Gina Parle

From: Alistair Baxter <alistair.baxter@aspect-ecology.com>
Sent: 07 August 2020 17:54
To: emma.pickernell@cheltenham.gov.uk
Cc: KENNISON, Gary; Peter Frampton; Ian Kirby; Dan Walker
Subject: Oakhurst Rise, Cheltenham - 20/00683/OUT
Attachments: 5487 012 let CBC ep.pdf

Dear Emma,

Thank you for making the time to meet on site yesterday. I attach correspondence which responds to the letter from Bioscan on behalf of Charlton Kings Friends dated 29 July 2020. This is informed by two technical briefing notes which are attached to the correspondence, namely:

- Technical Briefing Note TN09 entitled 'Results of Botanical and NVC Survey'
- Technical Briefing Note TN10 entitled 'Biodiversity Impact Assessment Using Defra Biodiversity Metric 2.0 Calculation Tool'

I trust these are self-explanatory but should you have any queries please do not hesitate to contact me or my colleague Dan Walker (copied here).

This email is also copied to Garry Kennison (County Ecologist) as the content is relevant to him and will inform his further consultation ressponse on the site.

Regards

Alistair Baxter
Director
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Visit our website for the latest news from Aspect Ecology: ***July 2020*** *New draft British Standard for Biodiversity Net Gain – Aspect Ecology submits our response to the consultation.* For further details please click here.

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10 August 2020

Emma Pickernell
Senior Planning Officer
Planning Department
Cheltenham Borough Council
Municipal Offices
Promenade
Cheltenham
GL50 9SA

Sent By E-Mail Only

Dear Emma,

LAND OFF OAKHURST RISE, CHELTENHAM – RESPONSE TO CKF / BIOSCAN CORRESPONDENCE OF 29 JULY 2020

As you are aware, Aspect Ecology is advising the applicant in respect of ecological matters at the site. We have been passed correspondence from Bioscan on behalf of Charlton Kings Friends (CKF) dated 29 July 2020. The purpose of this correspondence is to provide a response to the points raised. We use the same headings as CKF for consistency.

Biodiversity loss

CFK put forward an assessment of the biodiversity outcome of the proposals by way of a metric, taking the form of the Defra 2.0 metric. I would highlight that this remains as a beta testing version and hence is incomplete and it will be updated before it is finalised. Accordingly, Aspect Ecology's assessment of the proposals has not relied upon this metric, but rather uses established standard qualitative methods to conclude that a net gain for biodiversity will arise. This conclusion is shared by the County Ecologist in his consultation response dated 01 June 2020 in which he sets out that *"In my view BNG would be achieved given [the] proposals and safeguards (including a S106 agreement)"*. It is also emphasised that the Defra 2.0 (beta) metric does not take into account faunal enhancement measures which are proposed, it being solely a habitat assessment tool.

In their correspondence, CKF undertake a run of the Defra metric which generates an output of a biodiversity unit loss of 31.9% and they comment that *"by this measure the revised scheme provides no greater protection of biodiversity on the site than the previous scheme"*. This conclusion appears inherently flawed as the current planning application is for a considerably revised and reduced scheme compared to that previously considered by the Inspector at the inquiry, with commensurate increases in green space now included. Accordingly, the ecological credentials of the current application are further improved over the appeal scheme.

To investigate this mis-match, Aspect Ecology has carried out our own assessment of the current proposal under the Defra 2.0 (beta) metric. In doing so we have identified that the metric put forward by CKF should be updated in a number of areas to more accurately reflect the current proposals. In particular:

Within the baseline

- A more accurate measuring of site area should be utilised;
- The existing pond has been omitted and should be included;

- Scattered scrub has been coded as 'other mixed woodland' 'moderate condition' whereas this should more accurately be assigned to 'scrub' in 'poor' condition.

Post development

- It is assumed that all habitats will be lost and re-created. In fact, the grassland will be retained and enhanced;
- The proposed pond has been omitted and should be included;
- The central hedgerow (H2) is ascribed to a 'poor' condition, at odds to the other hedgerow (H1), which is coded as 'good'. H2 should be coded as 'good' as management will be controlled by way of a conservation management plan.

When these adjusted parameters are inputted to the metric, a result of a biodiversity net gain (1.47%) is returned. The enclosed Technical Briefing Note TN10 entitled 'Biodiversity Impact Assessment Using Defra Biodiversity Metric 2.0 Calculation Tool' sets out the detail of this assessment. The beta testing version of the metric is recognised to substantially under value proposed woodland creation, and accordingly it is anticipated that a further increase in net gain would be reported under the final metric when this is released.

Accordingly, the proposals are fully in accordance with national policy in terms of the NPPF as well as local policy SD9 of the JCS.

Habitat Assessment

CFK set out that they have put the site forward to the Key Wildlife Site (KWS) selection panel for designation as a KWS, in respect of its grassland interest. It is understood that this is on the basis of additional species that have been recorded during a further visit to the site in 2020. However, no survey report has been made available from CKF to document such a visit, the methodology utilised or details of the data obtained. Nonetheless, to investigate this claim, Aspect Ecology has returned to site to carry out a structured survey to a recognised methodology. The results of this work are set out in the attached Technical Briefing Note TN09 entitled 'Results of Botanical and NVC Survey'. This survey finds the grassland to be herb poor in nature (typically comprising 5-10% of the sward) and dominated by grass species. It is comprises predominantly of the NVC community type MG1 which is a very common grassland type, while the sub-community present is noted to be a species poor example of its type. By contrast, grasslands of elevated conservation interest are typically herb rich with at least over 30%, and typically over 50% herb cover, in the sward. The grassland at the site falls substantially short of this. Our survey recorded only 12 KWS species as present, and while some early flowering species may have been missed, it is concluded that should other species be present in the sward, they are represented at such a low frequency that they cannot be readily re-recorded and accordingly contribute little to nothing to the conservation interest of the grassland. On this basis, we reject the assertion from CKF that *"the appellant's ecological consultants have once again failed to accurately represent the true ecological value of this site".*

Yours sincerely

Alistair Baxter
Director

cc. Gary Kennison (Principal Ecologist, Gloucestershire County Council)

Encl. Technical Briefing Note TN09 entitled ‘Results of Botanical and NVC Survey’
Technical Briefing Note TN10 entitled ‘Biodiversity Impact Assessment Using Defra Biodiversity Metric 2.0 Calculation Tool’

Botanical Survey 2020

Project: Oakhurst Rise, Cheltenham

Technical Briefing Note TN09: Results of Botanical and NVC Survey

Date: 05 August 2020

Background

1. Aspect Ecology Ltd has been appointed by William Morrison to carry out a botanical and vegetation classification survey of the site at Oakhurst Rise, Cheltenham. The site is proposed for residential development and associated landscape enhancements.

Method

NVC survey

2. The National Vegetation Classification (NVC) survey was carried out using the methodology outlined in the NVC Users' Handbook (Rodwell 2006) on 1st August 2020. Firstly, a familiarisation exercise was undertaken to identify areas of homogenous vegetation. This exercise identified that one plant community dominated the site, but two other somewhat distinct communities were present at much smaller extents. Therefore, each of these three communities was sampled using quadrats.

3. There is no definitive number of quadrats required in NVC survey, although it is customary to take five quadrats from each homogenous stand of vegetation (Rodwell 2006). As the dominant community covered a large area, ten quadrats were taken across the site, while five quadrats were taken from each of the two smaller-sized communities. Therefore, 20 quadrats were recorded in total. The quadrats were placed in areas considered to be representative of the community.

4. Each quadrat measured 2x2 m, which is the size 'almost always' used for the original NVC sampling of mesotrophic grassland (Rodwell 1992). Within each quadrat, the percentage cover of all plant species was recorded, with Domin scores of 1-3 used where cover was less than 4%. Bryophytes were included in the NVC survey, but none were noted in the quadrats. The height of the grassland sward was recorded along with a 10-figure grid reference using a GPS smartphone app, which gave an accuracy of 7 m. The NVC survey was undertaken by an ecologist with over ten years of botanical survey experience, including of grassland communities and NVC surveys throughout the UK (see Appendix 1).
5. The quadrat data was analysed and interpreted using a combination of experience and the keys and community descriptions in Rodwell (1992). The data was also analysed using the Modular Analysis of Vegetation Information System software (MAVIS version 1.04). MAVIS results were interpreted with caution and used only as an aid to identification[1]. The NVC quadrat data is presented at Appendix 2.

