencing, tree guards, or tree shelters, preventing damage from grazing herbivores and trampling from visitors.	
				Long-term management will work to prevent the establishment of invasive plant species, with the implementation of a coppicing regime, establishment of dead wood habitats, canopy thinning, and layering after 10-15 years, with the aim to develop a well-structured native species understorey, open spaces in form of glades and rides, and a diverse age and height structure.	

				Given the establishment phase for most new woodlands lasts around twenty years, a target condition of 'poor' is considered the realistic outcome within a 30-year time frame, with the assumption that the management prescriptions will be implemented consistently over this period.
Heathland and shrub – mixed scrub.	Structural planting; woodland edge planting.	Moderate	1.40	Native woodland edge planting, comprising a native mix of varying species, will be used to enhance the peripheral areas of Prior's Wood and the newly created woodland extension, providing a buffer zone from adjacent footpaths and recreational areas. The created habitat will provide new nesting and foraging opportunities for a range of wildlife. The scrub areas will be subject to management and monitoring to ensure that they meet and maintain the desired condition, with the aim to create scrub with a diverse age structure that offers clearings and is absent of invasive non-native plant species. The scrub areas should also be managed to ensure a well-developed edge where possible, with scattered scrub and tall grassland or forbs between the scrub and adjacent habitat. A target condition of 'moderate' is considered the realistic outcome within a 30-year time frame, with the assumption that the management prescriptions will be implemented
Urban –	Assumed	N/A	1.65	consistently over this period. It is expected that some ecological benefit will be provided by residential gardens that is
vegetated garden.	within residential gardens.			at least greater than that provided by the existing agricultural fields. Owing to the lack of control over future management, given they are located within private properties, new residential gardens are automatically attributed a 'poor' target condition.
Developed land; sealed surface.	N/A	N/A	0	This area includes the proposed building and associated hardstanding infrastructure. Existing public rights of way will be upgraded to be shared pedestrian and cycle routes, enhancing access within the Site and reducing the likelihood of disturbance to higher distinctiveness habitats, such as wildflower meadows. A target condition assessment is not applicable.

Grassland – other neutral grassland.	Species-rich wildflower meadow; wetland meadow.	Moderate – 0.88ha Good – 2.12ha	Moderate – 5.93 Good – 17.93	Native wildflower mixes will be planted, both in large areas to the south and east, and small patches throughout the Site, typically buffered by amenity planting, amenity grassland, and hedgerows, with shade tolerant species to be included along hedgerows and woodland edge planting. It should be noted that some of the proposed planting within the landscape strategy overlaps with existing areas of Prior's Wood, being overshadowed by canopy. These areas were, therefore, not incorporated into the post-development habitat assessment. A large area of wetland meadow will be planted towards the south of the Site within the sustainable urban drainage basin, surrounded by wildflower meadow. The new wildflower and wetland meadows will provide greater floristic diversity than is currently present on-site, attracting a range of invertebrate species, which in turn will provide foraging resources to bats and birds. The maintenance of a varied sward will create micro-climates, providing further opportunities for birds, small mammals, and reptile species.
				Management prescriptions will vary across the initial phases of the wildflower meadow development, ensuring appropriate management for each stage in terms of the cutting and weeding regime. These prescriptions will ensure that the diversity of the grassland is maintained long-term and will ensure that undesirable species do not become dominant. Despite the buffer provided by amenity planting and amenity grassland, the edge effects from adjacent areas, such as recreational grounds and footpaths, will likely cause a degree of disturbance and damage. The target condition for 0.88ha of the meadow habitat is, therefore, 'moderate'. However, the large of area of wildflower meadow planting to the east of the Site is not considered as vulnerable to edge effects, being well buffered from the housing development and recreational areas to the west by the new proposed hedgerows. Additionally, the area will be fenced to help limit recreational pressure. The target condition for 2.12ha of the meadow habitat is, therefore, 'good'.

