



SITE AT PEEL HALL, WARRINGTON

For

SATNAM MILLENNIUM LTD

BIODIVERSITY OFFSETTING REPORT

JUNE 2020

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NON-TECHNICAL SUMMARY

This report presents a study of biodiversity loss and gain with respect to a ~68ha proposed development at Peel Hall, Warrington. The extent of habitat loss, retention, enhancement and creation is calculated using The Biodiversity Metric 2.0 and associated field survey guidance, as published by Natural England (July 2019). It should be noted that The Biodiversity Metric and associated field survey guidance is a new process and as such under the appeal application a biodiversity offsetting study is not an obligation. At the time of the writing of this report, it is an emerging process with no standard approach made by local planning authorities. Changes to the NPPF in February 2019 require “measurable net gain” for projects of this scale.

This Biodiversity Offsetting Report provides the main reference point for calculation of required habitat mitigation and will inform future revised study as well as an Ecological Management Plan (EcMP) for the development. This will be a detailed plan, provided at the reserved matters stage, which will set out detailed long-term habitat management prescriptions for each of the retained and created habitats both on and off site.

The overall approach for determining biodiversity offsetting involved four key stages, as below:

- The mapping of existing habitats on site;
- Determining the ‘baseline biodiversity units’ of the existing habitats on site via as per the Biodiversity Metric 2.0;
- Assessment of habitats to be created (in the context of their final intended condition) on completion of works determining the predicted ‘post-development biodiversity units’ of proposed habitats.
- The baseline biodiversity units are then subtracted from post-development biodiversity units giving a total number of biodiversity units for each broad habitat type to be offset as a result of the proposed development.

The indicative changes in biodiversity value of the site are based on Appletons Parameters Plan Rev.A and Appletons Indicative Sports and Recreation Provision plan Rev.J. These current plans are block outlines of proposed development and habitat retention/creation only. Calculations of biodiversity loss and gain on site are likely to change once more detailed plans are produced, such as detailed Landscape/Habitat Creation and Management Plans.

Initial calculations completed by this study suggest significant losses of biodiversity units upon initial site clearance. To partially compensate for these losses, strategic on-site habitat creation and enhancement opportunities have been incorporated into offsetting calculations, including grassland, scrub, woodland, reedbed creation and enhancement of all retained habitats on site. Taking habitat creation and enhancement into account, owing to the large percentage of the site that will be developed, a net-loss of biodiversity units is still predicted, comprising mainly of grassland habitat area units.

Off-site habitat creation is required in order to achieve a measurable net gain and thus comply with local and national planning policy requirements. Stakeholder engagement will be required to identify appropriate land for off-site offsetting and develop a long-term plan for biodiversity.

Grassland habitat unit types currently experience the greatest percentage net-loss on site, and thus any off-site habitat creation and enhancement must focus on this broad habitat types.

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1.0 INTRODUCTION

Project background

- 1.1 This report presents a study of biodiversity loss and gain with respect to a large proposed development at Peel Hall, Warrington. The site area measures approximately 68ha. The proposed development footprint measures approximately 49.5ha, whilst the remainder of the site will be set aside for amenity space and/or wildlife.
- 1.2 To address local and national policies in the context of development proposals, the extent of habitat loss, retention, enhancement and creation is addressed within this report using The Biodiversity Metric 2.0 and associated field survey guidance, as published by Natural England (July 2019).

Objectives and Restrictions

- 1.3 This Biodiversity Offsetting Report provides the main reference point for calculation of required habitat mitigation and should eventually inform an Ecological Management Plan (EcMP) for the development, which will set out detailed long-term habitat management prescriptions for each of the retained and created habitats.
- 1.4 The objectives for calculating biodiversity units are as follows:
- To map and quantify the extent (hectares) of habitat loss;
 - Define the distinctiveness, condition and significance of each of the habitats on site, in accordance with Biodiversity Metric 2.0 Technical Supplement (Natural England, July 2019);
 - Calculate, as per the above metric, the number of biodiversity offsetting units per habitat in order to create measurable net gain;
 - To suggest courses of action that may provide that net gain.
- 1.5 The proposals at this time are indicative; as such the biodiversity offsetting units associated with this report are also indicative of losses or gains. It is expected that more specific site plans which will be detailed at the reserved matters stage will provide a more accurate account of the project's biodiversity unit losses and gains.
- 1.6 In line with the use of the Biodiversity Metric 2.0, the mitigation hierarchy was applied to this project wherever possible to avoid/minimise impacts upon habitats with highest ecological value. Owing to the scale of the development however, offsetting forms the key approach of this study and additional compensation will also be required.

Site Description

- 1.6 The site area measures approximately 68ha and is centred at Ordnance Survey Grid Reference SJ61601 91689. The site is bound by the M62 motorway to the north and residential developments to the west, south-west, and parts of the southern boundary. Mill Lane abuts to the east, Poplars Avenue to the south, and Birch Avenue and Elm Road to the west. The shape of the site is complex along the southern boundary and where the site does not abut residential developments and their associated roads, the site abuts Radley

Plantation and Pond LWS (Local Wildlife Site) and Radley Common. Whilst it is agreed that the site lies within an urban fringe location, from an ecological point of view the site lies in a semi-rural context on the edge of Warrington with residential and industrial developments surrounding it to the south, east and west and farmland to the north

- 1.7 The site is a mix of former arable fields sub-divided by ditches and largely fragmented defunct hedgerows. Other habitats present include small stands of broadleaved plantation woodland, along with scrub, tall ruderal and pond habitats. The open fields have been historically ploughed and left to grow rank and are characterised by complex mosaics of coarse grassland, tall ruderal herb and regenerating scrub of varying densities. Scrub saplings have established or been planted in certain areas and the cessation of management has allowed the development of dry stands of common reed. Three ponds are present within the site boundary. It is understood the fields have not been managed as arable land since at least 1990, although it is understood vegetation has regularly been managed by cutting, ploughing and/or spraying.
- 1.8 To the east and south of the main site area, two recreational areas characterised by areas of managed amenity grassland with boundary trees and hedgerow are present within the boundary, with one to the far east of the site and one to the far south are also included within the application site boundary.
- 1.9 Seven residential properties along Poplars Avenue are included within the site boundary, at the south-western site boundary.

Planning Policy & Measurable Net Gain

Local Plan policy

- 1.10 The Local Plan Strategy for Warrington was adopted in July 2014. Policy QE 5 of the Warrington Local Plan Core Strategy deals specifically with Biodiversity and Geodiversity considerations. It should be noted that the Warrington Local Plan does not reference biodiversity net gain, but does make reference to biodiversity action plans. This policy is provided within Appendix 4 for completeness.
- 1.11 The *Proposed Submission Version Local Plan* for Warrington has not yet been submitted for examination and as such its policies have nominal weight. However it deals with biodiversity net gain for developments and states:

“all development proposals affecting protected sites, wildlife corridors, priority habitats, EU Protected Species or priority species (as identified in Local Biodiversity Action Plans) should be accompanied by information proportionate to their nature conservation value including; ...

... c. proposals for compensating for features damaged or destroyed during the development process, including mitigation through off-site habitat creation to achieve a net gain in biodiversity/geodiversity assessed against the DEFRA metric. “ – Policy DC4 – Ecological Network
- 1.12 As will be noted, there is no proposed measure of net gain sought in the draft plan. As such, and in deference to this draft policy and the revised NPPF (see below) this offsetting report has been commissioned by Satnam Millennium.

- 1.13 Policies from the *Warrington Proposed Submission Version Local Plan* in relation to biodiversity net gain that bear specific relevance to this project are included within Appendix 4; it should be noted, however, that several policies within this draft plan are quite broad and therefore have limited specificity to this project..