Botanical survey

6. In addition to the quadrat data, a transect was walked across the entire site comprising a series of parallel lines spaced 10 m apart, to record a representative list of field-layer vascular plant species within the site. The abundance of each species was estimated according to the DAFOR scale. Notes on the distribution of each species were made where appropriate, including for those species included in Table 5Hc of the Key Wildlife Site (KWS) selection criteria. Additional species recorded from a survey by Aspect Ecology in July 2019 were added to the list where appropriate. The species list is provided at Appendix 3.

[1] The limitations of NVC analysis software are described in the NVC Users' Handbook (Rodwell 2006), for example, "*they are no substitute for the experience of the ecologist and should never be used alone to provide identifications. Like written keys, they are simply a guide to negotiating a way around a complex classificatory landscape and to understanding variation that, in reality, is extremely complex*." (p.48)

Constraints

7. The species lists are not intended to be exhaustive but rather provide a representative list of the botanical composition of the grassland. Nevertheless, the survey covered the entire site in detail. The survey was undertaken towards the end of the optimal period of grassland botanical survey work, and as such species which appear early in the season may not have been visible. However, the species lists are bolstered by an additional survey undertaken in July 2019, which allowed recording of early species such as Pignut *Conopodium majus*.

Results and Interpretation

Overview

8. The majority of the site supported a tall, coarse grassland sward with little evidence of management in this growing season, aside of grazing by Roe Deer and a group of alpacas, which appear to be usually contained within an enclosure in the south of the site but given occasional access to the wider site. Grazing pressure was generally very low, although parts of the south of the site, near the alpaca enclosure, were more moderately grazed. The alpaca enclosure itself was noted to be very heavily grazed, with patches of bare ground throughout.
9. Three main areas of homogenous grassland vegetation were identified within the site:
    a. Area A: False Oat-grass *Arrhenatherum elatius* dominant vegetation, which comprises the vast majority of the site;
    b. Area B: Tor-grass *Brachypodium pinnatum* dominant vegetation, which forms small stands mainly in the north of the site;
    c. Area C: Yorkshire-fog *Holcus lanatus* dominant grassland, which occupies a small part of the western field.
10. In addition, small patches of Tufted Hair-grass *Deschampsia cespitosa* dominant vegetation were recorded, particularly in small hollows in the northern part of the western field, and along parts

of the southern site margin. This vegetation was insufficient in extent to record quadrats, but is likely to represent the MG9 NVC community.

11. Each of the three main vegetation types is described in the following sections, followed by a discussion of the KWS selection criteria.

False Oat-grass vegetation (Area A)

12. Area A occupies the vast majority of the site, and therefore ten quadrats were taken to investigate any variability in this vegetation type across the site. The area was characterised by a dominance of False Oat-grass, which was recorded in all ten quadrats with a frequency of 35% to 95%. Other constant species included Creeping Bent *Agrostis stolonifera* and Red Fescue *Festuca rubra*, which formed a mat of vegetation below the taller grasses, and were recorded in nine and eight of the ten quadrats respectively. Yorkshire-fog and Common Sorrel *Rumex acetosa* were recorded in all ten quadrats.
13. Forb species were notably infrequent in the quadrats, generally occupying 5% to 10% of the coverage. Aside of Common Sorrel, the only species which occurred frequently were Meadow Vetchling *Lathyrus pratensis* and Bird's-foot Trefoil *Lotus corniculatus*, recorded in six and two of the ten quadrats, respectively.
14. Based on surveyor experience and following the keys in Rodwell (1992), this area is considered to have the closest affinity to MG1a *Arrhenatherum elatius* grassland, *Festuca rubra* sub-community. This is a grass-dominated community characterised by abundant False Oat-grass over Red Fescue.
15. Analysis of the quadrat data using the MAVIS software identified MG9 *Holcus lanatus-Deschampsia cespitosa* as the best matching community for this area (Table 1). Based on experience, MG9 is often returned where Yorkshire-fog is constant, but in this case is not considered to closely match the vegetation on site due to the scarcity of Tufted Hair-grass, which is very characteristic of MG9. The next highest matching sub-communities were MG1c and MG1a. MG1c is a damper community characterised by constant Meadowsweet *FIlipendula ulmaria*,

which was not recorded during the survey. Nevertheless, a similar score was returned for MG1a. The average number of species per quadrat was 9 (Table 1 and Appendix 2), compared to the average of 12 for the described sub-community (Rodwell 1992).

Tor-grass vegetation (Area B)

16. Area B occupies several small stands across the site, mostly occupying patches of 25 to 100 m^2, although two slightly larger areas were noted around quadrats 1 and 7. This vegetation is similar in structure and community composition to Area A, except that Tor-grass replaces False Oat-grass as the dominant species. Tor-grass was recorded in all five quadrats, with a frequency of between 70% and 80%, while False Oat-grass dropped in frequency with a maximum coverage of 20%. As in Area A, Creeping Bent and Red Fescue occupied the ground layer below the taller grasses, and were recorded in all five quadrats. Sweet Vernal-grass *Anthoxanthum odoratum* and Yorkshire-fog were also recorded in all five quadrats. Forb species were similar to those recorded in Area A, including constant Common Sorrel with more occasional Meadow Vetchling and Bird's-foot Trefoil.

17. Due to the prevalence of Tor-grass, this area has some affinity to the CG4 *Brachypodium pinnatum* community, particularly the *Holcus lanatus* sub-community (CG4c), which is a more mesotrophic example of this calcareous community. However, the area lacks some characteristic species of the community such as Sheep's Fescue *Festuca ovina*, possibly due to its small size which limits opportunities for colonisation by more calcareous species. Instead, False Oat-grass remains prevalent, recorded in four of the five quadrats, while Red Fescue was constant. These two species are more characteristic of MG1a. Therefore, the area is considered to represent an intermediate between MG1a and CG4c. Intermediates are commonly encountered in NVC survey[2].

[2] '*stands of vegetation intermediate in composition and structure between two (or more) NVC plant communities are commonly encountered in the field*' (Rodwell 2006)

18. The MAVIS software provided unclear results for this area, with maritime cliff communities scoring highest, followed by MG9b and MG1e (Table 1), indicating the mesotrophic nature of the grassland. The species richness of quadrats averaged 9.6 (Table 1), compared to an average of 16 for CG4c (Rodwell 1992).

Yorkshire-fog vegetation (Area C)

19. Area C was recorded in one patch in the centre of the western field, and is characterised by a slightly shorter sward height with a reduced frequency of False Oat-grass compared to Area A. Yorkshire-fog was recorded as the dominant grass, with Sweet Vernal-grass and Creeping Bent also recorded in all five quadrats. The forb cover was somewhat higher in these quadrats, up to 15%, mostly attributable to Meadow Vetchling.

20. The area has some affinities with both the MG1a and MG9 communities. MG9 scored highly in the MAVIS analysis (Table 1), while the keys in Rodwell (1992) led to MG1a. Tufted Hair-grass, which is characteristic of MG9, was not recorded in any of the quadrats but was noted elsewhere. The MG4 *Alopecurus pratensis-Sanguisorba officinalis* community also scored highly, and although there are some affinities with this community, the area lacks the species richness and herbaceous cover typically associated with MG4, with an average of nine species per quadrat (Table 1). This area is therefore considered to represent an intermediate between MG1a and MG9.

Table 1. Summary of NVC survey results. NVC keys refer to Rodwell (1992). The MAVIS software output only includes grassland communities.

