

Our ref: P20-490 Heyford masterplan biodiversity technical note_final

Your ref:

15 July 2020

Andrew Lewis
 Cherwell District Council
 Bodicote House
 Bodicote,
 Banbury
 Oxfordshire, OX15 4AA

Dear Andrew

Re: Heyford Park Masterplan – Biodiversity issues: further clarifications on Biodiversity Net Gain, wildlife installations and the Ardley and Heyford CTA

This letter sets out the outcome of our review of the Biodiversity Net Gain Calculation (BNGC) for the site and specific proposals for the provision of bat and bird boxes. It also assesses how the proposed masterplan relates to the recently identified Ardley to Heyford Conservation Target Area (CTA). The review is based upon the discussions held during the video meeting between Dorchester Living and their consultants and Cherwell District Council and Oxfordshire County Council on 15th June and subsequent emails and video meetings between myself and Charlotte Watkins.

Biodiversity Net Gain Calculation

Following our video conference meeting, I have had further discussions with Charlotte Watkins during which we were advised that the BNGC should be reviewed on the basis that the calculation would be based upon the red line area as a whole with the aim of increasing the overall % uplift in net gain from the 0.5% increase originally proposed, but recognising that this needed to be based on realistic aspirations and that access to additional off-site land was not possible.

I attach a copy of the revised BNGC in order that it can be interrogated in more detail by colleagues. In summary we consider that for elements of the habitat enhancement and creation proposals we are able to set more ambitious habitat condition targets than previously proposed, but recognising it will take longer to achieve these new target conditions.

The changes we are proposing in the BNGC are as follows:

Habitat	Existing BNGC		Reviewed BNGC	
	Target condition	Time to target	Target condition	Time to target
Grassland semi-improved neutral	Moderate	10 years	Good	15 years
Grassland	Moderate	10 years in reality	Good	20 years in reality

unimproved calcareous		15 years as creation work will start 5 years ahead of the loss of calcareous grassland in the CWS.		25 years as creation work will start 5 years ahead of the loss of calcareous grassland in the CWS.
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For the enhancement proposals the time to target conditions in the reviewed BNGC is now 15 years. This is in line with the proposed time to achieve this condition as set out by DEFRA in the Technical Supplement¹ to the DEFRA 2.0 Biodiversity Net Gain Calculator (for historic reasons the BNGC for this site has been based on the Warwickshire County Council calculator), which was referred to by the Wildlife Trust in their previous comments on the BNGC.

The time to target condition for the creation of lowland calcareous grassland used in the BNGC is 20 years, although in reality this will be 25 years as the loss of calcareous grassland within the CWS will not occur until 5 years into the development and creation of the grassland is proposed from the start of the development. This is a shorter time to condition than that proposed by DEFRA in their Technical supplement, however, the Supplement acknowledges that:

Many factors influence how long a habitat takes to go from the point of creation or restoration to the desired end point condition. Factors are often site dependent but can include soil nutrient status, soil types and pH, site preparation, climate and the neighbouring habitats and species matrix available to colonise the new or restored habitat. The timeframe is also resource dependent. With sufficient time and money most habitats can be recreated more rapidly, but allowing a more gradual process may be more beneficial to wildlife in the longer term.

We have taken account of the sort of factors referenced by DEFRA and consider it is likely that the good condition target can be achieved in the shorter time frame used in the reviewed BNGC. In particular with have reviewed research commissioned by Natural England² which assessed the success of agri-environment scheme projects aimed at creating species-rich lowland calcareous, acid and neutral grasslands and lowland heathland. It concluded:

Judged by the minimum thresholds defined in Keys 2a and 2b in the FEP Manual, of the 73 grassland parcels reported here 62 qualified as BAP Priority Habitat in a timescale typically of 8-15 years but sometimes as few as 3 years, mostly from an arable or set-aside starting point. These sites are available to be entered onto the Grassland Inventory and hence inform the BAP reporting process.

As well this evidence base we also think it likely the target condition will be achieved within the timeframe set out in the reviewed BNGC for the reasons set out below.

