CALDECOTE FARM

NEWPORT PAGNELL · MILTON KEYNES

SUPPORTING DOCUMENTS

BIODIVERSITY OFFSETTING REPORT

by FPCR

JULY 2021

newlands developments

Biodiversity Net Gain Assessment

Project: **Land at Caldecote Farm, Newport Pagnell**

Client: **Newlands Developments**

Date: **30th July 2021**

Project No: **7252**

masterplanning
environmental assessment
landscape design
urban design
ecology
architecture
arboriculture
graphic design

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A net gain assessment has been completed at the above-named site, which has been undertaken in accordance with the Defra Biodiversity Metric 3.0. The calculations follow this Technical Note, which summarises the calculator and provides details regarding any assumptions made to inform the assessment.

Existing habitats

The baseline habitats on-site comprised arable land, modified grassland, perennial/short ephemeral vegetation and tall ruderal vegetation which are all low distinctiveness habitats. Areas of hardstanding were also present on-site which are classified as very low distinctiveness habitat.

Condition assessments were undertaken for the modified grassland (low distinctiveness grassland) and ruderal/ephemeral habitats (urban). Condition assessments are not required for arable land or hardstanding.

Grassland – Modified Grassland

The majority of the site comprise poor semi-improved grassland which was assessed as being in 'poor' condition based on the below criteria.

Criteria	Assessment
There must be 6-8 species per m2. Note - if a grassland has 9 or more species per m2 it should be classified as a moderate distinctiveness grassland habitat type. NB - this criterion is non-negotiable for achieving good condition."	**Yes** – relatively poor sward with variation across the large field compartment but limited locally.
Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	**No –** Tall sward, not subject to recent cutting, across field compartment.
Some scattered scrub (including bramble) may be present, but scrub accounts for less than 20% of total grassland area. Note -	**Yes –** rarely recorded hawthorn and bramble.

patches of shrubs with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	
Physical damage evident in less than 5% of total grassland area, such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities.	**No –** grassland managed through ploughing.
Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	**No –** Grassland dominated by course grass species with a good, consistent cover across the field.
Cover of bracken less than 20%.	**Yes**
There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and undesirable species make up less than 5% of ground cover.	**No –** undesirable species make up more than 5% of ground cover, including white clover, willowherb, bristly ox tongue, black-grass.

Sparsely Vegetated Land - Ruderal/Ephemeral

A small number of localised patches of ruderal vegetation had established within the poor semi-improved grassland, assessed as being of 'poor' condition. the below criteria.

Criteria	**Assessment**
Vegetation structure is varied, providing opportunities for insects, birds and bats to live and breed. A single ecotone (i.e. scrub, grassland, herbs) should not account for more than 80% of the total habitat area.	**No –** ruderal parcels dominated by hemlock.
There is a diverse range of flowering plant species, providing nectar sources for insects. These species may be either native, or non-native but beneficial to wildlife. NB - To achieve GOOD condition, criterion 2 must be satisfied by native species only (rather than non-natives beneficial to wildlife).	**No –** ruderal parcels dominated by hemlock.
Invasive non-native species (Schedule 9 of WCA) cover less than 5% of total vegetated area. NB - To achieve GOOD condition, criterion 3 must be satisfied by a complete absence of invasive non-native species (rather than <5% cover).	**Yes –** no invasive species present.

Sparsely Vegetated Land - Ephemeral

Habitats at the eastern extent of the site were characteristic of those subject to past disturbance comprising remnant sand and gravel deposits, assessed as being in 3 good, 2 mod, 1 or none poor

Criteria	Assessment
Vegetation structure is varied, providing opportunities for insects, birds and bats to live and breed. A single ecotone (i.e. scrub, grassland, herbs) should not account for more than 80% of the total habitat area.	**No –** some limited variation between areas of bare ground and grass dominated bunds but varied habitat structure absent.
There is a diverse range of flowering plant species, providing nectar sources for insects. These species may be either native, or non-native but beneficial to wildlife. NB - To achieve GOOD condition, criterion 2 must be satisfied by native species only (rather than non-natives beneficial to wildlife).	**No –** dominated by course grasses and limited number of herbs.
Invasive non-native species (Schedule 9 of WCA) cover less than 5% of total vegetated area. NB - To achieve GOOD condition, criterion 3 must be satisfied by a complete absence of invasive non-native species (rather than <5% cover).	**Yes –** no invasive non-native species present.

Proposed Habitats

Condition assessments have been undertaken on some of the proposed habitats which are detailed below. Condition assessments have not been completed on the built environment since this habitat does not require a target condition, as standard.

Heathland and Scrub – Mixed Scrub

The majority of the boundary habitats will comprise mixed scrub, it is anticipated that approximately 80% of this habitat (approximately 2.54ha) can reach 'good' condition within the 10 year time target, as assessed against the condition criteria below. The remaining areas of scrub planting (0.66ha) will be located in smaller parcels associated with areas of carparking and buildings and for this reason can meet 'moderate' condition, being without a well-developed edge habitat (Criteria 4) or clearings and glades (Criteria 5).