Area	Community considered to have closest affinity	Outcome of NVC keys	MAVIS output	Species richness (mean average and range)
A	MG1a	MG1a	MG9b: 56.6% MG9: 53.3% MG1c: 50.0% MG1a: 49.6% MG4c: 47.2%	9 (7-11)
B	MG1a / CG4c intermediate	MG1a or CG4c	MG9b: 44.3% MG1e: 43.5% MG12a: 41.2%	9.6 (8-13)

C	MG1a / MG9 intermediate	MG1a	MG9: 52.6% MG4c: 51.3% MG9b: 50.4% MG9a: 45.8% MG1c: 45.8%	9 (7-11)

Conclusion

21. The majority of the site (Area A) is considered to have the closest affinity to MG1a, which is a grass-dominant, species-poor community typical of fields subject to infrequent management. Small areas of the grassland (Area B) are considered to represent an intermediate between MG1a and CG4c, based on the localised dominance of Tor-grass, but lack many of the calcareous species typically associated with CG4. A small part of the western field (Area C) is considered to represent a transition between MG1 and MG9, with a somewhat greater forb cover, but remains species-poor. In all cases, the sward is seen to be grass dominated (mostly 90 – 95% with a low herb cover 5 – 10%) while the average number of species recorded per quadrat is lower than the averages for the described NVC communities, suggesting that the areas are relatively poor examples of the communities.

References

Rodwell JS (ed.) (1992) *British Plant Communities Volume 3: Grasslands and Montane Communities.* Cambridge University Press, Cambridge.

Rodwell JS (2006) *National Vegetation Classification: Users' Handbook.* Joint Nature Conservation Committee, Peterborough.

Plan 5487/NVC:

NVC communities and quadrat distribution

Key:

- Site Boundary
- Area A (False Oat-grass dominant: MG1a)
- Area B (Tor grass dominant: intermediate between MG1a and CG4c)
- Area C (Yorkshire-fog dominant: intermediate between MG1a and MG9)
- Alpaca enclosure
- (1) Quadrat location

0 10 20 30 40 m

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Oakhurst Rise, Cheltanham	PROJECT
NVC communities and quadrat distribution	TITLE
5487/NVC	DRAWING NO.
-	REV
July 2020	DATE

Appendix 5487/1:

CV of botanist: Tom Staton

Tom Staton

Principal Ecologist

Personal Profile

Tom is an Ecologist with over 12 years of experience and a MSc in Biological Recording, with an expert knowledge of the UK's habitats, flora and fauna. He has extensive experience in carrying out ecological survey work, designing and leading surveys, report writing, designing and delivering mitigation, project management, staff management and liaison with clients and stakeholders on a wide variety of projects. Tom holds Natural England licenses for bats, Dormouse, Great Crested Newt and Smooth Snake. Tom specialises in botanical survey and assessment and has excellent plant identification skills and an expert knowledge of UK habitat classification and assessment, including use of the National Vegetation Classification (NVC) survey.

Key Skills and Expertise

- Specialist in carrying out botanical survey work in all UK habitats, with particular expertise in grassland, woodland, and Open Mosaic Habitats on previously developed land.
- Extensive experience of carrying more detailed and specialist botanical survey and habitat classification, such as NVC surveys.
- Excellent plant identification skills and essential associated knowledge, such as indicator species for specific soil types, management regimes and Priority Habitats.
- Regularly analyses survey data to assess and classify habitat types (e.g. by use of MAVIS) in order to produce high quality survey reports and detailed Management Plans across a range of habitats including grassland.

Professional Memberships

- Full Member of the Chartered Institute for Ecology and Environmental Management (MCIEEM)

Qualifications / Accreditations

- PhD in Agro-ecology (in progress), Reading University
- MSc Biological Recording (Distinction)
- BSc (Hons) Biology with placement (First Class)
- CS38 – Tree Climbing and Aerial Rescue

Years of Technical Experience

12 years

Project Profiles

- **Echoraise Quarry, Kent**: Carried out NVC surveys of woodland and grassland in order to classify the habitat types present within a former quarry in order to inform a plan for its restoration following additional sand and gravel extraction works. Produced a survey report, 5 year Restoration Plan appropriate to the habitats identified, and a 20 year Management Plan.
- **Thames Enterprise Park, Thurrock**: Carried out detailed surveys of areas of Open Mosaic Habitat in order to determine areas of greater and lesser value habitat. Designed a bespoke mitigation package to ensure an overall net gain in OMH across the 200ha development site.

- **Holland Road, Hurst Green**: Carried out NVC surveys of a series of grassland fields in order to classify the grassland community types present and determine their ecological value in order to inform a potential allocation of the site in the Local Plan.
- **Sheffield Motorway Service Area**: Carried out NVC surveys of woodland and grassland to inform the layout for a proposed new motorway service area.
- **Snod Coppice, nr Shrewsbury:** Undertook detailed survey work and prepared an ES chapter for proposed poultry sheds affecting ancient woodland. Tom led a detailed survey of the woodland, including the mapping of ancient woodland plant indicator species (1a), to inform the scheme design in consultation with the design team.
- **Thames Oilport, Thurrock:** Carried out botanical surveys of grassland, and classified and evaluated different areas of OMH in order to inform proposals to bring a disused diesel tank bund back into use. That habitats were located at a coastal location and adjacent to a SSSI and SAC and so a survey for notable/rare species was also carried out.
- **The Grove Hotel, Chandlers Cross:** Carried out a botanical survey of the ground flora of an ancient woodland to inform an assessment of feasibility to install glamping units within the woodland. The survey involved identifying and mapping ancient woodland vascular plants (as defined in the list published for the south of England) to allow any variation in the ecological quality of the woodland to be mapped to a high level of precision, to inform design constraints.
- **Little Preston, Aylesford:** Carried out a botanical survey of the ground flora of a woodland mapped as ancient adjacent to a quarry to inform an assessment of feasibility of development. The survey involved identifying and mapping ancient woodland indicator species, which, coupled with an assessment of the tree canopy was used to determine whether the mapped woodland was indeed ancient.

Appendix 5487/2:

NVC quadrat data

Appendix 2. NVC quadrat data. Numbers for each species refer to percentage cover (which can exceed 100% due to vegetation layering). Community reference letters refer to the descriptions in the text and are colour-coded.

Quadrats		**Q1**	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Q9**	**Q10**	**Q11**	**Q12**	**Q13**	**Q14**	**Q15**	**Q16**	**Q17**	**Q18**	**Q19**	**Q20**
Community reference		B	A	A	A	A	A	B	A	A	B	A	B	A	B	A	C	C	C	C	C
OS grid reference		SO96604 21578	SO96552 21590	SO96448 21656	SO96412 21567	SO96462 21556	SO96483 21607	SO96493 21632	SO96525 21680	SO96545 21643	SO96577 21637	SO96601 21632	SO96609 21603	SO96576 21559	SO96547 21605	SO96413 21609	SO96430 21621	SO96425 21618	SO96422 21604	SO96430 21595	SO96426 21596
Maximum sward height (cm)		70	80	80	70	80	80	70	80	80	70	90	80	90	70	80	60	60	70	60	60
Grass % cover		90	90	95	95	95	95	90	95	95	90	95	80	95	90	95	90	85	90	85	90
Forb % cover		10	10	5	5	5	5	10	5	5	10	5	20	5	10	5	10	15	10	15	10
Species	**Vernacular**																				
Agrostis stolonifera	Creeping Bent	10	25	30	40	40	40	15	30	40	15		10	10	25	10	30	30	30	20	10
Alopecurus pratensis	Meadow Foxtail		5	5			20					5		1		2			1		
Anthoxanthum odoratum	Sweet Vernal-grass	5	10	10	5	20	30	20	15	5	5		10		5		30	10	10	20	10
Arrhenatherum elatius	False Oat-grass	20	80	70	50	40	35	10	50	80	20	90	10	95		60			10	5	
Brachypodium pinnatum	Tor-grass	70	5					85			80		80	5	80						
Dactylis glomerata	Cock's-foot		5	1					1			5	5			2		1			1
Festuca rubra	Red Fescue	5		20		20	15	10	20	20	5	30	20	20	10	20	10	10	10		
Galium verum	Lady's Bedstraw		5										20								
Geranium dissectum	Cut-leaved Cranesbill																				1
Helictotrichon pratense	Meadow Oat-grass					1															
Heracleum sphondylium	Hogweed					1					1	1	1	1	2				2		1
Holcus lanatus	Yorkshire-fog	10	5	30	40	30	20	10	40	20	5	15	5	5	10	40	60	70	80	70	70
Lathyrus pratensis	Meadow Vetchling	10	5	5	5	1	2				1	1	1			1	15	20	10	2	10
Lolium perenne	Perennial Rye-grass																1			5	1
Lotus corniculatus	Bird's-foot Trefoil				15	2		10			5		5		10					15	
Lotus pedunculatus	Greater Bird's-foot Trefoil						5														
Phleum pratense	Timothy																				5
Plantago lanceolata	Ribwort Plantain		1						1				1	1							
Potentilla cf. x *mixta*	Hybrid Cinquefoil																		1		
Quercus robur	Pedunculate Oak (seedling)									1											
Ranunculus acris	Meadow Buttercup				5				1							1	1		1		
Rumex acetosa	Common Sorrel	2	15	2	2	5	2	5	2	5	5	5	2	5	2	2		1	1	1	1
Rumex conglomeratus	Clustered Dock																				1
Veronica chamaedrys	Germander Speedwell							1													
Vicia sepium	Bush Vetch								2											5	
Total number of species		**8**	**11**	**9**	**8**	**10**	**9**	**9**	**10**	**7**	**10**	**8**	**13**	**9**	**8**	**9**	**7**	**7**	**11**	**9**	**11**