¹ IAN CROSHER A, SUSANNAH GOLD B, MAX HEAVER D, MATT HEYDON A, LAUREN MOORE D, STEPHEN PANKS A, SARAH SCOTT C, DAVE STONE A & NICK WHITE A. 2019. The Biodiversity Metric 2.0: Auditing and accounting for biodiversity value: technical supplement (Beta version, July 2019). Natural England

² WILSON, P., WHEELER, B., REED, M. & STRANGE, A. 2013. A survey of selected agri-environment grassland and heathland creation and restoration sites: Part 2. Natural England Commissioned Reports, Number 107

Getting the soils right

We are proposing significant interventions to create good soil conditions for the creation of species-rich grassland. In particular, the topsoil at the creation site will be removed fully or partially to create a growing medium with low nutrient content, in particular low levels of phosphorous. The research by Natural England states:

Sites with a P index of 2 are regarded as having only moderate potential and an index of 3 or more as having low potential, unless other factors increase their suitability.

A detail soil survey of the proposed creation site has been undertaken by Tim O Hare Associates which provides confidence in our ability to create a good growing medium with a P index below 2 on suitable limestone soils to create a species-rich lowland calcareous grassland community within the timeframes used in the BNGC.

Using local sourced seed

Another finding of the Natural England research is the value of using locally sourced green hay for the creation of a more diverse plant community that better reflects local circumstances as opposed to just relying on wildflower mixes from commercial suppliers.

*In the majority of cases, seed mixtures appeared moderately well suited to the sites, although there is a tendency to uniformity, with what appear to be very similar seed mixtures being applied to many sites. The widely used Emorsgate mixtures are dominated by a few species that germinate readily and produce flowers after relatively few years (eg *Centaurea nigra*, *Galium verum*, *Leucanthemum vulgare*, *Achillea millefolium*, *Ranunculus acris*, *Lotus corniculatus*). These mixtures also contain typically only 20 per cent dicotyledonous species and no *Cyperaceae* or *Juncaceae*. In the long term it is probable that ecological processes will cause divergence of community composition, but it would be preferable for seed mixtures to be customised to site conditions. Spreading of green hay can be a very good means of introducing variety between sites, and seemed to give very good results. The composition of green hay can however be skewed by the time of cutting. An early cut can miss late-flowering species, while a late cut can miss those that flower early. Application of green hay cut on different dates can give a more complete spectrum of species.*

Given the extent of retained county wildlife site within the masterplan it will be possible to collect and spread green hay from this site in conjunction with bespoke commercial seed mixes. This will increase the likelihood of a sward developing that closely resembles the community within the county wildlife site. If hay were also available from the Ardley Quarry SSSI this could also be used, although care would need to be taken to avoid transferring established non-native species.

Long-term management

Appropriate long term management is another factor that often presents challenges for habitat creation schemes. The proposed creation site will be secured through legal agreement and will be contiguous with the airfield grassland site that is currently in positive management including cutting of hay and grazing by sheep. Once established the established management within the airfield can be extended on the adjacent land ensuring the new habitat can be appropriately managed for the duration of the Net Gain creation timeframe.

It is considered given the information on soil type and nutrient status at the creation site, the evidence from Natural England's research and the management options, that in this case a high level of confidence can be placed in the ability to achieve the target habitat condition of good within the time frame included in the reviewed BNGC.

With the proposed changes to target conditions and time to reach the condition target for grassland restoration (over 31.21 ha) and lowland grassland creation (over 27.35 ha) the BNGC indicates that a

net gain of 72.42 biodiversity credits will be achieved which represents a net gain of 3.6% in biodiversity value compared to the pre-development state. However, it is considered that this percentage increase should be viewed in the context that this application is unusual in that almost 75% of the habitat within the red line area will be retained and unaffected by the proposed development.

Wildlife installations within new buildings

It is proposed that wildlife installations will be provided on the basis on one installation per new household. It is proposed that the wildlife installations will comprise a mixture of bat roosting and bird nesting features. Target species for the installations will include:

- House sparrow
- Starling
- Swift
- Crevice dwelling bats

Design considerations

The design and location of each wildlife installation will be guided by good practice guidance on the installation of the different types of boxes for birds and bats. As such it is considered unlikely that every house will have a single bat or bird box as some species such as house sparrow and swifts are colonial species and as such some buildings will support more than one box, whereas others may have none. In addition boxes will be erected in the most suitable locations taking account of aspect, building height, building type and proximity to foraging habitat. Placing a bat or bird box in an inappropriate location is likely a waste of time and money and will be ineffectual from a biodiversity perspective.