National Planning Policy Framework

- 1.14 The National Planning Policy Framework sets out the Government’s planning policies for England and how these should be applied. It provides a framework within which locally-prepared plans for housing and other development can be produced. The National Planning Policy Framework encourages net gains for biodiversity to be sought through planning policies and decisions. Using a biodiversity net gain approach can deliver measurable improvements for biodiversity by creating or enhancing habitats in association with development. Biodiversity net gain can be achieved on-site, off-site or through a combination of on-site and off-site measures. It may help local authorities to meet their duty under Section 40 of the Natural Environment and Rural Communities Act 2006 (see Appendix 4).
- 1.15 Chapter 15 of the NPPF relates to the conserving and enhancing the natural environment and sets out how the planning system should protect and enhance the natural and local environment. Paragraph 170(d) states that planning decisions and policies should enhance and contribute to the natural and local environment by
- “(d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;”
- 1.16 Paragraph 174 (b) states that in order to protect and enhance biodiversity and geodiversity, plans should;
- “(b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.”*
- 1.17 It should be noted that the term “measurable net gain” is not defined within the NPPF; similarly this term is not, at the time of the writing of this report, defined in local or UK policy. Whilst a figure of 10% is currently under consideration by many LPAs as best practice, this figure does vary between LPAs and Warrington has not made such consideration within either the current or draft local plans.
- 1.18 Paragraph 175 is relevant to the consideration of planning applications, citing the principles of avoiding significant harm to biodiversity by means of adequate mitigation and compensation (bullet point a only, points b-d not relevant in this case).
- 1.19 Defra’s *Biodiversity Net Gain and Local Nature Recovery Strategies Impact Assessment (15/10/19)* “sets out that 10% is the right level to demonstrate net gain...” and states that 10% provides a small and genuine margin of gain whilst allowing for uncertainties. It should be noted that whilst this is not yet policy, this is Defra’s considered opinion for “measurable net gain”. For further information, refer to Appendix 4.
- 1.20 The proposed Environment Bill states that “the relevant percentage is 10%” as a biodiversity net gain target for development (Schedule 7A, Part 1, 2(3)). However it should be noted that this is not enshrined in law at

the time of the writing of this report. Should the bill receive royal assent, a transition period of two years will be in effect for development projects.

- 1.21 Appendix 4 presents a review of these policies and guidance in relation to biodiversity net gain.
- 1.22 At the time of the writing of this report, no national legislation or local policy specifies the percentage gain. However, based on Defra's guidance, this report will use the 10% recommendation for the definition of "measurable net gain". As noted at para 1.12 above, there is no locally emerging figure.

2.0 METHODOLOGY

Overview

- 2.1 The extent of habitat loss, retention, enhancement and creation has been calculated using the Biodiversity Metric 2.0, which has been published by Natural England (July 2019) as a 'beta test' version. Any site/project specific deviations from the Biodiversity Metric Guidance (July 2019) are detailed at the end of this chapter.
- 2.2 The overall approach for determining biodiversity offsetting involves four stages, as below:
- The mapping of existing habitats on site;
 - Determining the baseline biodiversity units of the existing habitats on site via as per the Biodiversity Metric 2.0;
 - Assessment of habitats to be created (in the context of their final intended condition) on completion of works and their value as biodiversity units calculated. These are known as post-development biodiversity units.
 - The baseline biodiversity units are then subtracted from post-development biodiversity units giving a total number of biodiversity units to be offset as a result of the proposed development for each broad habitat type. Depending on the distinctiveness of habitats that are lost, additional habitat creation may be required to address losses of any 'medium', 'highly' or 'very highly' distinctive habitat types.
- 2.3 Each step of this quantitative methodology is described below. It should be noted that this report is only indicative in its figures at this time and any suggestions for off-site compensation will rely on stakeholder involvement and engagement for both survey and implementation.

Phase 1 Habitat Survey/UKHAB Classification Assessment

- 2.4 Mapping of Phase 1 Habitat Types was undertaken between May and September 2019, which adhered to the Phase 1 Habitat survey methodology described by JNCC (2010). Floristic DOMIN quadrat data and habitat descriptions were collected to inform condition assessments and provide further qualitative data. Raw field notes are not provided owing to the quantity of data but are available upon request.
- 2.5 Phase 1 Habitats were digitised in GIS. Upon release of the Natural England guidance in July 2019, habitats were converted to UKHAB Broad Habitat Types for compatibility with the Biodiversity Offsetting Calculator Tool.

Biodiversity Offsetting Calculations

- 2.6 To calculate a biodiversity baseline, this study used The Natural England Biodiversity Metric 2.0 (Natural England, July 2019). Areas were measured in hectares and linear features in kilometres. The biodiversity unit value for each habitat was calculated by entering the habitat area (or length), distinctiveness score, condition score, ecological connectivity and strategic significance into the Biodiversity Metric 2.0 Calculation Tool. The unit values for each habitat were then totalled to produce the biodiversity baseline.

Habitat Distinctiveness

- 2.7 Habitat distinctiveness is automatically calculated by the Offsetting calculator tool. This is generally based on whether the habitat is nationally rare (very high), a priority habitat (high), semi-natural habitat (medium) or highly modified habitat (low). The action required on site to mitigate for any impacts will vary based on the distinctiveness of the habitat.

Habitat Condition

- 2.8 Habitat condition is assessed using the condition tables in the Biodiversity Metric 2.0 Technical Guidance. The condition tables involve checking features against a list of criteria for habitat in 'good' condition. This data is not provided owing to the quantity of data but is available upon request.

Ecological Connectivity

- 2.9 Ecological Connectivity was assigned based on current Natural England advice: all high and very high distinctiveness habitats were assigned a Medium connectivity multiplier; all other habitats a low connectivity multiplier. A connectivity assessment is not appropriate for some habitats such as arable crops.

Strategic significance

- 2.10 Strategic significance is based on whether the habitat area is formally recognised in a local plan for wildlife. The idea of strategic significance works at a landscape scale. It gives additional unit value to habitats that are located in preferred locations for biodiversity and other environmental objectives. Ideally these aspirations will have been summarised in a local strategic planning document which articulates where biodiversity is of high priority and the places where it is less so.

Post-development

- 2.11 The post-development biodiversity units were calculated using information from the Peel Hall Parameters plan, cross-referenced with indicative information provided within the Indicative Sports and Recreation Plan, both produced by Appletons. Realistic habitat creation and enhancement outside of residential development areas have also been modelled by Appletons as part of this study (see Appendix 2). The baseline biodiversity units were then subtracted from the post-development units to determine any change in biodiversity value of the site as a result of the development.
- 2.12 Predicted street tree area was calculated using the 'Street Tree Helper' Tool in the Biodiversity Metric 2.0 Calculator Tool.
- 2.13 Some assumptions are made regarding the conditions of any proposed habitat which will require ecological input and guidance to ensure they are achieved. The predicted condition status of any retained, created, or enhanced habitats post-development was based on the following factors: estimated timescales and difficulty of habitat creation or enhancement (as automatically generated by the Biodiversity Metric Calculator Tool); likely usage of habitats by residents; and, identification of failed baseline condition criteria of habitats to be retained, that could be addressed to enhance condition status. Management activities to achieve the post-development offsetting score will need to be translated into a long-term management creation and management plan or similar.

Technological constraints

- 2.14 It should be noted that the Biodiversity Offsetting Calculator is a beta (draft) version and as such does have shortcomings when outputting final data within the Detailed Results panel. As such, these calculations have been made external to the calculator using the Biodiversity Metric 2.0 methodology in order to verify gains/losses. A second opinion was sought and received from an external expert who advised Natural England on the creation of the Biodiversity Metric 2.0 and the associated Biodiversity Offsetting Calculator; they suggested and approved of this approach.