Appendix 5487/3:

Grassland species list

Appendix 3. List of field layer plant species recorded within the site. Species included in Table H5c of the Key Wildlife Site selection criteria are marked in bold. Abundance values refer to the DAFOR scale, where D = dominant, A = abundant, F = frequent, O = occasional, R = rare, and a preceding 'L' refers to localised abundance.

Species	Vernacular	Abundance	Comments
Grasses, sedges and rushes			
Agrostis stolonifera	Creeping Bent	A	
Alopecurus pratensis	Meadow Foxtail	O	
Anthoxanthum odoratum	Sweet Vernal-grass	F	
Arrhenatherum elatius	False Oat-grass	D	
Brachypodium pinnatum	Tor-grass	LA	
Brachypodium sylvaticum	Wood False-brome	O	Recorded under tree cover
Bromus erectus	Upright Brome	R	
Calamagrostis epigejos	Wood Small-Reed	R	
Carex pendula	Pendulous Sedge	R	Single specimen noted adjacent to garden along the northern boundary, possible garden escape
Dactylis glomerata	Cock's-foot	O	
Deschampsia cespitosa	Tufted Hair-grass	O	
Festuca arundinacea	Tall Fescue	O	Only recorded in 2019
Festuca rubra	Red Fescue	F	
Helictotrichon pratense	**Meadow Oat-grass**	**R**	**Recorded in quadrat 5 at SO96462 21556, but could be under-recorded**
Holcus lanatus	Yorkshire-fog	F-A	
Hordeum secalinum	Meadow Barley	R	
Juncus conglomeratus	Compact Rush	R	
Lolium perenne	Perennial Rye-grass	O	
Luzula campestris	**Field Woodrush**	**R**	**Single specimen noted at SO96460 21550, could be more frequent earlier in the season**
Phleum pratense	Timothy	O	
Poa annua	Annual Meadow-grass	O	Only recorded in 2019
Poa pratensis	Smooth Meadow-grass	O	
Poa trivialis	Rough Meadow-grass	O	
Broadleaved herbs and other species			
Alliaria petiolata	Garlic Mustard	O	Recorded under or near tree cover
Arum maculatum	Lords-and-Ladies	R	
Bellis perennis	Daisy	O	Only recorded in 2019
Centaurea nigra	**Common Knapweed**	**R-O**	**Several small patches recorded near the in-field Oak tree in the eastern part of the site**
Circaea lutetiana	Enchanter's Nightshade	R	Only recorded under trees in the south-east corner of the site
Cirsium arvense	Creeping Thistle	O-LA	
Cirsium vulgare	Spear Thistle	R	
Conopodium majus	**Pignut**	**F**	**Only recorded in 2019 (spring species)**
Dryopteris filix-mas	Male Fern	R	Under an Oak along the northern boundary
Epilobium hirsutum	Great Willowherb	R	Single specimen noted adjacent to garden
Epilobium parviflorum	Hoary Willowherb	R	Under the in-field Oak in the eastern part of the site
Euphorbia peplus	Petty Spurge	R	Recorded on disturbed ground in proximity to the tree belt
Galium aparine	Cleavers	R	Mainly recorded at field margins
Galium verum	**Lady's Bedstraw**	**O-LF**	**Mainly to the north and east of the in-field Oak tree, in the eastern part of the site**
Geranium dissectum	Cut-leaved Cranesbill	O	
Geranium molle	Dove's-foot Cranesbill	R	
Geranium robertianum	Herb-Robert	R	Recorded under or near tree cover

Geum urbanum	Wood Avens	O	Mainly under tree cover
Glechoma hederacea	Ground-ivy	R	Recorded under or near tree cover
Hedera helix	Ivy	LF	Recorded under or near tree cover
Heracleum sphondylium	Hogweed	O	
Hieracium agg.	Hawkweed	R	Recorded near the tree belt
Hypochaeris radicata	**Common Cat's-ear**	**O**	**Recorded in the northern part of the site, near field edges**
Iris foetidissima	Stinking Iris	R	Single specimen noted under trees in the south-east corner of the site
Lapsana communis	Nipplewort	R	
Lathyrus pratensis	**Meadow Vetchling**	**F**	**Almost ubiquitous across the site, but mostly at low frequency in the sward**
Leucanthemum vulgare	**Oxeye Daisy**	**R**	**Only recorded in 2019**
Linaria purpurea	Purple Toadflax	R	One specimen recorded along eastern margin
Lotus corniculatus	**Bird's-foot Trefoil**	**O-F**	**Recorded sporadically throughout the site**
Lotus pedunculatus	**Greater Bird's-foot Trefoil**	**O**	**Recorded in damper areas at SO96490 21611, SO96566 21540, and along eastern part of the southern site margin. Notably less frequent than *Lotus corniculatus* .**
Malva moschata	Musk-mallow	R	Single specimen noted in proximity to the eastern boundary
Medicago lupulina	Black Medick	R	
Papaver somniferum	Opium Poppy	R	In the tree belt, towards the southern boundary
Plantago lanceolata	Ribwort Plantain	O	
Polygonum aviculare	Common Knotgrass	R	
Potentilla cf. x *mixta*	Hybrid Cinquefoil	O	Provisional identification based on vegetative characteristics. Mixture of 3 and 5 leaflets.
Quercus robur	Pedunculate Oak (seedling)	R	
Ranunculus acris	Meadow Buttercup	O	
Ranunculus bulbosus	**Bulbous Buttercup**	**R**	**Single specimen noted at SO96485 21601. Could be under-recorded to some extent, but much less frequent than other *Ranunculus* species recorded.**
Ranunculus repens	Creeping Buttercup	O	
Rubus fruticosus agg.	Bramble	LF	Around tree cover with minor encroachment into the fields
Rumex acetosa	Common Sorrel	F	
Rumex conglomeratus	Clustered Dock	O	
Rumex obtusifolius	Broadleaved Dock	R	
Sonchus asper	Prickly Sow-thistle	R	One specimen recorded along eastern margin
Stachys sylvatica	Hedge Woundwort	R	Recorded near tree cover
Tanacetum parthenium	Feverfew	R	In the tree belt, towards the southern boundary
Taraxacum agg.	Dandelion	R	
Tragopogon pratensis	**Goat's-beard**	**R**	**Recorded in two locations: SO96621 21610 and SO96574 21571**
Trifolium pratense	Red Clover	R	
Trifolium repens	White Clover	R	
Urtica dioica	Common Nettle	O	Mainly recorded at field margins
Veronica chamaedrys	Germander Speedwell	R	
Vicia hirsuta	Hairy Tare	R	Only recorded in 2019
Vicia sativa	Common Vetch	O	Only recorded in 2019
Vicia sepium	Bush Vetch	O	
Vicia tetrasperma	Smooth Tare	R	Only recorded in 2019