Detailed proposals for numbers of boxes and their locations will be presented for approval on a phase by phase basis, but with an eye to ensuring the delivery of the overall total of wildlife installations.

Ardley and Heyford Conservation Target Area (CTA)

This is a new CTA that has only recently been identified by Wild Oxfordshire since the publication of the EIA submitted with the Heyford Masterplan application. The implications of the proposed masterplan on this belatedly identified CTA are considered below.

To date, as this is a new CTA, specific area information on the current extent of existing habitat or creation and restoration targets for habitats have not been published, but the following broad objectives have been established:

1. Calcareous grassland – management, restoration and creation. The proposed masterplan will result in the loss of 10.97 ha of unimproved calcareous grassland in moderate condition and 0.21 ha of semi-improved calcareous grassland in poor condition, but will create unimproved calcareous grassland over 27.35 ha that will achieve good condition within 25 years. This represents a net increase of 16.38 ha resulting in an increase in unimproved lowland calcareous grassland BAP Priority Habitat in or adjacent to the CTA from 39.23 ha to 55.61 ha. This is considered to be in line with the objectives of the CTA which include an increase in calcareous grassland coverage within or adjacent to the CTA.

2. Hedgerows – management and restoration. The site supports few hedgerows and any breaches on existing hedges will be compensated with new planting. The development also proposes to reinstate the two historic footpaths at either end of the airfield. Whilst it is not proposed to line these with hedgerows additional tree planting is proposed. There is the opportunity to restore approximately 500 m of hedgerow along the eastern boundary of the road between Upper Heyford and Somerton.

Given the lack of hedges and the proposed measures described above it is considered that the proposed masterplan is in keeping with the objectives for the CTA.

3. Grassland management including buffering to support ground nesting birds. The grassland within the airfield will continue to be positively managed to protect ground nesting birds and the proposed grassland creation off site adjacent to the airfield will provide a further 27.35 ha of grassland *habitat for ground nesting birds*.

4. Great crested newts (GCN) – conserve conservation status; manage ponds and terrestrial habitat such as copses and wooded strips. The Environmental Statement assesses the impact of the proposed masterplan on the great crested newt population within the airfield. Whilst areas of terrestrial habitat and four breeding ponds will be lost the proposed compensation measures will create new and enhance existing terrestrial habitat and will create eight new newt ponds strategically positioned within the airfield so to improve connectivity between breeding populations and bolster populations of newt located on the airfield as a whole. As such the proposed masterplan will not result in an adverse impact on the great crested newt population.

5. Geological conservation (Ardley Trackways, Ardley Cutting & Quarry, Ardley Fields Quarry). The proposed development does not affect any sites of geological interest and is unlikely to create new exposure sites as no mineral extraction is proposed. As such the proposed development will not affect the delivery of this objective for the CTA

I trust the above provides the further clarification requested at the video conference on the 15th June.

Yours sincerely



Dr Peter Shepherd MCIEEM
For and on behalf of BSG Ecology

Site name: to be copied from the BIA sheet

Planning reference number: to be copied from the BIA sheet

	Habitat Area (ha)	Hedgerow impact (km)	Connectivity Features (km)	Habitat Biodiversity Value	Hedgerow Biodiversity Value	Connectivity Biodiversity Value
Existing						
Onsite Biodiversity Impact	92.85	0.00	0.00	1976.82	0.00	0.00
Indirect Biodiversity Impact	0.00	0.00	0.00	0.00	0.00	0.00
Total habitat / linear features impacted	92.85	0.00	0.00	1976.82	0.00	0.00
Retained / Created / Enhanced						
Onsite biodiversity retained	354.28	0.00	0.00	1539.45	0.00	0.00
Onsite Creation	92.85	0.00	0.00	250.93	0.00	0.00
Biodiversity retained and enhanced	31.21	0.00	0.00	258.86	0.00	0.00
Total biodiversity retained/enhanced	478.34	0.00	0.00	2049.24	0.00	0.00
Trading Down	n/a	n/a	n/a	0.00	0.00	0.00
Biodiversity Impact	n/a	n/a	n/a	72.42	0.00	0.00

CAUTION - Destruction of habitats of high distinctiveness, e.g. lowland meadow or species-rich hedgerows, may be against local policy. Has the mitigation hierarchy been followed, can impact to these habitats be avoided?