Site-specific approaches/constraints

- 2.15 The scale of baseline habitat mapping is not defined by the methodology of the Biodiversity Metric 2.0. Advice received from CIEEM (Chartered Institute of Ecology and Environmental Management) is to map all habitat areas as finely as possible, as opposed to assigning general 'habitat mosaic' statuses for large areas of mosaic habitats. This fine-scale mapping approach was employed as much as was practicable for the current site. Although this approach ensures quantitative accuracy, assessing small pockets of habitats individually may undermine the overall qualitative value of a site-scale habitat mosaic.
- 2.16 Where the mosaic was too fine scale to be practically mapped, for example scattered ruderals and grassland intermingled almost bramble, in line with the UKHAB field key (UK Habitat Classification Working Group, 2018) the habitat area was assigned as the most prominent of those habitat types.
- 2.17 The dry, secondary stands of reed on site, in this instance are classed as the UKHAB broad habitat type of 'Grassland – other neutral'. One of the habitat definitions for this broad habitat type is "fertile, wetland tall herb vegetation with less than 50% grass cover" and reed (*Phragmites australis*) is listed as one of the characteristic abundant species. The UKHAB definition of 'reedbed' requires waterlogged conditions.
- 2.18 To assess the condition status of river habitat (Spa Brook), a MoRPh Assessment is recommended by Natural England Biodiversity Offsetting guidance, which is a detailed piece of work requiring specialist software. As Spa Brook is largely dry and choked with vegetation, an assumption of 'poor' quality was made, and a separate condition assessment was not undertaken in this instance.

Strategic Significance Variable

- 2.19 The strategic significance variable within the calculations gives extra value to habitats that are located in optimal locations to meet biodiversity and other environmental objectives. This variable has three choices in option being Option 1: "Within area formally identified within local strategy", Option 2: "Location ecologically desirable but not in local strategy" and Option 3: "Area/compensation not in local strategy/no local strategy."
- 2.20 The concept of strategic significance works at a landscape scale. It gives additional unit value to habitats that are located in preferred locations for environmental objectives. Local priorities are identified that target biodiversity and nature improvement, such as Nature Recovery Areas, local biodiversity plans, National Character Area objectives and green infrastructure strategies.

- 2.21 In relation to this, the site is not highlighted on the current adopted plan (2014) under any ecological policy and therefore fails option 1. It should be emphasised that the notation of this site within the local plan for the housing development does not warrant option 1 status as this is not a designation that relates to ecology. The site, however, is present within the Greater Manchester Wetlands Nature Improvement Area (NIA) and this is reflected within the draft local plan. The NIA was determined locally in 2014 by the Greater Manchester and Cheshire LNPs (local nature partnership) and covers an area of approximately 48,000ha. As the site is located within this Nature Improvement Area, the site passes the test for Option 2 and was therefore classed as 'Location ecologically desirable but not in area defined in local policy' for the purpose of the strategic significance variable due to its presence within the NIA. The proposed allocation of the site for housing within the draft local plan has no influence on this assessment as this allocation does not pertain to ecology.
- 2.22 The post-development biodiversity units are based on low-resolution development blocks and should be treated as an indicative report in terms of any projected loss or gain. Owing to the low-resolution of current proposals, a designation of "suburban mosaic of natural/developed surface" has been used to account for 41ha of proposed residential areas on site.
- 2.23 Realistic habitat creation and enhancement outside of residential development areas have also been modelled by Appletons as part of this study (see Appendix 2), which have been agreed upon in principle with the client. The proposed habitat types take into account findings and recommended mitigation of recent ecology survey work at the site (e.g. woodland, hedgerow and stream protection buffer zones, pond creation for great crested newt, tall ruderal and bramble retention for lepidoptera and semi-natural habitat mosaic recreation). This is discussed in more detail within Section 4.
- 2.24 The predicted condition of proposed habitats is based on assumed conditions 30 years after development, to inform a long-term management plan. Many habitats will require ecological input and guidance to ensure the target condition is achieved. 30 years will allow most new habitats to develop and become natural and is the recommended timescale for securing offsetting units (IEMA, 2013).

3.0 BIODIVERSITY BASELINE

Introduction

- 3.1 This section establishes the biodiversity baseline for the site, based on the 2019 Phase 1 Habitat Survey data. All calculations were undertaken by Lorraine McKee, MSc, GradCIEEM in February/March 2020.

Biodiversity Baseline for Habitats on site

- 3.2 A Phase 1 Habitat Survey was undertaken of the site between May and September 2019. Upon release of the Natural England guidance in July 2019, habitats were converted to UKHAB Broad Habitat Types for compatibility with the Biodiversity Offsetting Calculator Tool and condition assessed as part of the Phase 1 as per UKHAB.

- 3.3 Survey notes and condition assessments allowed the identification of 19 UKHAB habitat area categories and 4 hedgerow types. UKHAB Broad Habitat types and habitat area/hedgerow condition assessments are summarised on Drawings 1820-BOU-BASE01 & 1820-BOU-INDL01, Appendix 1 and Appendix 2.
- 3.4 The site comprises 68.92ha with a total habitat area baseline of 343.63 biodiversity units. The majority of these units comprise neutral grassland in poor to fairly poor condition (226.7 biodiversity units).
- 3.5 1.45km of hedgerows and lines of trees are present on site at baseline measurement, accounting for a total linear habitat baseline of 9.27 biodiversity units.
- 3.6 The section of Spa Brook on site measures 0.583km in length, which equates to 4.664 biodiversity units, under the assumption poor quality (see Paragraph 2.16).

4.0 POST-DEVELOPMENT BIODIVERSITY VALUE

Introduction

- 4.1 This section calculates the biodiversity value of the proposed development based on the following plans:
- Appletons Parameters Plan Rev. A (see Appendix 3)
 - Appletons Indicative Sports and Recreation Provision plan Rev. J (see Appendix 3)
 - Appletons Indicative Habitat Creation and Enhancements Plan (see Appendix 2)

Post-development biodiversity value of the Site – Area Habitats

- 4.2 Initial net habitat loss upon site clearance is summarised in Table 1 (overleaf) in the absence of mitigation (i.e. without factoring in post-development enhancement and creation).

Distinctive-ness	Habitat type	Condition	Area (ha)	Area retained (ha)	Area enhanced (ha)	Area lost (ha)	Total baseline units	Units retained	Units enhanced	Unit change	Action required to address losses
Broad habitat type: Lakes											
High	Ponds (Non- Priority Habitat)	Moderate	0.05	0.05	0	0	0.73	0.73	0	0	Same habitat required
High	Ponds (Non- Priority Habitat)	Fairly Poor	0.005	0.005	0	0	0.05	0.05	0	0	Same habitat required
High	Ponds (Priority Habitat)	Moderate	0.009	0	0	0.009	0.13	0	0	-0.13	Same habitat required
High	Ponds (Priority Habitat)	Fairly Poor	0.05	0.05	0	0	0.54	0.54	0	0	Same habitat required
Medium	Ditches	Poor	0.156	0	0.125	0.031	0.69	0	0.55	-0.14	Same broad habitat or a higher distinctiveness required
Totals for broad habitat type			0.27	0.105	0.125	0.041	2.14	1.32	0.55	-0.27	
Broad habitat type: Urban											
Low	Amenity grassland	Poor	7.383	4.179	0	3.2	16.24	9.19	0	-7.05	Same distinctiveness or better required
Low	Introduced shrub	Poor	0.011	0.01	0	0.001	0.02	0.02	0	-0.00	Same distinctiveness or better required
Low	Street Tree	Moderate	0.038	0.038	0	0	0.17	0.17	0	0	Same distinctiveness or better required
V.Low	Developed land; sealed surface	N/A - Other	1.392	1.162	0	0.23	0	0	0	0	Compensation not required
Totals for broad habitat type			8.824	5.389	0	3.431	16.43	9.38	0	-7.05	
Broad habitat type: Grassland											
Medium	Bracken	Fairly Poor	0.203	0	0	0.203	1.34	0	0	-1.34	Same broad habitat or a higher distinctiveness required
Medium	Other neutral grassland	Poor	40.403	2.544	3.79	34.07	177.77	11.19	16.68	-149.9	Same broad habitat or a higher distinctiveness required
Medium	Other neutral grassland	Fairly Poor	7.414	0.064	0	7.35	48.93	0.42	0	-48.51	Same broad habitat or a higher distinctiveness required
Totals for broad habitat type			48.02	2.608	3.79	41.623	228.04	11.61	16.68	-199.75	
Broad habitat type: Heathland and shrub											
Medium	Bramble scrub	Poor	0.893	0.392	0.132	0.37	3.93	1.72	0.58	-1.62	Same broad habitat or a higher distinctiveness required
Medium	Mixed scrub	Poor	0.254	0.165	0	0.09	1.12	0.73	0	-0.39	Same broad habitat or a higher distinctiveness required