				Given these factors, the target condition for the known 111 native trees is 'moderate', while the remaining 134 mixed native and non-native trees can only achieve a target 'poor' condition.		
	Created Hedgerows					
Proposed Hedgerow	Landscape Plan Habitat	Target Condition	Hedgerow Units Delivered	Target Condition Notes		
Hedgerows – species-rich native hedgerows with trees.	Proposed hedgerows.	Good	2.69	The three new species-rich native hedgerows with trees, PH1, PH2, and PH3, will be planted to the east of the new housing development, enclosing an area of amenity grassland and recreational play area. While hedgerow PH3 provides a buffer to the large area of adjacent wildflower meadow to the east, all the additional hedgerows will improve the green infrastructure of the Site, acting as green corridors, providing greater habitat connectivity for wildlife within the surrounding area. For a species-rich native hedgerow with trees, the time to target condition is one year for 'poor', ten years for 'moderate', and twenty years for 'good'. The management plan pertaining to hedgerow planting outlines a phased approach, ensuring appropriate monitoring and management, in terms of weeding and pruning, at each stage of development over a fifteen-year period and thereafter. These management prescriptions will ensure the hedgerows develop the desired dimensions, structure, and ground cover vegetation. It is expected that the new hedgerows will be able to achieve a 'good' target condition within a 30-year time frame when assessed against a set of minimum requirements regarding dimensions and physical characteristics.		
Created Water	Created Watercourses					
Proposed Watercourse	Landscape Plan Habitat	Target Condition	Watercourse Units Delivered	Target Condition Notes		
Watercourse – Ditches.	N/A	Poor	0.46	A ditch measuring 130m will be created in the south of the Site and drain into the attenuation basin, which is to be planted with a wetland grass mix. A poor condition is considered appropriate.		

 Table 3.2. Summary of post-development habitats, hedgerows and watercourses.

4. EVALUATION

4.1. The Principles of Evaluation

Biodiversity Net Gain - Good Practice Principle for Development

- 4.1.1. CIRIA, CIEEM and, IEMA have developed principles of good practice to achieve Biodiversity Net Gain. These principles provide a framework that helps improve the UK's biodiversity by contributing towards strategic priorities to conserve and enhance nature through sustainable development. There are ten principles in total, and all principles must be applied together as one approach. The ten principles are set out below.
- 4.1.2. **Principle 1. Apply Mitigation Hierarchy.** Do everything possible to first avoid and then minimise impacts on biodiversity. Only as a last resort, and in agreement with external decision makers where possible, compensate for losses that cannot be avoided. If compensation for losses within the development footprint is not possible or does not generate the most benefits for nature conservation, then offset biodiversity losses by gains elsewhere.
- 4.1.3. **Principle 2. Avoid losing biodiversity that cannot be offset by gains elsewhere.** Avoid impacts on irreplaceable biodiversity; these impacts cannot be offset to achieve no net loss or net gain.
- 4.1.4. **Principle 3. Be inclusive and equitable.** Engage stakeholders early, and involve them in designing, implementing, monitoring and evaluating the approach to net gain. Achieve Net Gain in partnership with stakeholders where possible and share the benefits fairly among stakeholders.
- 4.1.5. **Principle 4. Address risks.** Mitigate difficulty, uncertainty, and other risks to achieving Net Gain. Apply well accepted ways to add contingency when calculating biodiversity losses and gains in order to account for any remaining risks, as well as to compensate for the time between the losses occurring and the gains being fully realised.
- 4.1.6. **Principle 5. Make a measurable net gain contribution.** Achieve a measurable, overall gain for biodiversity and the services ecosystems provide while directly contributing towards nature conservation priorities.
- 4.1.7. **Principle 6. Achieve the best outcomes for biodiversity.** Achieve the best outcomes for biodiversity by using robust, credible evidence and local knowledge to make clearly-justified choices when:
 - Delivering compensation that is ecologically equivalent in type, amount and condition, and that accounts for the location and timing of biodiversity losses.
 - Compensating for losses of one type of biodiversity by providing a different type that delivers greater benefits for nature conservation.
 - Achieving net gain locally to the development while also contributing towards nature conservation priorities at local, regional, and national levels.
 - Enhancing existing or creating new habitat.

- Enhancing ecological connectivity by creating more, bigger, better and joined areas for biodiversity.
- 4.1.8. **Principle 7. Be additional.** Achieve nature conservation outcomes that demonstrably exceed existing obligations (i.e. do not deliver something that would occur anyway).
- 4.1.9. **Principle 8. Create a net gain legacy.** Ensure net gain generates long-term benefits by:
 - Engaging stakeholders and jointly agreeing practical solutions that secure net gain in perpetuity.
 - Planning for adaptive management and securing dedicated funding for long-term management.
 - Designing net gain for biodiversity to be resilient to external factors, especially climate change.
 - Mitigating risks from other land uses.
 - Avoiding displacing harmful activities from one location to another.
 - Supporting local-level management of net gain activities.
- 4.1.10. **Principle 9. Optimise sustainability.** Prioritise Biodiversity Net Gain and, where possible, optimise the wider environmental benefits for a sustainable society and economy.
- 4.1.11. **Principle 10. Be transparent.** Communicate all net gain activities in a transparent and timely manner, sharing the learning with all stakeholders.