Habitat Impacts	Loss	Gain	Impact	%age losses	Compensatory Unit loss	Indicative Offset (ha)	WCC Offset units	WCC Offset Contribution
Woodland Habitat	10.95	34.09	23.14					
Grassland Habitat	229.39	367.00	137.61					
Wetland Habitat	0.12	0.27	0.15					
Other Habitat (incl. Built Env)	103.28	14.80	-88.48			Transferred to Wetland		
Total	343.74	416.16	72.42	0.00	0.00	0.00	0.00	£0
		Trading down	0.00					
			72.42					

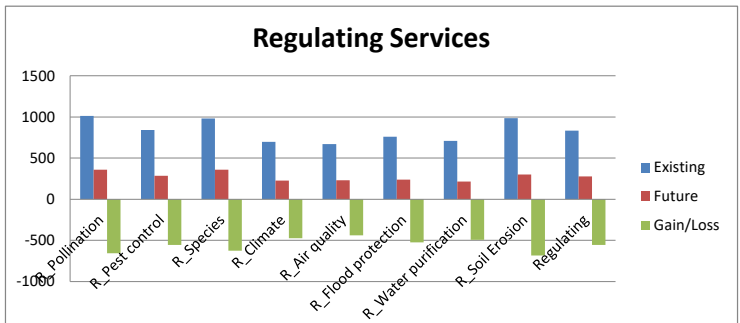
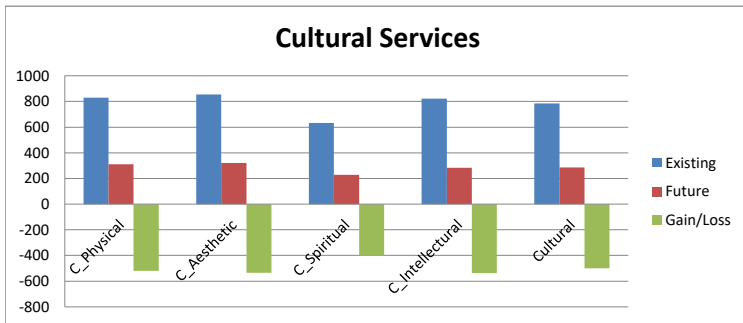
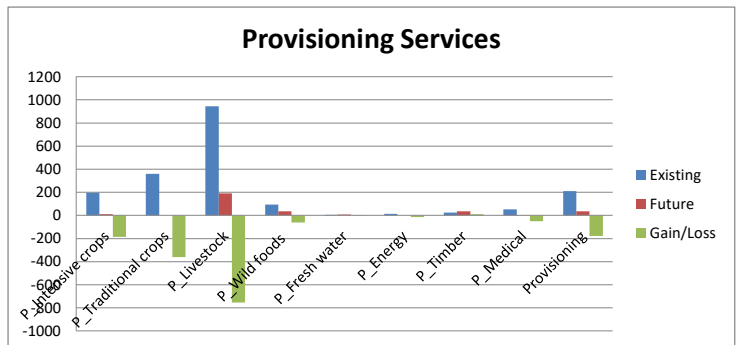
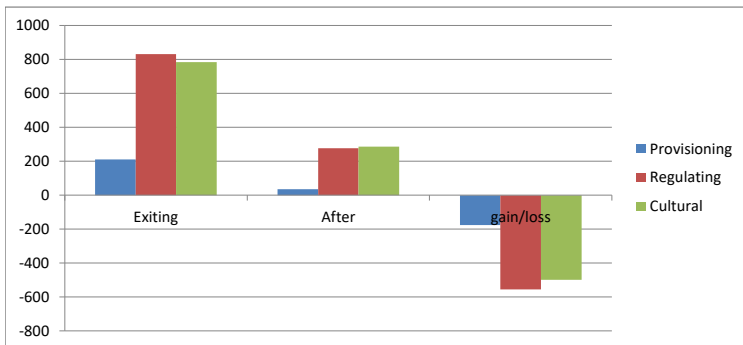
Warwickshire County Council is currently transferring 'Other' habitat loss to Wetland Creation