Medium	Mixed scrub	Fairly Poor	2.414	0.679	0.172	1.56	15.93	4.48	1.14	-10.32	Same broad habitat or a higher distinctiveness required
Medium	Mixed scrub	Moderate	5.009	1.031	0.122	3.86	44.08	9.07	1.07	-33.93	Same broad habitat or a higher distinctiveness required
Medium	Mixed scrub	Fairly Good	1.758	0.616	0	1.14	19.34	6.78	0	-12.56	Same broad habitat or a higher distinctiveness required
Totals for broad habitat type			10.328	2.883	0.426	7.02	84.4	22.78	2.79	-58.82	
Broad habitat type: Woodland and forest											
Medium	Other woodland; broadleaved	Fairly Poor	0.337	0.242	0	0.1	2.22	1.6	0	-0.63	Same broad habitat or a higher distinctiveness required
Medium	Other woodland; broadleaved	Moderate	1.18	1.18	0	0	10.38	10.38	0	0	Same broad habitat or a higher distinctiveness required
Totals for broad habitat type			1.517	1.422	0	0.1	12.6	11.98	0	-0.63	
Overall Totals for Area habitats:			68.959	12.407	4.341	52.215	343.63	57.07	20.02	266.52	

Table 1: Baseline habitat areas shown with predicted changes (including both losses and enhancements)

- 4.3 The calculated total site baseline equals 343.63 baseline units (68.92ha). Of this, 57.07 units (12.41ha) will be retained, and 20.02 baseline units will be enhanced, leaving 266.52 habitat units that will be lost or changed (including enhanced) as a result of the development.
- 4.4 Note that these figures are for habitat areas only and do not include any losses to linear (hedgerow) habitats (discussed in Paragraphs 4.14-4.18).
- 4.5 Habitat areas, distinctiveness and intended condition scores of all retained and created post-development have been calculated and assessed and are displayed on Maps 1820-BOU-BASE01 and 1820-BOU-INDL01, Appendix 1 and Appendix 2.
- 4.6 Habitat gains and losses post-development, taking into account habitat enhancement and creation, are detailed in Table 2 (overleaf). It should be noted that Natural England's Biodiversity Offsetting Calculator has a known "glitch" within the detailed results output (as verified by an external expert who advised Natural England on the creation of the Biodiversity Metric 2.0 and the associated Biodiversity Offsetting Calculator and suggested and approved of this approach). As a result, whilst the calculator has been used to accurately calculate unit data for baselines, creation, and enhancements, the calculator's final outputs are not included in this report due to their inaccuracy within the detailed results panel. Therefore, Appletons has taken this initial data and externally verified the maths of final outputs. The Biodiversity Calculator document can be provided on request, on the understanding of a glitched output.
- 4.7 It should be noted that these are projections based on the current indicative plans. As such detailed assessment of loss and gains on site cannot be made at this time and these calculations should be seen as best indicators of biodiversity unit losses and gains for this project based on current data. It is expected that these figures will be revised under more specific plans at the reserved matters stage.
- 4.8 At the writing of this report, the habitats that are indicated to experience a net loss are as follows:
- Grassland – Bracken
 - Grassland – Other neutral
 - Heathland and Shrub – Mixed Scrub
- 4.9 The majority of habitat area gains predicted are for urban habitat types of low distinctiveness associated with development, although it should be noted that gains do exist for medium distinctiveness habitats such as bramble scrub and broadleaved woodland, as well as high distinctiveness habitat such as ponds.
- 4.10 Table 2 (overleaf) shows on-site post intervention units accounts for 274.12 habitat units. Once the baseline is subtracted from this (343.63 habitat units), the result is a project wide unit change of -69.51 units, which is the habitat unit loss of the project. .
- 4.11 This loss of 69.53 habitat units is a 20.22% loss of habitat units on site. It should be noted that the greatest losses are to the *Grassland* and *Heathland and shrub* broad habitat types.

- 4.12 As current projections show a loss of 69.53 habitat units, a minimum of 69.54 units would be required in order to achieve no net loss. Whilst at the time of the writing of this report there is no fixed policy provision or legislation with respect to the definition of “measurable net gain”, Defra’s recommendation of 10% (as discussed in Section 1.17) is used as the benchmark for this report; therefore it is projected that in order to achieve 10% net-gain on the project overall, 103.89 habitat units would be required.
- 4.13 As the broad habitat type of grassland by far experiences the greatest net-loss, any offsite habitat creation and enhancement must focus on this habitat type. Scrub should also be considered due to net-loss of this broad-habitat type.

Distinctive-ness	Habitat type	Baseline units	Units retained	Units delivered on site through habitat creation	Units delivered on site through habitat enhancement	Post-development units	Project wide unit change	Action required to address any losses	Result
Broad habitat type: Lakes									
High	Ponds (Non-Priority Habitat)	0.78	0.78	0.7	0	1.48	0.7	Same habitat required	Net gain of same habitat type predicted
High	Ponds (Priority Habitat)	0.68	0.54	1.74	0	2.28	1.6	Same habitat required	Net gain of same habitat type predicted
Medium	Ditches	0.69	0	0	0.86	0.86	0.17	Same broad habitat or a higher distinctiveness required	Net gain of same habitat type predicted
Totals for broad habitat type		2.15	1.32	2.44	0.86	4.62	2.47		
Broad habitat type: Urban									
Low	Amenity grassland	16.24	9.19	20.4	0	29.59	13.35	Same distinctiveness or better required	Net gain of same habitat type predicted
Low	Introduced shrub	0.02	0.02	0.02	0	0.04	0.02	Same distinctiveness or better required	Net gain of same habitat type predicted
Low	Street Tree	0.17	0.17	2.68	0	2.85	2.68	Same distinctiveness or better required	Net gain of same habitat type predicted
V.Low	Developed land; sealed surface	0	0	0	0	0	0	Compensation not required	n/a
Medium	Allotments	0	0	2.77	0	2.77	2.77	n/a (not present as baseline habitat type)	n/a
Low	Suburban mosaic of natural/developed surface	0	0	82.74	0	82.74	82.74	n/a (not present as baseline habitat type)	n/a
Low	Sustainable urban drainage feature	0	0	1.58	0	1.58	1.58	n/a (not present as baseline habitat type)	n/a
Totals for broad habitat type		16.43	9.38	110.19	0	119.57	103.14		
Broad habitat type: Grassland									
Medium	Bracken	1.34	0	0	0	0	-1.34	Same broad habitat or a higher distinctiveness required	Net gain of same broad habitat type, or habitat of higher distinctiveness not predicted
Medium	Other neutral grassland	226.71	11.61	26.73	28.35	66.7	-160.01	Same broad habitat or a higher distinctiveness required	Net gain of same broad habitat type, or habitat of higher distinctiveness not predicted
Totals for broad habitat type		228.05	11.61	26.73	28.35	66.7	-161.35		
Broad habitat type: Heathland and shrub									

Medium	Bramble scrub	3.93	1.72	3.79	1.36	6.87	2.94	Same broad habitat or a higher distinctiveness required	Net gain of same habitat type predicted
Medium	Mixed scrub	80.47	21.06	36.36	2.8	60.22	-20.25	Same broad habitat or a higher distinctiveness required	Net gain of same broad habitat type, or habitat of higher distinctiveness not predicted
Totals for broad habitat type		84.4	22.78	40.15	4.16	67.09	-17.31		
Broad habitat type: Woodland and forest									
Medium	Other woodland; broadleaved	12.61	11.98	4.16	0	16.14	3.53	Same broad habitat or a higher distinctiveness required	Net gain of same habitat type predicted
Totals for broad habitat type		12.61	11.98	4.16	0	16.14	3.53		
Overall Totals for Area habitats:		343.63	57.09	183.67	33.37	274.12	-69.51		Overall, 20.22% net loss of area habitat biodiversity units predicted.