Criteria	Assessment
Habitat is representative of UKHab description (where in its natural range). There are at least three woody species, with no one species comprising more than 75% of the cover (except common juniper,	**Yes** - A minimum of three species will be planted, to include species such as hazel, hawthorn and

sea buckthorn or box, which can be up to 100% cover).	dogwood. Through a combination of planting strategy and management no single species will comprise in excess of 75% cover.
There is a good age range – a mixture of seedlings, saplings, young shrubs and mature shrubs	**Yes** - It is considered that if a number of mature and 'taller' growing specimens are planted in addition to seedlings and saplings a diverse age range can be achieved within 7 years.
There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and undesirable species make up less than 5% of ground cover.	**Yes** - Through the application of appropriate management, including rotational mowing and spot treatments with herbicides (where necessary), undesirable and invasive species can be restricted to less than 5% ground coverage.
The scrub has a well-developed edge with scattered scrub and tall grassland and/or herbs present between the scrub and adjacent habitat(s).	**Yes** - Management will ensure that a well-developed edge is created with an unmanaged grassland margin at its edge.
There are many clearings and glades within the scrub	**Yes** - Management, including rotational mowing and scrub thinning, will maintain clearings throughout this habitat.

Grassland – Other Neutral Grassland

An area of species-rich grassland will be seeded with a species-rich seed mix, such as Emorsgate EM3 and targeted for 'moderate' condition using appropriate management.

Criteria	**Assessment**
The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type (see UKHab definition). Wildflowers, sedges and indicator species for the specific grassland habitat type are very clearly and easily visible throughout the sward.	**Yes** - The seed mix used will likely comprise 20% wildflowers and through appropriate management, including annual cutting, species including white clover and creeping buttercup as well as injurious weeds

	will be kept under control. A seed mix containing a wide range of wildflowers will be used, suitable for creating a diverse sward in varying conditions.
Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	**Yes** - Targeted cutting and appropriate management will provide a range of sward heights.
Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	**No** - Not targeted.
Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.	**Yes** - Management will ensure that that scrub and bracken coverage is less than 5%.
There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of undesirable species and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area.	**Yes** - Management will ensure that undesirable and invasive species coverage is less than 10%.

Urban – Sustainable Urban Drainage Feature

Six SuDs basins will be created as part of the proposals, targeting 'good' condition, which will provide valuable wildlife habitats and support a variety of invertebrate, plant, amphibian and bird life.

Criteria	**Assessment**
Vegetation structure is varied, providing opportunities for insects, birds and bats to live and breed. A single ecotone (i.e. scrub, grassland, herbs) should not account for more than 80% of the total habitat area.	**Yes –** a variety of aquatic, marginal, wet grassland and scrub will be planted within and surrounding the basins.
There is a diverse range of flowering plant species, providing nectar sources for insects. These species may be either native, or non-native but beneficial to wildlife. NB - To achieve GOOD condition, criterion 2 must be satisfied by native species only (rather than non-natives beneficial to wildlife)."	**Yes –** all planting will comprise native species that will selected for their benefits to pollinating and non-pollinating invertebrates, small mammals and birds.

Invasive non-native species (Schedule 9 of WCA) cover less than 5% of total vegetated area. NB - To achieve GOOD condition, criterion 3 must be satisfied by a complete absence of invasive non-native species (rather than <5% cover)."	**Yes** - Management will ensure that invasive species coverage is less than 5%.
The water table is at or near the surface throughout the year. This could be open water or saturation of soil at the surface.	**Yes –** the basins will function as drainage features but have been designed to permanently hold water.

Woodland – Other Woodland; Broadleaved

New woodland planting is proposed for the west, north and east boundary of the site. It is anticipated that this habitat can reach 'poor' condition in the 5 year time target, as assessed against the condition criteria below.

Indicator		**Target**
1	**Age distribution of trees**	One age class present
2	**Wild, domestic and feral herbivore damage**	No significant browsing damage evident in woodland
3	**Invasive plant species**	No invasive species present in woodland
4	**Number of native tree species**	Five or more native tree or shrub species found across woodland parcel
5	**Cover of native tree and shrub species**	> 80% of canopy trees and >80% of understory shrubs are native
6	**Open space within woodland**	**No** – not targeted
7	**Woodland regeneration**	No classes or coppice regrowth present in woodland
8	**Tree health**	11% to 25% mortality and/or crown dieback or low risk pest or disease present
9	**Vegetation and ground flora**	No recognisable NVC community
10	**Woodland vertical structure**	One or less storey across all survey plots
11	**Veteran trees**	No veteran trees present in woodland
12	**Amount of deadwood**	Less than 25% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps
13	**Woodland disturbance**	More than 1 hectare of nutrient enrichment and/or more than 20% of woodland area has damaged ground

Grassland – Modified Grassland

Areas of grassland surrounding buildings, access and carparking will target 'good' condition. These areas will be seeded with a flowering lawn seed mix containing slow growing grasses and a selection of wild flowers that respond well to regular short mowing, such as Emorsgate EL1.