Biodiversity Metric

Project: Land Adjacent to Oakhurst Rise, Cheltenham

Technical Briefing Note TN10: Biodiversity Impact Assessment Using Defra Biodiversity Metric 2.0 Calculation Tool

Date: 07 August 2020

1. Introduction

1.1. Aspect Ecology has been appointed by William Morrison (Cheltenham) Ltd. to advise on ecological matters relating to the site at Land Adjacent to Oakhurst Rise, Cheltenham. A planning application was submitted to Cheltenham Borough Council in August 2017 for erection of 90 dwellings (ref: 17/00710/OUT), which was refused in July 2018. Following this a fresh application was prepared based on revised proposals to provide up to 69 residential units, this application was also refused in March 2019. A new planning application is now due to be submitted for a total of 43 residential units and associated access and landscaping, with development focused in the north and west of the site.

1.2. The site was first surveyed by a third-party consultancy in 2016, following which Aspect Ecology has undertaken survey work at the site comprising a botanical survey of the grassland in July 2019, an overview survey of the site in April 2020 and a National Vegetation Classification (NVC) survey in August 2020. A number of faunal surveys have also been undertaken. The findings of the survey work undertaken to date are detailed in the report 'Land off Oakhurst Rise, Charlton Kings. Ecological Appraisal' dated May 2020 and the Technical Note 'Technical Briefing Note TN09: Results of Botanical and NVC survey' dated August 2020. The information obtained from the 2020 Ecological Appraisal and latest site visits and proposals has been inputted into the Defra Biodiversity Metric 2.0 Calculation Tool (Beta test version). This enables the change in 'Biodiversity Units' for habitats both pre and post-development to be measured and provides indicative values and percentage of loss / gain of 'Total Biodiversity Units' to quantify the ecological impact of the proposed development.

1.3. There is currently no standard approach to biodiversity metrics across the UK, with only some local authorities requiring demonstrable net gain through the use of metrics, and a variety of different metric systems being used. It is understood that Cheltenham Borough Council and Gloucestershire County Council do not currently have a metric system in place. It is considered that the most appropriate metric to use for the site is the Defra Biodiversity Metric 2.0 Calculation Tool. The Defra 2.0 tool is referenced in the Environment Bill and sets the new standard for metrics, employing a more sophisticated approach than other local metrics to date (e.g Warwickshire), with many more parameters included. Defra 2.0 includes a larger range of habitat types; more guidance on difficulty and time to target condition for each habitat type; is prepopulated with distinctiveness, time to target condition and difficulty scores; includes new distinctiveness scores (0-8) to include very high and very low; includes new condition scores (0,1,1.5,2,2.5,3); includes two new elements 'Connectivity' and 'Strategic Significance'; includes

'accelerated succession'; includes off-site habitat options and takes account of proximity to the impact site.

1.4. This technical briefing note provides a summary of the results of the Defra Biodiversity Metric 2.0 Calculation Tool and justifies the choice of habitat definitions, distinctiveness, target habitat condition and ecological connectivity where appropriate.

2. Biodiversity Impact Assessment

2.1. This section references and discusses the habitat categories and their condition assigned from the drop down menus of the Biodiversity Impact Assessment Calculator (see Appendix 5487/1 attached).

Existing Site Habitats (Pre-development)

2.2. The existing habitats within the application site as recorded during the most recent habitat surveys as shown on Plan 5487/BIA1 attached. The below sets out the habitat categories used in the impact calculator, their condition in line with assessment criteria set out within Technical Supplement Document[1] and survey results, distinctiveness and connectivity and how these relate to Plan 5487/BIA1.

Site Habitat Baseline

2.3. **'Grassland – Other neutral grassland' – Condition 'Moderate'.** This habitat is mapped as Semi-improved Grassland on Plan 5487/BIA1. The most recent survey work undertaken assessed the grassland to be of site level value being dominated by grass species including False Oat-grass *Arrhenatherum elatius* and Yorkshire-fog *Holcus lanatus* with a low diversity of common and widespread species (albeit occasional indicators of lowland meadow habitat were infrequently recorded including Meadow Vetchling *Lathyrus pratensis*, Lady's Bedstraw *Galium verum* and Bird's-foot Trefoil *Lotus corniculatus*). An area had also recently been heavily grazed by Alpaca and goats. The most recent survey work undertaken by Aspect Ecology recorded 12 Key Wildlife Site (KWS) species between 2019 to 2020. Giving consideration to all of the information available and in accordance with assessment criteria set out within technical guidance[1], it is considered that the grassland is currently in a moderate condition.

2.4. The habitat type is auto-generated a 'medium' distinctiveness score within the Defra 2.0 metric, according the guidance set out within the Technical Supplement Document[1], a low connectivity score is therefore appropriate. The habitat is not considered to fall within local strategy such that it is of low strategic significance.

2.5. **'Heathland and shrub – Mixed scrub' – Condition 'Poor'.** This habitat is mapped as dense scrub and scattered scrub on Plan 5487/BIA1. Several areas of dense and scattered scrub dominated by Bramble *Rubus fruticosus*, Blackthorn *Prunus spinosa* and Wild Plum *Prunus domestica* where recorded to have encroached out from boundary hedgerows. The scrub supports a low species diversity is relatively small in extent such that it is not considered to represent an important ecological feature and the condition of the habitat, in line with the assessment criteria set out within the Technical Supplement Document is considered to be poor.

2.6. The habitat type is auto-generated a 'medium' distinctiveness score within the Defra 2.0 metric, according the guidance set out within the Technical Supplement Document, a low connectivity

[1] Natural England July 2019 '*The Biodiversity Metric 2.0 auditing and accounting for biodiversity. Technical Supplement Beta Edition*'

score is therefore appropriate. The habitat is not considered to fall within local strategy such that it is of low strategic significance.

2.7. **Woodland and Forest – Other woodland; Broadleaved – Condition 'Moderate'.** This habitat is mapped as hedgerows H1 and H2 on Plan 5487/BIA1. Both 'hedgerows' were recorded to be mature in nature, up to 8-10m high and wide in nature, with hedgerow H1 recorded to be 5-12m wide with a number of standard trees. As such, the categorisation of these hedgerows as 'Other woodland; Broadleaved' is considered appropriate given their maturity and coverage. Both hedgerow H1 and H2 are considered to qualify as Priority Habitat whilst hedgerow H1 is also considered to be species-rich and likely to qualify as 'Important' under the Hedgerow Regulations 1997. However, the habitats are not currently actively managed and there is a lack of species diversity recorded within hedgerow H2 such that in line with the assessment criteria within the Technical Supplement Document a 'Moderate' condition is considered appropriate.

2.8. The habitat type is auto-generated a 'medium' distinctiveness score within the Defra 2.0 metric, according the guidance set out within the 'Technical Supplement Document, a low connectivity score is therefore appropriate. Hedgerows H1 and H2 are considered to qualify as Priority Habitat and the local BAP, as such these habitats are considered to be within an area formally identified in local strategy such that they are of high strategic significance.

2.9. **Lakes – Ponds (Non- Priority Habitat) – Condition 'Poor'.** This habitat is mapped as ephemeral pond on Plan 5487/BIA1. The pond recorded on site is considered to be ephemeral and likely to be dry for periods of the year. No aquatic vegetation has been recorded within the pond with species from the adjacent grassland present instead. As such and in line with the assessment criteria within the Technical Supplement Document, the pond is considered to be no more than poor condition.