Table 2: Predicted habitat gains/losses post-development, accounting for on-site habitat enhancement/creation only

Post-development biodiversity value of the Site – Linear Habitats

- 4.14 1.45km of hedgerows and lines of trees are present on site at baseline measurement, accounting for a total site baseline of 9.27 units. The proposed development retains most of these hedgerows although 0.11km are lost under current proposals to access roads, equating to a loss of 0.81 hedgerow units.
- 4.15 Enhancement of hedgerows on site is recommended. The hedgerows on site are species poor; increasing the species richness would enhance these hedgerows; additionally, some hedgerows would benefit from tree planting due to the placement of surrounding habitats.
- 4.16 At the time of the writing of this report, enhancements to all hedgerows (with the exception of hedgerows H1a, H1b and H6) are recommended. Table 3, below, outlines the recommendations for each hedgerow to be enhanced. These hedgerows are labelled on plan 1820-BOU-INDL01, Appendix 2.

Hedgerow	Original type	Enhanced type
H2	Native hedgerow	Native species rich hedgerow
H3	Native hedgerow	Native species rich hedgerow with trees
H4	Native hedgerow	Native species rich hedgerow with trees
H5	Native hedgerow	Native species rich hedgerow with trees
H7	Native hedgerow	Native species rich hedgerow
H8	Native hedgerow – associated with ditch or bank	Native species rich hedgerow – associated with ditch or bank
H9	Native hedgerow with trees – Associated with ditch or bank	Native species rich hedgerow with trees – associated with ditch or bank
H10a	Native hedgerow – associated with ditch or bank	Native species rich hedgerow – associated with ditch or bank
H10b	Native hedgerow – associated with ditch or bank	Native species rich hedgerow – associated with ditch or bank
H11	Native hedgerow	Native species rich hedgerow

Table 3: Recommendations for hedgerow enhancements on site

- 4.17 These enhancements alone would see 8.90 hedgerow units delivered, which would see an increase of 2.16 hedgerow units on this project (23.3% increase). Hedgerow creation as part of landscaping proposals would further increase this net-gain of linear habitat types.
- 4.18 It should be noted that as the current proposals are not detailed, additional created hedgerows are not included in these calculations.

Post-development biodiversity value of the Site – River Habitats

- 4.19 To assess the condition status of river habitat (Spa Brook), a MoRPh Assessment is recommended by Natural England Biodiversity Offsetting guidance, which is a detailed piece of work requiring specialist software. As Spa Brook is largely dry and choked with vegetation, an assumption of 'poor' quality was made and a separate

condition assessment was not undertaken in this instance. Under this assumption, Spa Brook measures 0.583km in linear length, which equates to 4.664 units.

- 4.20 The full length of Spa Brook on site will be retained, however roads will cross Spa Brook at three locations. Potential indirect impacts of site construction work include runoff, pollution and dust. Any drainage/SUDS scheme shall be designed specifically to ensure no silt or pollutants enter the watercourse. A robust Construction Environmental Management Plan will be required to ensure protection of aquatic habitats throughout development work from indirect impacts such as pollution or siltation. Either side of road crossings, Spa Brook will be protected by 10m construction exclusion buffer zones.
- 4.21 Post-construction, the development itself may result in stream/ditch pollution through site runoff from road usage and the proposed SUDS system shall be designed to ensure the watercourse is protected from pollution/siltation. The watercourse can be enhanced by reed management, scrub management and reprofiling where feasible and appropriate.
- 4.22 With the mitigation outlined above in place, it is not considered that works will negatively alter the baseline condition of Spa Brook, which is reflected in offsetting calculations as a 0% net gain/loss of river habitat.
- 4.23 Should a MoRPh appraisal be undertaken, consideration should be given to if the brook can be enhanced to moderate in quality and factored into calculations.

5.0 RECOMMENDATIONS

On site habitat creation and enhancement

- 5.1 An Ecological Management Plan for the development will be compiled at the reserved matters stage, which will set out detailed long-term habitat management prescriptions for each of the retained and created habitats detailed within this study. Ecological input, guidance, monitoring and adaptive management will be required to ensure predicted post-development habitat conditions are achieved.
- 5.2 The habitat creation area to the north of the site comprises approximately 5.186ha, which has been used to project potential compensation for losses of scrub and grassland by creating a mosaic of these habitats. A 4m high acoustic barrier will protect habitats from the noise, lighting and litter associated with the M62.
- 5.3 Whilst 0.03ha of poor quality ditch will be lost on site to the development, the remaining ditches on site will be improved from poor quality to moderate quality, thereby offsetting any losses to this habitat on site.
- 5.4 It should be noted that whilst hedgerow enhancement has been calculated, hedgerow creation has not been projected at the time of the writing of this report. However, additional hedgerows will be included within more detailed plans for this project, providing significantly increased hedgerow units on top of what is currently projected.
- 5.5 The SUDS systems should be encouraged to support the potential for reedbed creation on site, which would better support wetland birds within the local area.
- 5.6 Retained woodland and pond habitats would be enhanced through sensitive management and protection. Anti-social use and human site pressures have degraded woodland habitats; any management plan would need to take into account the additional presence of residents in the area under current plans. It should be noted that no improvement to condition of retained woodland and pond habitats has been projected; it is considered that enhancements that are made to these areas will prevent degradation from additional human pressures on these habitats caused by the development, rather than provide improvement to condition. Woodlands, hedges and ponds that are retained on site should be improved as much as is feasible within these plans, however, in order to ensure no degradation to habitats.

Offsite habitat creation and enhancement

- 5.7 Owing to the scale of habitat displacement, off-site habitat creation will be required. The extent of off-site creation will depend on the location, habitats, and baseline conditions of the chosen compensation site/s. Stakeholder engagement will be required along with off-site baseline surveys of potential compensation sites.
- 5.8 Habitats must be replaced by habitats of the same functionality (broad habitat type). Grassland habitats currently experience by far the greatest percentage net-loss on site, and thus any habitat creation and enhancement must focus on this habitat type. Ideally, the offsite compensation site will be of a similar size to the area deficit, with a similarly poor initial baseline condition in order to reduce risk when improving the habitat condition to attain net gain.

- 5.9 The loss of grassland communities could potentially be at least partially offset by improving conditions of grassland habitats at Radley Common (as designated within Appletons Parameters Plan, Drawing 1820_35, Rev A, Appendix 3). This area has not been subject to survey and baseline assessment, however, grassland habitats resembling species poor modified grassland have been noted within Radley Common/Peel Hall Park. If, after further detailed survey, the sites are indeed comparable then it will be possible (subject to agreement with the local council) to offset a number of units in this location by raising these units to a more species rich “other neutral grassland” designation.
- 5.10 Much of the baseline mixed scrub habitat present on site was mixed scrub by composition, but bore the functionality of woodland; therefore improving the condition of a woodland off-site should be considered as a potential form of compensation for this habitat. One option may comprise woodland enhancement within Radley Plantation, through sycamore management and invasive species control for example.
- 5.11 Opportunities for the improvement of nearby low distinctiveness grassland and scrub habitats are present within the local area. Local wildlife sites in the vicinity requiring improvements to these types of habitats would be prioritised.