Criteria	**Assessment**
There must be 6-8 species per m2. Note - if a grassland has 9 or more species per m2 it should be classified as a moderate distinctiveness grassland habitat type. NB - this criterion is non-negotiable for achieving good condition."	**Yes** - The seed mix used will likely comprise 20% wildflowers and through regular cutting..
Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	**Yes** - Targeted cutting and appropriate management will provide a range of sward heights. Keeping grass edges short will maintain a 'tidy' appearance.
Some scattered scrub (including bramble) may be present, but scrub accounts for less than 20% of total grassland area. Note - patches of shrubs with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	**Yes** - Management will ensure that that scrub coverage is less than 20%.
Physical damage evident in less than 5% of total grassland area, such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities.	**Yes –** Management will ensure appropriate cutting and clearing.
Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	**No** - Not targeted.
Cover of bracken less than 20%.	**Yes** - Management will ensure that that bracken coverage is less than 20%.
There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and undesirable species make up less than 5% of ground cover.	**Yes** - Management will ensure that undesirable and invasive species coverage is less than 10%.

Hedgerow Impact Assessment

Two new hedgerows (H1a and H2a), targeted for 'good' condition will be created as part of the scheme which will partially surround Unit 1 and provide some screening from the road to the SuDs basin and surrounding habitats east of Willen Road.

Criteria	Assessment
A1. Height: >1.5m average along length	**H1a and H2a - Yes** – it is anticipated that each hedgerow will be a minimum of 1.5m high within 10 years.
A2. Width: >1.5m average along length	**H1a and H2a - Yes** – it is anticipated that each hedgerow will be a minimum of 1.5m wide within 10 years.
B1. Gap - hedge base: Gap between ground and base of canopy <0.5m for >90% of length (unless line of trees)	**H1a and H2a - Yes** – Through appropriate management and species planting the gap between the ground and base of the canopy will be less than 0.5m.
B2. Gap – hedge canopy continuity: Gaps make up <10% of total length an no canopy gaps >5m	**H1a and H2a - Yes** – No gaps are expected within the hedgerows, along their entire length.
C1. Undisturbed ground and perennial vegetation: >1m width of undisturbed ground with perennial herbaceous vegetation for >90% of length (measured from outer edge of hedgerow) and is present on one side of the hedge (at least)	**H1a and H2a - Yes** – No ground disturbance is anticipated within 1m of each hedgerow and therefore no root damage is expected to occur. Management will ensure that herbaceous vegetation will line the majority of the hedgerows on at least one side.
C2. Undesirable perennial vegetation: Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground.	**H1a Yes** – Through appropriate management, including mowing and spot treatment (where required), undesirable species will form less than 20% of ground coverage. **H2a – No** – not targeted.
D1. Invasive and neophyte species: >90% of the hedgerow and	**H1a and H2a - Yes** – Invasive

undisturbed ground is free of invasive non-native and neophyte species	species and neophyte species will not be included in the species planted. Any invasive or neophyte species which naturally colonise will be removed.
D2. Current damage: >90% of the hedgerow or undisturbed ground is free of damage caused by human activities	**H1a and H2a - Yes** – Damaging activities, including pollution and rubbles piles, will not take place in the vicinity of either hedge. Management of both hedgerows will follow best practice guidelines.

Additionally, hedgerow (H1) will be fully retained and enhanced as part of the proposals. This hedgerow is currently considered to be in 'moderate' condition because it fails to meet the criterion B1, B2 and C2 whilst passing all remaining criteria, however through appropriate management this hedgerow will pass criteria B1 and B2 post-development. This hedgerow will also be enhanced through additional tree planting, therefore increasing its structural diversity and connectivity, and through the planting of additional species. The planting will include fruit and nut bearing species which will increase the available foraging resources for the local wildlife.

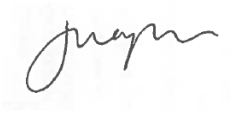
As a consequence of the hedgerows being retained and enhanced, there will be a gain of 3.00 biodiversity units (26.175) for the hedgerow impact assessment.

Summary

The net gain assessment indicates that the proposed scheme will result in a net loss of on-site biodiversity of -2.17 units (-5.44% net loss) for the habitats based on the Concept Landscape Masterplan (Proposed Masterplan Drawing No. SK015 Rev:P45, PHP Architects). The separate hedgerow impact assessment demonstrates that the proposed scheme will result in a net gain of on-site hedges of +3.00 units.

I trust the above is acceptable to you. Please do not hesitate to contact me should you require any clarification or wish to discuss the above in more detail.

Yours sincerely,



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