2.10. The habitat type is auto-generated a 'high' distinctiveness score within the Defra 2.0 metric, according the guidance set out within the 'Technical Supplement Document, a medium connectivity score is therefore appropriate. The habitat is considered to be within an area formally identified in local strategy such that it is of high strategic significance.

Site Hedge Baseline

2.11. **'Native Hedgerow' – Condition 'Poor'.** This habitat is mapped as hedgerows H3-H6 on Plan 5487/BIA1. The 'Native Hedgerow' habitat category has been used as a proxy input in place of 'Hedge Ornamental Non-native' which is considered to be a more accurate habitat category for the hedgerows in question. However due to an error in the Defra 2.0 metric (beta) the use of the ornamental non-native hedgerow category results in a 'check data' error message on the results tab.

2.12. The hedgerows are relatively short sections, largely comprised of ornamental species associated with the adjacent off-site residential properties with the dominant species comprising Cherry Laurel *Prunus laurocerasus,* Leyland Cypress *Cupressus x leylandii* and Holly *Ilex aquifolium.* Given the short length, species-poor nature and dominance by ornamental species the condition of such hedgerows is considered to be poor.

2.13. The habitat type is auto-generated a 'low' distinctiveness score within the Defra 2.0 metric, according the guidance set out within the 'Technical Supplement Document, a low connectivity score is therefore appropriate. The habitat is not considered to fall within local strategy such that it is of low strategic significance.

Habitat Creation (Post-development)

2.14. The proposed newly created habitats within the application site have been measured and inputted to the impact calculator. Proposed habitats are shown on Plan 5487/BIA2 and described further below.

Site Habitat Creation

2.15. **'Heathland and shrub – Mixed scrub' – Condition 'Good'.** This habitat represents proposed boundary planting as shown on Plan 5487/BIA2. This habitat will expand, enhance and reinforce existing, retained hedgerows with the use of species including Holly and Butcher's-broom *Rucus aculeatus* alongside further native shrubs. These mixes have been chosen for their benefit to biodiversity and will be managed appropriately going forward such that it is considered within seven years (as pre-determined by the Defra metric) the habitat can reach a 'good' condition.

2.16. The habitat type is auto-generated a 'medium' distinctiveness score within the Defra 2.0 metric, and according the guidance set out within the Technical Supplement Document, a low connectivity score is therefore appropriate. The habitat is not considered to fall within local strategy such that it is of low strategic significance.

2.17. **'Urban - Woodland – Condition 'Good'.** This habitat represents proposed woodland belt as shown on Plan 5487/BIA2. The new woodland belt will form the eastern edge of the proposed development and will connect to existing tree cover and hedgerows to the north and west. A range of native species are proposed including Field Maple *Acer campestre,* Downy Birch *Betula pubescens*, Hornbeam *Carpinus betulus,* Hazel *Corylus avellana*, Hawthorn *Crataegus monogyna,* Spindle *Euonymus europaeus,* Holly, Pedunculate Oak *Quercus robur* and Wild Cherry *Prunus avium.* The woodland will be subject to appropriate management going forward such that is considered a 'good' condition can be achieved in the future.

2.18. The habitat type is auto-generated a 'medium' distinctiveness score within the Defra 2.0 metric, according the guidance set out within the Technical Supplement Document, a low connectivity score is therefore appropriate. The wooded belt is considered likely to qualify as Priority Habitat and the local BAP once established, as such this habitat is considered to be within an area formally identified in local strategy such that they are of high strategic significance.

2.19. **'Urban – Suburban/ mosaic of developed/ natural surface' – Condition 'Good'.** This habitat represents proposed gardens, proposed grass forming road verges within the developed area, landscape planting and proposed buildings and hardstanding as shown on Plan 5487/BIA2. Landscaped areas will be subject to ongoing maintenance and aftercare. Although not specifically designed for the benefit of wildlife, the grassland and landscape planting within public areas will be managed such that it is maintained in a 'good' condition going forward and will likely contain some herb species which could offer a nectar source for invertebrates, whilst amenity gardens are also considered likely to offer similar opportunities.

2.20. The habitat type is auto-generated a 'low' distinctiveness score within the Defra 2.0 metric, according the guidance set out within the Technical Supplement Document, a low connectivity score is therefore appropriate. The habitat is not considered to fall within local strategy such that it is of low strategic significance.

2.21. **'Lakes – Ponds (Non-Priority Habitat)' – Condition 'Good'.** This habitat represents the proposed pond as shown on Plan 5487/BIA2. The pond will be designed in line with ecological principles whilst also helping attenuate surface water run-off. The pond will have two deepened pools

connected by an aquatic bench to provide two constant areas of permanent water for aquatic species. The sides of the pond will have varied gradients between 1 in 3 and 1 in 10, with the more shallow bans providing a wider draw down zone which can support higher floristic diversity. It is therefore considered that the pond will achieve a good condition within five years (as determined by the Defra metric).

2.22. The habitat type is auto-generated a 'high' distinctiveness score within the Defra 2.0 metric, according the guidance set out within the Technical Supplement Document, a medium connectivity score is therefore appropriate. The habitat is considered to fall within local strategy such that it is of high strategic significance.

Site Hedge Creation

2.23. **'Native Hedgerow' – Condition 'Moderate'.** This habitat represents new native hedgerow planting which will comprise species including Box *Buxus sempervirens*, Hornbeam, Silver Birch *Fagus sylvatica* and Privet *Ligustrum sp.* and will be managed sensitively going forward such that it is considered within 5 years (as pre-determined by the Defra metric) the habitat can reach a 'moderate' condition.

2.24. The habitat type is auto-generated a 'low' distinctiveness score within the Defra 2.0 metric, according the guidance set out within the Technical Supplement Document, a low connectivity score is therefore appropriate. The habitat is not considered to fall within local strategy such that it is of low strategic significance.

Habitat Enhancement (Post-development)

2.25. The habitats to be retained and enhanced within the application site have been measured and inputted to the impact calculator. Proposed enhanced habitats are shown on Plan 5487/BIA2 and described further below.

Site Habitat Enhancement

2.26. **'Grassland – Other neutral grassland' – Condition Change 'Moderate - Good'.** This habitat represents proposed wildflower grassland at Plan 5487/BIA2. It is proposed that areas of the existing semi-improved grassland will be retained and enhanced through introduction of additional wildflower species and bringing the area into sensitive ongoing management practices. Consideration will be given to laying of wildflower turfs in areas where the ground is disturbed whilst over-seeding with locally appropriate native species will be used where an existing grassland sward is established. It is calculated that a good condition can be achieved within 15 years.

2.27. **Woodland and forest – Other woodland; broadleaved' – Condition Change 'Moderate – Fairly Good'.** This habitat represents the existing hedge (hedgerows H1 and H2) as shown at Plan 5487/BIA2. These hedgerows are largely due to be retained and will be enhanced with a native Hawthorn hedgerow restoration mix to restore and establish a dense and robust edge to this feature. Where necessary undesirable vegetation such as Sycamore may be removed to encourage new growth of native species. Selective replacement of young Ash *Fraxinus excelsior* may also be undertaken[2].

[2] Ash die back to be considered such that other native species may be selected

Habitat Biodiversity Impact Calculator Assessment Score Results: *Quantitative net gain*

2.28. With the condition of the existing habitats currently present within the site and with the habitats to be created or enhanced as part of the proposals (as justified above) inputted into the impact calculator, the Habitat Biodiversity Impact Score for the proposals is a **net gain of 0.48 units** which equates to a **1.47% net gain**. The Hedgerow Biodiversity Impact Score for the proposals is a **net gain of 1.34 units** which equates to a **396.78% net gain**. This has been demonstrated through the Defra Biodiversity Metric 2.0 Calculation Tool as shown at Appendix 5487/1, which demonstrates the deliverable net gain at the site.

2.29. The beta testing version of the metric is recognised to substantially under value proposed woodland creation, and accordingly it is anticipated that a further increase in net gain would be reported under the final metric when this is released.