Conclusion

- 5.12 Based on the results of this study, it is recognised that further stakeholder engagement is required along with off-site baseline surveys of potential compensation sites. With the support of the local authority, the local wildlife trust, and any other relevant land owners for offsite enhancement measures a measurable net gain can be achieved for this development, with a target of 10% net gain.

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GENERAL BIODIVERSITY LEGISLATION AND POLICY

This section provides an overview of the framework of legislation and policy which underpins biodiversity net gain as a requirement to development.

The Natural Environment and Rural Communities (NERC) Act 2006

Section 40 of the NERC Act places a duty upon all local authorities and public bodies in England and Wales to promote and enhance biodiversity in all of their functions. Sections 41 (England) and 42 (Wales) list habitats and species of principal importance to the conservation of biodiversity. These lists superseded Section 74 of the CRoW Act 2000.

NATIONAL PLANNING POLICY FRAMEWORK

The National Planning Policy Framework sets out the Government's planning policies for England and how these should be applied. It provides a framework within which locally-prepared plans for housing and other development can be produced. Paragraphs 174 and 175 are presented below:

174: To protect and enhance biodiversity and geodiversity, plans should:

- a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and
- b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

175: When determining planning applications, local planning authorities should apply the following principles:

- a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
- c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons⁵⁸ and a suitable compensation strategy exists; and
- d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.

Local Plan policy

The Local Plan Strategy was adopted in July 2014, which is the centrepiece of the current Warrington Local Plan Core Strategy. Policy QE 5 of the Warrington Local Plan Core Strategy deals specifically with Biodiversity and Geodiversity considerations. It should be noted that this local plan does not specifically address biodiversity net gain, and instead addresses Biodiversity Action Plans. Policy Policy QE 5 states:

“Proposals for development which may adversely affect the integrity or continuity of UK Key habitats or other habitats of local importance, or adversely affect EU Protected Species, UK Priority Species or other species of local importance, or which are the subject of Local Biodiversity Action Plans will only be permitted if it can be shown that the reasons for the development clearly outweigh the need to retain the habitats or species affected and that mitigating measures can be provided which would reinstate the habitats or provide equally viable alternative refuge sites for the species affected. All development proposals affecting protected sites, wildlife corridors, key habitats or priority species (as identified in Local Biodiversity Action Plans) should be accompanied by information proportionate to their nature conservation value including;

- a site survey where necessary to identify features of nature and geological conservation importance; an assessment of the likely impacts of the proposed development proposals for the protection and management of features identified for retention;
- an assessment of whether the reasons for the development clearly outweigh the nature conservation value of the site, area or species; and
- proposals for compensating for features damaged or destroyed during the development process

Where development is permitted, the Council will consider the use of conditions or planning obligations to ensure the protection and enhancement of the site's nature conservation interest and/or to provide appropriate compensatory measures.

Proposed Submission Version Local Plan In relation to biodiversity net gain, the draft local plan outlines within Policy DC3 – Green Infrastructure that:

“4. The Council will work with partners to strengthen and expand the network of ecological sites, corridors and stepping stone habitats to:

- a. secure a net gain in biodiversity;
- b. to expand tree cover in appropriate locations across the Borough;
- c. to improve landscape character, water and air quality;
- d. to help adapt to flood risk and mitigate the impacts of climate change;
- e. to contribute to the development of the Northern Forest; and
- f. to contribute to the wider regional nature recovery network of wetland sites by enhancing the wetlands across Warrington.”

And

6. Where a loss of, or negative impact on green infrastructure functionality or ecological system/network is unavoidable, development proposals should demonstrate what mitigation measures are proposed and/or replacement green infrastructure will be provided. Any replacement or mitigation measure should seek to secure a net gain in biodiversity assessed against the latest version of the DEFRA Metric and be deployed as closely as possible to the affected green infrastructure asset.

Policy DC4 – Ecological Network states the following in relation to biodiversity net gain:

1. The Council will work with partners to protect and where possible secure a net gain for biodiversity across the Plan area. These efforts will be guided by the principles set out in the National Planning Policy Framework and those which underpin the strategic approach to the care and management of the Borough's Green Infrastructure in its widest sense contained in Policy DC3.

And

7. All development proposals affecting protected sites, wildlife corridors, priority habitats, EU Protected Species or priority species (as identified in Local Biodiversity Action Plans) should be accompanied by information proportionate to their nature conservation value including;

- a. a site survey carried out by suitably qualified or experienced person to establish the presence, extent and density of these species and identify features of nature and geological conservation importance; an

assessment of the likely impacts of the development proposals for the protection and management of features identified for retention;

b. an assessment of whether the reasons for the development clearly outweigh the nature conservation value of the site, area or species; and

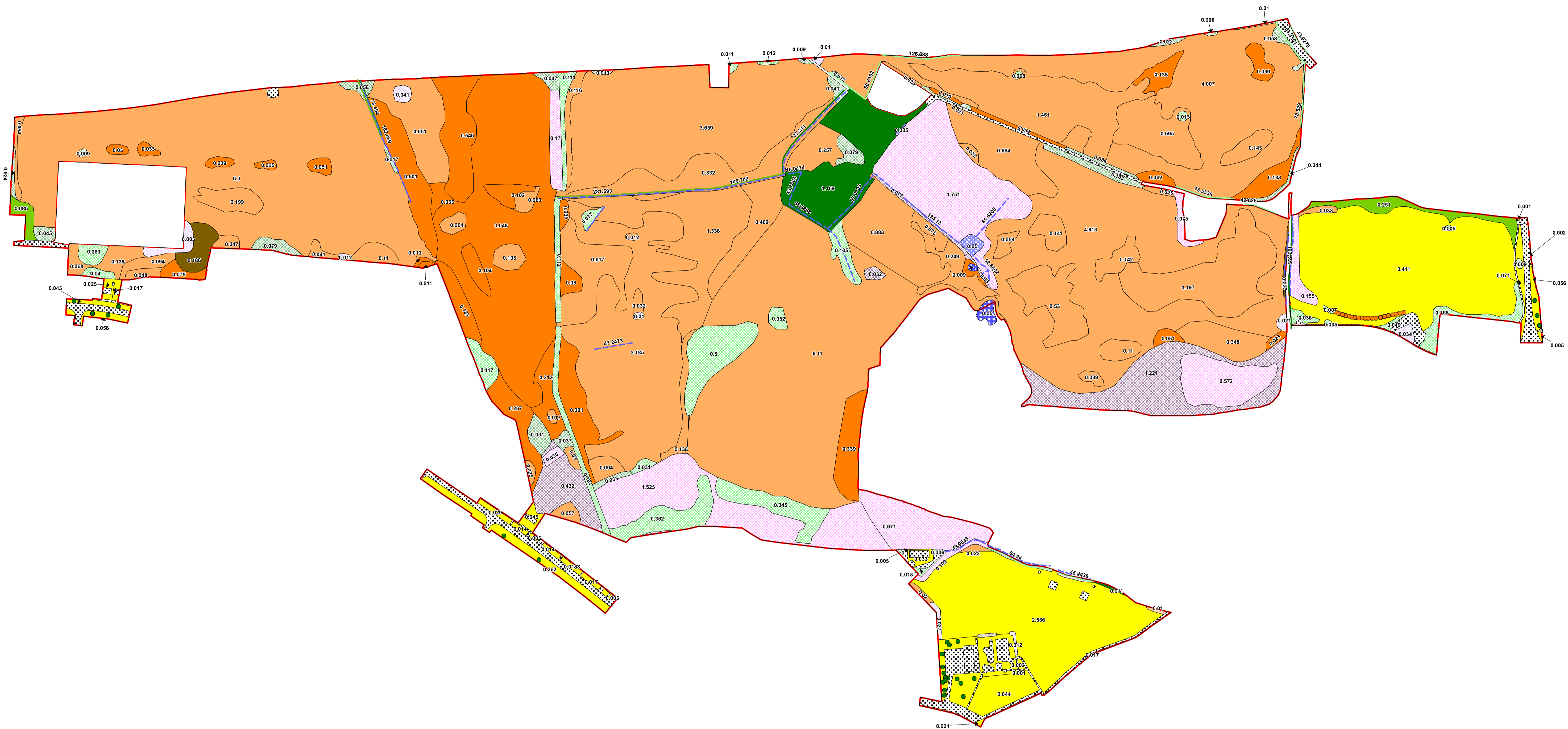
c. proposals for compensating for features damaged or destroyed during the development process, including mitigation through off-site habitat creation to achieve a net gain in biodiversity/geodiversity assessed against the DEFRA metric.