Lawton's Principle

- 4.1.12. Principles for enhancing England's wildlife sites were developed as part of the Lawton Review⁵. Across the UK, these principles can be used to design Biodiversity Net Gain activities to boost wildlife sites. They are:
 - Improving the quality of wildlife sites;
 - Increasing the size of the wildlife sites;
 - Enhancing connections between, or joining up wildlife sites;
 - · Creating new wildlife sites; and
 - · Reducing pressure on wildlife sites.

4.2. Post-Development Evaluation

- 4.2.1. The Site's contribution to Biodiversity Net Gain has been assessed with due regard to the principles outlined and discussed above.
- 4.2.2. The on-site landscape strategy includes several new habitats, including native and non-native tree planting, species-rich hedgerow with trees planting, woodland planting, woodland edge planting, structural planting, defensive shrub planting, ornamental shrub and herbaceous planting, clipped hedge, bulb planting, species-rich wildflower meadow, wetland meadow, amenity grassland, and lawn; with vegetated gardens assumed

⁵ Department for Environment, Food and Rural Affairs (2010). *Making Space for Nature: A Review of England's Wildlife Sites*, DEFRA.

- within the residential gardens. A new ditch, measuring 130m will also be established in the south of the Site.
- 4.2.3. The scheme will also enhance the lowland mixed deciduous woodland that makes up Prior's Wood while retaining a few areas of existing neutral grassland and areas of cropland.
- 4.2.4. The on-site ditches do not specifically form part of the drainage strategy required for the attenuation of the development and no specific enhancement measures are proposed; however, existing Ditches D3 and D4 will be retained, with some enhancement seen within Ditches D1 and D2 due to changes in the level of encroachment.
- 4.2.5. Existing Hedgerows H1 (boundary to Roseacres Primary School) and H2 will be retained, while Hedgerows H3 and H4 will undergo enhancement, with a small length of Hedgerow H3 lost.
- 4.2.6. All retained, enhanced, and lost habitats are illustrated in Plan ECO3.
- 4.2.7. The above habitats combined will achieve a net gain for the Site across all categories, in accordance with trading rules, improving the ecological value of the Site beyond the existing baseline condition, with new ecological opportunities for a wide range of species.
- 4.2.8. These measures will in turn offer a significant increase in opportunities for wildlife, primarily for bats, birds, reptiles and invertebrates, while additional enhancements such as bat and bird boxes will be incorporated across the proposed scheme.

Site Baseline	Habitat Units	150.12
	Hedgerow Units	7.44
	Watercourse Units	3.42
Post-intervention	Habitat units	173.67
	Hedgerow Units	11.62
	Watercourse Units	3.97
Total Net Unit Change	Habitat units	+23.55
	Hedgerow Units	+4.19
	Watercourse Units	+0.55
Total net Percentage Gain	Habitat Units	+15.69%
	Hedgerow Units	+56.29%
	Watercourse Units	+15.98%

Table 4.1. Summary of Biodiversity Net Gain results.