Qualitative – Tangible

2.30. Outside of the constraints of the Biodiversity Impact Calculator, which only takes into account habitat losses and gains, a number of other tangible biodiversity gains can be realised within the site, including the following:

- The risk of inappropriate management of the grassland through herbicide, fertilizer, re-seeding or inappropriate management will be removed;
- Introduction of more diverse habitat types, for example by planting a range of native tree and shrub species, increasing the extent of woodland habitat and enhancing wildflower grassland, all of which will increase the species diversity of the site;
- Installation of faunal enhancements targeted to specific species groups such as bat boxes, bird boxes, and buried log piles;
- Creation of a dedicated organic material composting area in the vicinity of the new pond will provide an area suitable for Grass Snake egg laying;
- The pond will hold water providing constant habitat for aquatic species and incorporate shallow drawn down zones, which are areas of high biodiversity potential due to seasonal changes in water level;
- Conservation management of the grassland and other habitats will be secured alongside funding for the life of the development.

2.31. Further enhancements are set out at section 6 and on plan 5487/ECO4 of Aspect Ecology's Ecological Appraisal report May 2020.

Qualitative – Non-Tangible

2.32. Ecosystems, and the biodiversity they contain, provide benefits for people. These are called ecosystems services and broadly comprise:

- Provisioning services e.g. food and water;
- Regulating services e.g. soil formation, climate control, flood regulation and pollination;
- Supporting services e.g. nutrient cycles and oxygen production; and
- Cultural services e.g. recreation, education, intrinsic and aesthetic value.

2.33. The proposals would contribute to regulating and supporting cultural services.

Conclusions

2.34. It has been demonstrated that the landscape proposals result in a net gain of biodiversity units in terms of habitats (1.47%). It has also been demonstrated that a large (396.78%) net gain in hedgerow habitat is achievable and it is additionally highlighted that a number of tangible and non-tangible gains are also achievable. Accordingly, these enhancements under the proposals will deliver an increase in biodiversity over the current conditions on site. The development therefore demonstrates compliance with the NPPF to conserve and enhance biodiversity.

Plan 5487/Plan BIA1:

Existing habitats

Key:

Existing

- Site Boundary
- Hedgerow Linear - 169m
- Semi-improved grassland - 3.38ha
- Scrub - 0.17ha
- Pond - 30m2
- Hedgerow H1 - 0.34ha
- Hedgerow H2 - 0.16ha
- Scattered Scrub - 0.06ha

0 10 20 30 40 m

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Oakhurst Rise, Cheltenham	PROJECT
Existing habitats	TITLE
5487/BIA1	DRAWING NO.
-	REV
July 2020	DATE

Plan 5487/BIA2:

Post development habitats

Key:

- Site Boundary

Proposed

- Development - 1.27ha
- Wildflower Grassland - 1.91ha
- Existing Hedge - 0.34 ha
- Woodland Belt - 0.41
- Boundary Planting - 0.06ha
- Retained Scrub 0.09ha
- Pond - 97m2

0 10 20 30 40 m

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Oakhurst Rise, Cheltanham	PROJECT
Post development habitats	TITLE
5487/BIA2	DRAWING NO.
-	REV
July 2020	DATE

Appendix 5487/1:

Defra 2.0 metric output

Oakhurst Rise
Headline Results

Return to results menu

On-site baseline	*Habitat units*	32.67
	Hedgerow units	0.34
	River units	0.00
On-site post-intervention (Including habitat retention, creation, enhancement & succession)	*Habitat units*	33.15
	Hedgerow units	1.68
	River units	0.00
Off-site baseline	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Off-site post-intervention (Including habitat retention, creation, enhancement & succession)	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Total net unit change (including all on-site & off-site habitat retention/creation)	*Habitat units*	0.48
	Hedgerow units	1.34
	River units	0.00
Total net % change (including all on-site & off-site habitat creation + retained habitats)	*Habitat units*	1.47%
	Hedgerow units	396.78%
	River units	0.00%

Oakhurst Rise
Detailed Results

Return to results menu

Summary Figures

Net project biodiversity units (including all on-site & off-site habitat retention/creation)		
	Habitat units	0.48
	Hedgerow units	1.34
	River units	0.00

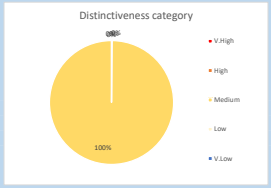
Total project biodiversity % change (including all On-site & Off-site Habitat Creation + Retained Habitats)		
	Habitat units	1.47%
	Hedgerow units	396.78%
	River units	0.00%

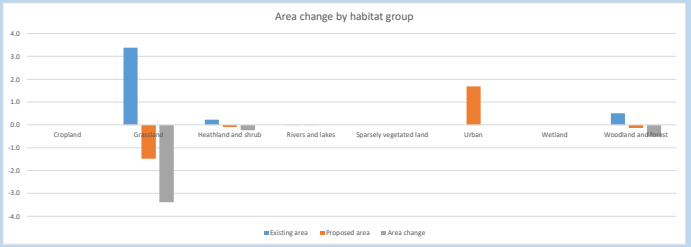
On-site habitat retention and enhancement

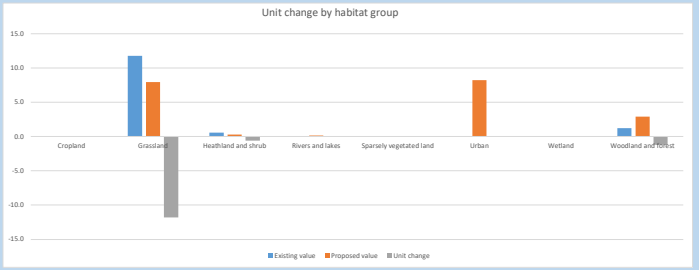
	Habitats	Hedgerows	Rivers
Total site area / length	4.12	0.17	0.00
Total site units	32.67	0.34	0.00
Area / length retained	0.09	0.07	0.00
Units Retained	0.35	0.14	0.00
Area / length enhanced	2.28	0.00	0.00
Baseline units enhanced	18.71	0.00	0.00
Area / length succession	0.00		
Units succession	0.00		
Area / length lost	1.75	0.10	0.00
Units lost	13.61	0.20	0.00

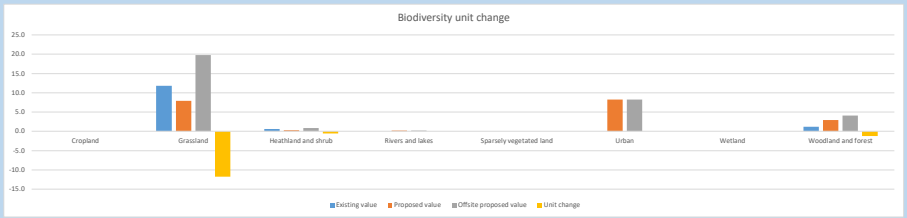
Area lost by distinctiveness band

Category	Area lost (hectares)	Area lost (%)
V.High	0	
High	0.003	0
Medium	1.7507	100
Low	0	
V.Low	0	

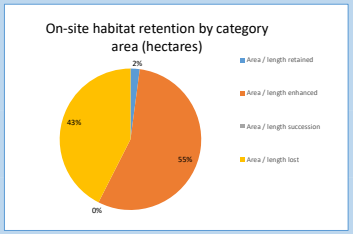


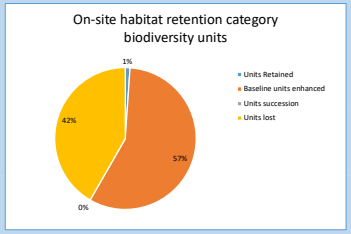






Habitat group	Pre-development		Post development on site		Post Development off site		Total post development		Change	
	Existing area	Existing value	Proposed area	Proposed value	Proposed area	Offsite proposed value	Proposed area	Proposed value	Area change	Unit change
Cropland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Grassland	3.4	11.8	-1.5	8.0	1.9	19.7	0.0	0.0	-3.4	-11.8
Heathland and shrub	0.2	0.6	-0.1	0.3	0.1	0.9	0.0	0.0	-0.2	-0.6
Rivers and lakes	0.0	0.0	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.0
Sparsely vegetated land	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Urban	0.0	0.0	1.7	8.2	1.7	8.2	0.0	0.0	0.0	0.0
Wetland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Woodland and forest	0.5	1.2	-0.1	2.9	0.4	4.1	0.0	0.0	-0.5	-1.2