Defra's Biodiversity Net Gain and Local Nature Recovery Strategies Impact Assessment (15/10/19)

It should be noted that whilst this is not yet policy, Defra's considered opinion for "measurable net gain" requires a 10% gain on biodiversity units in comparison to the baseline. The above document states that "A 10% gain provides a small margin of gain to account for the outlined process, epistemic and linguistic uncertainties whilst operating within the parameters of established and successful net gain planning policies which are not thought to significantly affect development rates or viability. In simple terms, it is the most achievable level of net gain that the department could confidently expect to deliver genuine net gain, or at least no net loss, for biodiversity and thereby meet its policy objectives."



APPENDIX 1



Low Distinctiveness Habitat

- Urban - Amenity Grassland
- Urban - Developed land; sealed surface
- Urban - Introduced shrub

Medium Distinctiveness Habitat

- Grassland - Bracken
- Heathland and Shrub - Bramble Scrub
- Heathland and shrub - mixed scrub**
- Poor
- Fairly poor
- Moderate
- Fairly good
- Woodland and forest - Other woodland; broadleaved**
- Fairly poor
- Moderate
- Grassland - Other neutral grassland**
- Poor
- Fairly poor

High Distinctiveness Habitat

- Lakes - Ponds (Priority habitat)**
- Fairly poor
- Moderate
- Lakes - Ponds (Non-priority habitat)**
- Fairly poor
- Moderate

Linear and Point Habitats

- Line of trees
- Street trees
- Lake - Ditch
- Hedgerow Type**
- Native Hedgerow
- Native hedgerow - associated with bank or ditch
- Native hedgerow with trees - associated with bank or ditch
- Red Line Boundary



Site at Peel Hall, Warrington

Biodiversity Offsetting Baseline Habitat Conditions

Satnam Millennium Ltd

Drawing: 1820-BOU-BASE01 Drawn by: LM
 Revision: 0 Checked by: PB
 Date: 20/03/2020 Scale: 1:2500 @ A1

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APPENDIX 2



Low Distinctiveness Habitat

- Urban - Amenity Grassland (retained)
- Urban - Amenity (created)
- Urban - Developed land, sealed surface (retained)
- Urban - Developed land, sealed surface (created)
- Urban - Introduced shrub (retained)
- Urban - Sustainable urban drainage feature (created)
- Urban - Allotments (created)
- Urban - Suburban/mosaic of development/natural surface (created)

Medium Distinctiveness Habitat

- Heathland and shrub - mixed scrub (retained)**
 - Poor
 - Fairly poor
 - Moderate
 - Fairly good
- Heathland and shrub - mixed scrub (created)**
 - Fairly poor
 - Moderate
 - Fairly good
- Heathland and shrub - mixed scrub (enhanced)**
 - Fairly poor to moderate mixed scrub
 - Moderate to fairly good mixed scrub
 - Bramble scrub to moderate mixed scrub
- Heathland and shrub - Bramble scrub**
 - Retained
 - Created
- Woodland and forest - Other woodland; broadleaved (retained)**
 - Fairly poor
 - Moderate
- Heathland and shrub - mixed scrub (created)**
 - Fairly poor
 - Moderate

- Grassland - Other neutral grassland (retained)**
 - Poor
- Grassland - Other neutral (enhanced)**
 - Fairly poor
 - Moderate grassland
- Dry ditch (retained)

High Distinctiveness Habitat

- Lakes - Ponds (Non-priority habitat) (retained)**
 - Fairly poor
 - Moderate
- Lakes - Ponds (Priority habitat) (retained)**
 - Fairly poor
 - Moderate
- Lakes - Ponds (Priority Habitat) (created)**
 - Lakes - Ponds (Priority Habitat)

Linear and Point Habitats

- Urban - Street Tree (retained)
 - Urban - Street Tree (created)
 - Line of trees (retained)
 - Line of trees (created)
- Hedgerows**
- Native hedgerow
 - Native hedgerow with trees associated with bank or ditch
 - Native species rich hedgerow
 - Native species rich hedgerow with trees
 - Native species rich hedgerow associated with bank or ditch
 - Native species rich hedgerow with trees associated with bank or ditch
- Spa Brook



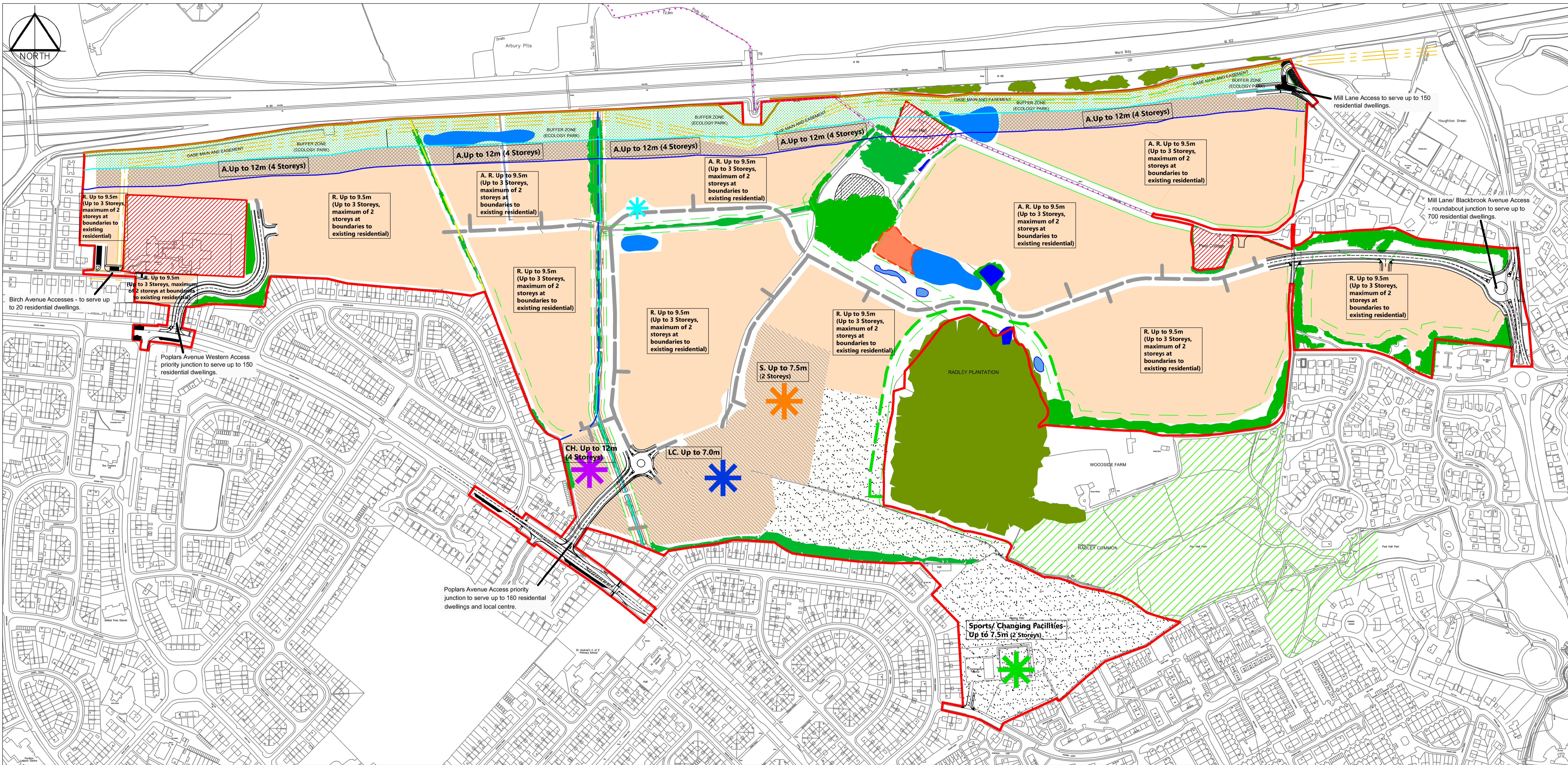
Site at Peel Hall, Warrington
 Indicative Habitat Enhancement
 and Creation Plan
 Satnam Millennium Ltd