5. SUMMARY AND CONCLUSIONS

- 5.1. Ecology Solutions was commissioned in October 2022 by Weston Homes PLC to undertake a Biodiversity Net Gain assessment of the proposed development at Bull Field, Warish Hall Farm, Takeley, Essex.
- 5.2. A planning application was previously submitted for the wider Land at Warish Hall Farm (Planning Ref: UTT/21/1987/FUL), for which Ecology Solutions produced various documents including an Ecological Assessment (October 2021), Bat Survey Report (November 2021), Biodiversity Net Gain Assessment (October 2021), Bird Hazard Management Plan (June 2021) and Woodland Management Plan (October 2021). A Public Inquiry was subsequently held, for which Proof of Evidence (Appeal Ref: APP/C1570/W/22/3291524) in respect of Ecology and Nature Conservation was provided. BNG was not identified as a reason for refusal.
- 5.3. The application for Bull Field is a smaller parcel of land that falls within the original red line boundary for the wider Land at Warish Hall Farm application. The proposal for Bull Field is for a residential development of 96 dwellings, south of Prior's Wood, including associated parking, landscaping, public open space, land for the expansion of Roseacres Primary School, pedestrian and cycle routes to Smiths Green Lane together with associated infrastructure.
- 5.4. A Section 62A application for the development was submitted in October 2023 (Application Ref: S62A/2023/0019) and was subsequently refused. A challenge to this refusal was subsequently submitted and approved. The Judgment upheld Ground 1 which related to how the Inspectorate applied weight to the BNG Assessment originally submitted alongside the application. As set out at paragraph 80 of the quashed decisions, the Inspector highlighted that there was some uncertainty over the estimated net gain for watercourse units. As such, the previously submitted Biodiversity Net Gain (BNG) Assessment has been updated as part of the resubmission.
- 5.5. The Biodiversity Metric 4.0 was used to calculate the pre-development baseline units. A total of 150.12 baseline habitat units, 7.44 hedgerow units, and 3.42 watercourse units are present pre-development. The proposed development will result in an on-site increase of 15.69% in habitat units, an increase of 56.29% in hedgerow units, and an increase of 15.98% in watercourse units.
- 5.6. The landscape scheme has been designed to ensure that continued green infrastructure and opportunities for important faunal species remain present within the Site, with new proposed habitats improving the ecological value of the Site beyond the existing baseline condition, according with all trading rules, and providing an overall increase in the ecological opportunities available for a wide range of species post-development.
- 5.7. Overall, when assessed against the Biodiversity Metric version 4.0, the on-site post-development changes will achieve 10% biodiversity net gain across habitats, hedgerows and watercourses. This will be in excess of the 1% net gain requirement which is relevant to the application, which was submitted prior to the mandatory 10% requirement being imposed.



PLAN ECO1

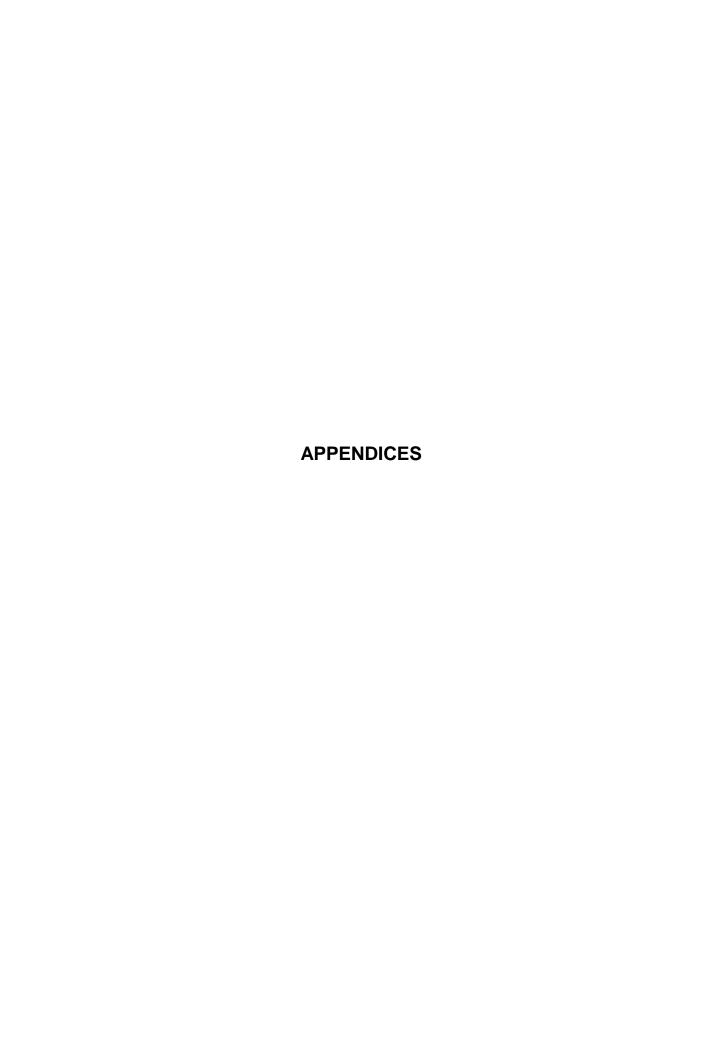
Baseline Habitats

PLAN ECO2

Post-Development Habitats

PLAN ECO3

Habitat Retention, Enhancement and Loss



APPENDIX 1

LDA Design Consulting Ltd - Overall Softworks Masterplan - Dwg No. 8749_103





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