Hedgerow Impacts	Loss	Gain	Trading down	Impact	Unit loss	Indicative Offset (ha)	WCC Offset units	WCC Offset Contribution
Hedgerow	0.00	0.00		0.00				

SUMMARY

This development will result in 72.42 Habitat Biodiversity Units gain; 0 Hedgerow Units loss and 0 Connectivity Biodiversity Units loss

ECOSYSTEM SERVICES ANALYSIS



For any questions with regard to biodiversity impact and this development please contact Warwickshire County Council Ecological Services: email: planningecology@warwickshire.gov.uk or telephone 01926 418060

Warwickshire, Coventry & Solihull - Habitat Impact Assessment Calculator

KEY	
	No action required
	Enter value
	Drop-down menu
	Calculation
	Automatic lookup
	Automatic Condition setting
	Result

Local Planning Authority:	
Site name:	
Planning application reference number:	
Assessor:	
Date:	

Please fill in both tables

Please do not edit the formulae or structure

To condense the form for display hide vacant rows, do not delete them

If additional rows are required, or to provide feedback on the calculator please contact WCC Ecological Services 01926 418060

T. Note	Existing habitats on site <small>Please enter all habitats within the site boundary</small>				Habitat distinctiveness		Habitat condition		Habitat Biodiversity Value				Comment	
	code	Phase 1 habitat description	Habitat area (ha)	Distinctiveness	Score	Condition	Score	Area (ha)	Existing value	Area (ha)	Existing value	Area (ha)		Existing value
Direct Impacts and retained habitats				A	B	C	D	E	F	G	H			
	B21	Grassland: Unimproved neutral grassland	35.03	High	6	Good	3	34.32	617.76			0.71	12.78	
	B21	Grassland: Unimproved neutral grassland	0.26	High	6	Moderate	2	0.21	2.52			0.05	0.60	
	B22	Grassland: Semi-improved neutral grassland	4.69	Medium	4	Moderate	2	4.64	37.12			0.05	0.40	
	B31	Grassland: Unimproved calcareous grassland	11.04	High	6	Good	3	11.04	198.72					
	B31	Grassland: Unimproved calcareous grassland	39.16	High	6	Moderate	2	28.19	338.28			10.97	131.64	
	B32	Grassland: Semi-improved calcareous grassland	0.74	Medium-High	5	Poor	1	0.53	2.65			0.21	1.05	
	B6	Grassland: Poor semi-improved grassland	147.51	Medium-Low	3	Poor	1	99.16	297.48	31.21	93.63	17.14	51.42	
	B4	Grassland: Improved grassland		Low	2	Poor	1							
	J113	Grassland: Set-aside / Arable field margins	0.95	High	6	Good	3	0.54	9.72			0.41	7.38	
	J11	Other: Arable	17.47	Low	2	Poor	1	2.02	4.04			15.45	30.90	
	A112	Woodland: Broad-leaved plantation	1.07	Medium	4	Poor	1	0.76	3.04			0.31	1.24	
	A122	Woodland: Coniferous plantation	0.49	Low	2	Poor	1	0.25	0.50			0.24	0.48	
	A132	Woodland: Mixed plantation	3.14	Low	2	Poor	1	2.59	5.18			0.55	1.10	
	A21	Woodland: Dense continuous scrub	1.61	Medium-Low	3	Moderate	2	0.27	1.62			1.34	8.04	
	J13	Other: Ephemeral/short perennial	3.84	Low	2	Moderate	2	1.74	6.96			2.10	8.40	
	n/a	Built Environment: Buildings/hardstanding	161.33	none	0	Poor	1	161.33	0.00					
	J12	Grassland: Amenity grassland	18.63	Low	2	Poor	1	6.57	13.14			12.06	24.12	
	J11	Other: Arable	3.47	Low	2	Poor	1					3.47	6.94	
	A21	Woodland: Dense continuous scrub	0.03	Medium-Low	3	Poor	1					0.03	0.09	
	G1	Wetland: Standing water	0.14	High	6	Poor	1	0.12	0.72			0.02	0.12	
	C31	Other: Tall ruderal	0.39	Medium-Low	3	Moderate	2	0.00				0.39	2.34	
	J11	Other: Arable	27.35	Low	2	Poor	1					27.35	54.70	
	Total			478.34			Total	354.28	1539.45	31.21	93.63	92.85	343.74	J
											Site habitat biodiversity value	$\Sigma D + \Sigma F + \Sigma H$	1976.82	
	Indirect Negative Impacts								Value of loss from indirect impacts					
	Before/after impact	Including off site habitats		K			K x A x B = Li, Lii							
	Before													
	After													
	Before													
	After													
	Before													
	After													
	Before													
	After													
	Total			0.00			0.00		M				HIS = J + M	
	Habitat Impact Score (HIS)										343.74			