Drawing: 1820-BOU-INDL01
 Revision: 1
 Date: 30/04/2020
 Drawn by: LM
 Checked by: SW
 Scale: 1:2500 @ A1

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APPENDIX 3



KEYS

Site Boundary	Boundary between the historic townships of Arbury and Winwick (Important Hedgerow)	Existing Culvert	10m Foraging bat corridor	CH. Location for Care Home	Location for Bus Gate	Radley Common	4metre High Acoustic Barrier (In line with noise assessment)	Proposed Sports Pitches/ Public Open Space
Areas with the Site excluded from the development	Peel Hall Manor Farm Moat Area (Archeological Feature)	Proposed Allotments	Existing Pond to be retained	LC. Location for Local Centre	R. Developable Land to include for pedestrian and cycle links between plots.	Boundary to Buffer Zone (In line with noise assessment)	Proposed Tree/ Shrub Planting	
Public right of way	Gas Main and Easement	Existing areas of off site vegetation	Proposed Attenuation Pond	S. Location for Primary School	A. Area suitable for apartments (In line with noise assessment)	Boundary to Area Suitable for apartments (In line with noise assessment)		
Boundary between the historic townships of Arbury and Houghton (Important Hedgerow)	8m Water Vole buffer zone to Spa Brook.	Existing areas of woodland, trees, hedgerows and vegetation to be retained.	Proposed Great Crested Newt Mitigation Pond	Location for Community Facility	Indicative Road Line	Proposed wildlife corridor		

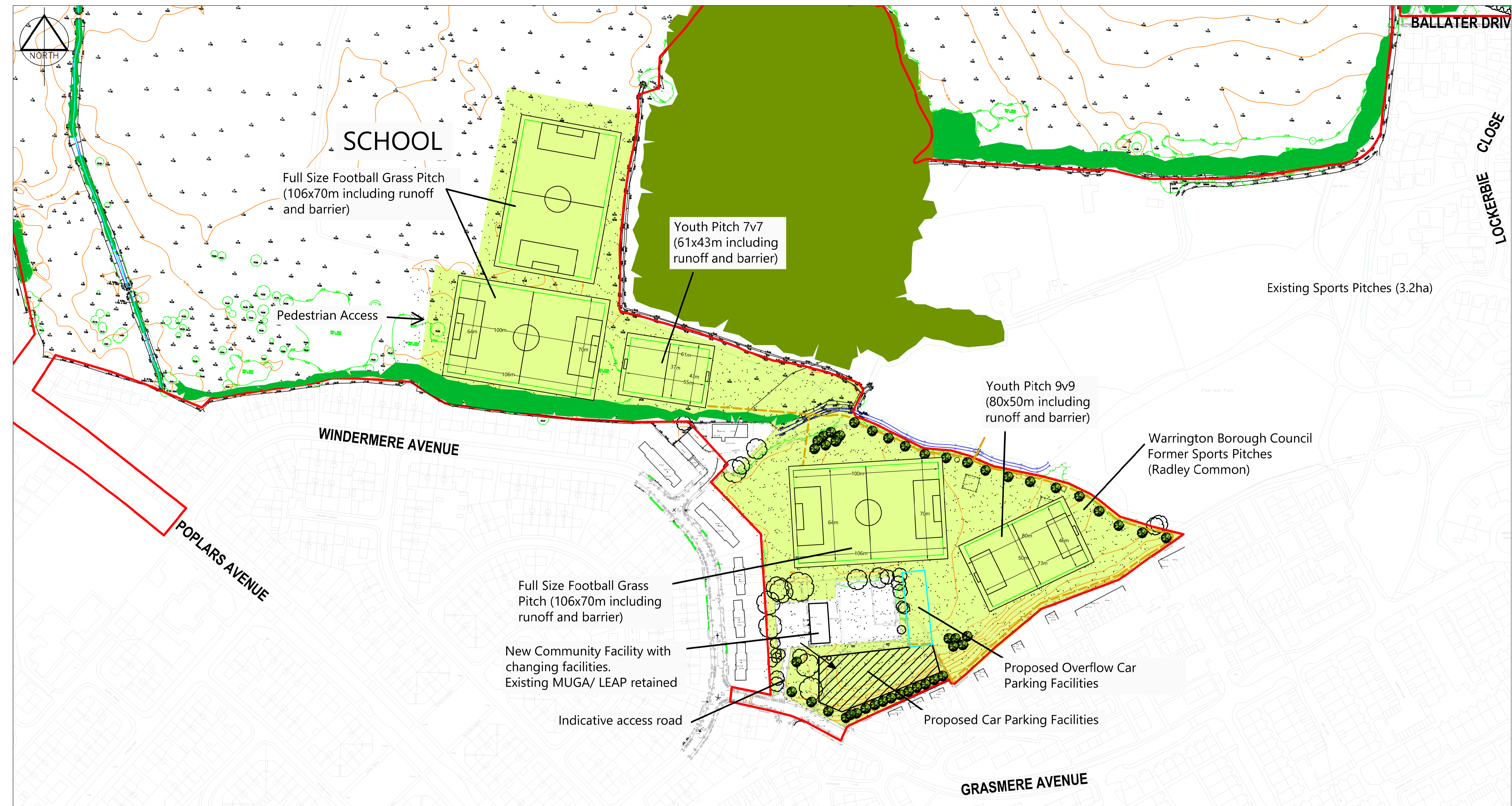
*Note: Heights shown are proposed from ground level. Heights shown are fixed and take precedent over number of storeys shown.

PEEL HALL, WARRINGTON

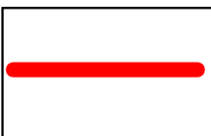


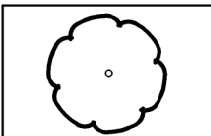
Parameters Plan

Project PEEL HALL, WARRINGTON		
Title Parameters Plan		
Client Satnam Millennium Ltd		
Date January 2020	Scale 1:2,500@A1	
Drawn SW/ DS	Drawing No. 1820_35	
Checked DA/ DS	Revision A	

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KEYS

-  Site Boundary
-  Proposed Tree Planting
-  Proposed Footpath/ Re-surfacing existing
-  Existing Trees

PEEL HALL, WARRINGTON

Indicative Sports and Recreation Provision

FIGURE APP 16

Project PEEL HALL, WARRINGTON		
Title Indicative Sports and Recreation Provision		
Client Satnam Millennium Ltd		
Date 28.06.16	Scale 1:1,250@A1	
Drawn SW/ DS	Drawing No. 1820_28	
Checked DA/ DS	Revision J	
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