Oakhurst Rise

A-1 Site Habitat Baseline

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	Habitats and areas			Habitat distinctiveness		Habitat condition		Ecological connectivity			Strategic significance			Suggested action to address habitat losses	Ecological baseline	Retention category biodiversity value							
Ref	Broad Habitat	Habitat type	Area (hectares)	Distinctiveness	Score	Condition	Score	Ecological connectivity	Connectivity	Connectivity multiplier	Strategic significance	Strategic significance	Strategic position multiplier		Total habitat units	Area retained	Area enhanced	Area succession	Baseline units retained	Baseline units enhanced	Baseline units succession	Area lost	Units lost
1	**Grassland**	Grassland - Other neutral grassland	3.3824	Medium	4	Moderate	2	Low	Unconnected habitat	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required	27.06		1.9085		0.00	15.27	0.00	1.47	11.79
2	**Heathland and shrub**	Heathland and shrub - Mixed scrub	0.2333	Medium	4	Poor	1	Low	Unconnected habitat	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required	0.93	0.0883			0.35	0.00	0.00	0.15	0.58
3	**Woodland and forest**	Woodland and forest - Other woodland; broadleaved	0.3415	Medium	4	Moderate	2	Low	Unconnected habitat	1	Within area formally identified in local strategy	High strategic significance	1.15	Same broad habitat or a higher distinctiveness habitat required	3.14		0.2626		0.00	2.42	0.00	0.08	0.73
4	**Woodland and forest**	Woodland and forest - Other woodland; broadleaved	0.1642	Medium	4	Moderate	2	Low	Unconnected habitat	1	Within area formally identified in local strategy	High strategic significance	1.15	Same broad habitat or a higher distinctiveness habitat required	1.51		0.1113		0.00	1.02	0.00	0.05	0.49
5	**Lakes**	Lakes - Ponds (Non- Priority Habitat)	0.003	High	6	Poor	1	Medium	Moderately connected habitat	1.1	Within area formally identified in local strategy	High strategic significance	1.15	Same habitat required	0.02				0.00	0.00	0.00	0.00	0.02
		Total site area ha	**4.12**											**Total Site baseline**	**32.67**	**0.09**	**2.28**	**0.00**	**0.35**	**18.71**	**0.00**	**1.75**	**13.61**

Oakhurst Rise

A-2 Site Habitat Creation

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Post development/ post intervention habitats																	
						Ecological connectivity			Strategic significance			Temporal multiplier		Difficulty multipliers		
Proposed habitat	Area (hectares)	Distinctiveness	Score	Condition	Score	Ecological connectivity	Connectivity	Connectivity multiplier	Strategic significance	Strategic significance	Strategic position multiplier	Time to target condition/years	Time to target multiplier	Difficulty of creation category	Difficulty of creation multiplier	Habitat units delivered
Heathland and shrub - Mixed scrub	0.0569	Medium	4	Good	3	Low	Unconnected habitat	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	7	0.779	Low	1	0.53
Urban - Woodland	0.4111	Medium	4	Good	3	Low	Unconnected habitat	1	Within area formally identified in local strategy	High strategic significance	1.15	32+	0.320	Low	1	1.81
Urban - Suburban/ mosaic of developed/ natural surface	1.276	Low	2	Good	3	Low	Unconnected habitat	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0.837	Low	1	6.41
Lakes - Ponds (Non- Priority Habitat)	0.0097	High	6	Good	3	Medium	Moderately connected habitat	1.1	Within area formally identified in local strategy	High strategic significance	1.15	5	0.837	Low	1	0.18

Oakhurst Rise

A-3 Site Habitat Enhancement

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	Baseline habitats													Post development/ post intervention habitats																
														Change in distinctiveness and condition			Area (hectares)	Distinctiveness	Score	Condition	Score	Ecological connectivity			Strategic significance			Temporal multiplier		Difficulty multipliers		Habitat units delivered
Baseline ref	Baseline habitat	Total habitat area	Baseline distinctiveness band	Baseline distinctiveness score	Baseline condition category	Baseline condition score	Baseline ecological connectivity	Baseline connectivity	Baseline connectivity score	Baseline strategic significance category	Baseline strategic significance score	Baseline habitat units	Suggested action to address habitat losses	Proposed habitat (Pre-populated but can be overridden)	Distinctiveness change	Condition change						Ecological connectivity score	Connectivity	Connectivity multiplier	Strategic significance	Strategic significance	Strategic position multiplier	Time to target condition/years	Time to target multiplier	Difficulty of enhancement category	Difficulty of enhancement multiplier	
1	Grassland - Other neutral grassland	3.3824	Medium	4	Moderate	2	Low	Unconnected habitat	1	Low Strategic Significance	1	27.0592	Same broad habitat or a higher distinctiveness habitat required	Grassland - Other neutral grassland	Medium - Medium	Moderate - Good	1.9085	Medium	4	Good	3	Low	Unconnected habitat	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	15	0.586	Low	1	69.74
3	Woodland and forest - Other woodland; broadleaved	0.3411	Medium	4	Moderate	2	Low	Unconnected habitat	1	High strategic significance	1.15	3.1418	Same broad habitat or a higher distinctiveness habitat required	Woodland and forest - Other woodland; broadleaved	Medium - Medium	Moderate - Good	0.2626	Medium	4	Good	3	Low	Unconnected habitat	1	Within area formally identified in local strategy	High strategic significance	1.15	15	0.586	Medium	0.67	2.89
4	Woodland and forest - Other woodland; broadleaved	0.1662	Medium	4	Moderate	2	Low	Unconnected habitat	1	High strategic significance	1.15	1.5364	Same broad habitat or a higher distinctiveness habitat required	Woodland and forest - Other woodland; broadleaved	Medium - Medium	Moderate - Good	0.1113	Medium	4	Good	3	Low	Unconnected habitat	1	Within area formally identified in local strategy	High strategic significance	1.15	15	0.586	Medium	0.67	1.22
																Total site area	2.26												Enhancement total		73.86

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B-1 Site Hedge Baseline

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	UK Habitats - existing habitats			Habitat distinctiveness		Habitat condition		Ecological connectivity			Strategic significance				Ecological baseline	Retention category biodiversity value					
Baseline ref	Hedge number	Hedgerow type	length KM	Distinctiveness	Score	Condition	Score	Ecological connectivity	Connectivity	Connectivity multiplier	Strategic significance	Strategic significance	Strategic position multiplier	Suggested action to address habitat losses	Total hedgerow units	Length retained	Length enhanced	Units retained	Units enhanced	Length lost	Units lost
1	H3-H6	Native Hedgerow	0.169	Low	2	Poor	1	Low	Unconnected habitat	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.338	0.068		0.136	0	0.101	0.202
2																					
3																					
4																					
5																					
		Total Site length/KM	0.17											Total Site baseline	0.34	0.07	0.00	0.14	0.00	0.10	0.20

Oakhurst Rise

B-2 Site Hedge Creation

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		Proposed habitats		Habitat distinctiveness		Habitat condition		Multipliers									Hedge units delivered
								Spatial quality						Temporal multiplier		Difficulty of creation multiplier	
								Ecological connectivity			Strategic significance						
Baseline ref	New hedge number	Habitat type	Length km	Distinctiveness	Score	Condition	Score	Ecological connectivity	Connectivity	Connectivity multiplier	Strategic significance	Strategic significance	Strategic position multiplier	Time to target condition/years	Time to target multiplier		
1		Native Hedgerow	0.461	Low	2	Moderate	2	Low	Unconnected habitat	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0.837	1	1.54
2																	
3																	
4																	
5																	
		Creation Length/KM	0.46														1.54