CAUTION - Destruction of habitats of high distinctiveness, e.g. lowland meadow or ancient woodland, may be against local policy. Has the mitigation hierarchy been followed, can impact to these habitats be avoided?
Any unavoidable loss of habitats of high distinctiveness must be replaced like-for-like.

T. Note	Proposed habitats on site (Onsite mitigation)			Target habitats distinctiveness		Target habitat condition		Time till target condition		Difficulty of creation / restoration		Habitat biodiversity value	Comment
	code	Phase 1 habitat description	Area (ha)	Distinctiveness	Score	Condition	Score	Time (years)	Score	Difficulty	Score		
Habitat Creation			N									(N x O x P) / Q / R	
A112	Woodland: Broad-leaved plantation	6.72	Medium	4	Moderate	2	10 years	1.4	Medium	1.5	25.60		
B31	Grassland: Unimproved calcareous grassland	3.47	High	6	Good	3	10 years	1.4	Medium	1.5	29.74		
n/a	Built Environment: Buildings/hardstanding	39.24	none	0	Moderate	2	10 years	1.4	Low	1	0.00		
n/a	Built Environment: Gardens (lawn and planting)	10.00	Low	2	Poor	1	10 years	1.4	Low	1	14.29		
B31	Grassland: Unimproved calcareous grassland	27.35	High	6	Good	3	20 years	2	Medium	1.5	164.10		
A5	Woodland: Orchard	0.99	High	6	Moderate	2	10 years	1.4	Low	1	8.49		
J12	Grassland: Amenity grassland	4.76	Low	2	Poor	1	5 years	1.2	Low	1	7.93		
G1	Wetland: Standing water	0.04	High	6	Moderate	2	5 years	1.2	Medium	1.5	0.27		
J112	Other: Allotments	0.28	Low	2	Poor	1	3 Years	1.1	Low	1	0.51		
Total			92.85										
Habitat Enhancement												((NxOxP)-S)/Q/R	
B22	Grassland: Semi-improved neutral grassland	16.50	Medium	4	Good	3	15 years	1.7	Low	1	87.35		
B22	Grassland: Semi-improved neutral grassland	6.11	Medium	4	Good	3	15 years	1.7	Low	1	32.35		
B22	Grassland: Semi-improved neutral grassland	8.60	Medium	4	Good	3	15 years	1.7	Low	1	45.53		
Total			31.21										
											Trading down correction value	0.00	
											Habitat Mitigation Score (HMS)	416.16	
											HBIS = HMS - HIS		
											Habitat Biodiversity Impact Score	72.42 Gain	
											Percentage of biodiversity impact loss		

	Loss	Gain	Impact
Woodland Habitat	10.95	34.09	23.14
Grassland Habitat	229.39	367.00	137.61
Wetland Habitat	0.12	0.27	0.15
Other Habitat (including Built Environment)	103.28	14.80	-88.48
Total	343.74	416.16	72.42
		Trading down	0.00
			72.42