Land off Bleadon Road, Bleadon APP/DO121/W/18/3211789

Susan Stangroom–Ecology on behalf of North Somerset Council

Note to inform Planning Inspector – NSC Natural Environment Officer Response to the *Land off Bleadon Road, Bleadon - Ecology Position Note – Information to Inform a Habitat Regulations Assessment* (EDP), which shall be considered as the shadow HRA Appropriate Assessment (AA) and the attached new *Illustrative Masterplan*, October 2019, Drawing No. IMP001.

1. Summary Assessment

It is not indicated that the potential impacts have been adequately identified or evaluated. The requirement for the assessment to be adequately informed by reasonably available detailed information is not indicated as met and no effort is indicated in relation to identifying and listing residual impacts to consider within an 'in combination' assessment; and no in combination assessment is presented.

Notably insufficient assessment of impacts of artificial light on retained habitat functionality for horseshoe bats. Indicated inclusion of retained bat habitat within the HEP assessment that is likely to be subject to lighting impact. Habitat degraded by light intrusion is not relevant to be included as proposed replacement horseshoe bat habitat. Further discussed in relation to each relevant section in Section 2 – Issues.

2. Issues:

Section 2 Project Description and Proposed Ecology Strategy

Sections 2.10, Bullet 1 and 2.11– regarding retention of hedgerows within proposed mitigation. This information is potentially misleading as habitats can only be considered to be retained for light sensitive species of bats if they are demonstrated to be retained at or below 0.5lux and preferably at or below 0.45lux (Bat Conservation Trust-Institution of Lighting Professionals (2018)).

<u>Section 2.10, Impacts of artificial light – requirements for street lighting, junctions and pedestrianised crossings on and within the northern and southern boundary habitats</u>

New street lighting is likely to be required along the A370 to link the existing street lighting to the west to the proposed new junction. This, together with the additional design and lighting requirements for the new junction, is highly likely to result in a lighting impact on the southern boundary hedgerow, with a consequent uncertainty

as to continued suitability as a commuting route for sensitive species of bats. This key impact needs to be recognised and properly evaluated.

If this hedgerow cannot be demonstrated to be retained at pre-existing light levels, or at or below 0.5lux, it should be removed from the extent of retained SAC bat habitat assessment and noted as a habitat loss (with HEP calculations amended accordingly).

Likely requirements for linking and new junction street lights are indicated to impact the southern hedgerow and associated bat commuting corridor, and, potentially, other proposed retained bat habitats within proximity. Lux contour plans for existing and proposed lighting would be required to demonstrate the extent of the lighting increase on these habitats, but it is unlikely that the southern hedgerow could be retained at pre-existing lighting levels. The hedgerow currently comprises a thick, bushy structure with periodic standard trees, and the major part is currently unlit, providing potential for bats to undertake commuting or seasonal migrations across the A370 at this location to and from adjoining farmland to the south and the Bleadon Level.

James Wigmore Lead Transport Planner, Development Management, Development & Environment North Somerset Council has advised:

The extent of the direct frontage onto the A370 is approximately 430m. The visibility splay required is 215m in each direction, therefore the possible location of the access is limited in the westerly direction and cannot be in the westerly field as indicated in the initial site layout plan.

The purpose of WSP designing a junction (SoCG appendix D), was to demonstrate that there would be considerable infrastructure, to include lighting and a right turn lane. It also shows the width of the junction belmouth, and the lighting requirement. This then has a bearing on the environmental and landscape sensitivities. Mr Tonks junction design, (SoCG appendix F) does not demonstrate the junction infrastructure or any lighting.

The existing street lights on the A370 located at the western section operate until midnight or 1pm (as confirmed by LPA Street Lighting Team (Mark Cogan)) ((refer to separate attached GIS plan that has been produced to facilitate an understanding of the wider site context and to illustrates the location of existing part-lit street lighting as blue circles).

New street lighting linking to the new junction (also lit to midnight or 1am), will also coincide with peak bat activity following emergence from roosts. This peak bat activity coincides with the key period for nocturnal insect activity and, accordingly for insect foraging by bats. Hence, part night lighting to midnight or 1am represents an adverse impact by removing the habitat that is available to bats for commuting and foraging during a key period. The southern hedgerow is highly likely to be degraded

by artificial lighting over a significant extent and accordingly needs to be evaluated to determine whether its commuting functionality is removed or reduced in extent. Some incidental foraging would normally be expected for bats commuting in proximity to hedgerows.

Where light levels are greater than optimal, lesser horseshoe have been demonstrated to reduce the height of their flight path (likely to reduce risk of detection by avian predators), but placing them at increased risk of predation by the likely increased population of domestic cats associated with residential development. Hence if bats persist in trying to commute along a feature subject to increased lighting there is potential for an increased risk of predation.

Increases in rates of predation may be particularly significant for local bat populations, as bats have low reproductive rates.

From the forgoing assessments, the summary statement within Section 2.9 (below) is not demonstrated or supported by evidence provided in relation to likely lighting impacts, assuming in this context that functionality refers to functionality for horseshoe bats:

(2.9) Circa 31.3% of the Appeal Site will therefore be retained, accommodating habitat buffers of sufficient size and connectivity to ensure protection to hedgerow, tree and rhyne features retained adjacent, so as to maximise their functionality over the long-term.

Where habitats will be impacted by lighting, whether on site or by new street lighting requirements, these habitats need to be deleted from any assessment of retained horseshoe bat habitat.

2.10 Bullet 2 – This section references the two new access junctions within the northern boundary.

There are significant potential impacts and risks associated with the requirement for the two lit junctions within the northern boundary, impacting within the east and west sections of the northern rhyne corridor (junctions implemented by culverts) but the implications for bat commuting at this location are not evaluated.

It is indicated as a key omission not to include a reasonably detailed assessment of likely impacts and implications arising from the extent of artificial lighting that would be introduced into the rhyne corridor which are noted as horseshoe bat commuting routes (the banks to the rhyne provided a linear sheltered commuting feature. The functionality is indicated to be significantly compromised by the extent of lighting. Whilst it may be quite likely for bats to fly under culverts, the presence of lighting would be likely to deter SAC bats entering the location.

It is confirmed that all three junctions will be lit overnight. James Wigmore and Mark Cogan (Street Lighting) advise:

Lighting for the A370 junction would be on all night. The proposed pedestrian crossings on Bleadon Road would be floodlit and there would need to be a street

light before and after each crossing. Both the floodlights and street light either side would need to be lit all night. So for each crossing, 2 street lights and flood lighting.

The northern commuting route provided by the rhyne corridor potentially links to the Purn Hill roost site, located to the west. Bats commuting from and to the north or north-east are also vulnerable to be impacted by these lighting proposals, i.e. deterred from approaching the site by flood lit crossings over Bleadon Road; two lit junctions and the likely increased volume of traffic into and out of the development. Increased traffic volume is indicated at the junctions, comprising residents and local business workers as well as Bleadon residents short-cutting to the A370; and commuters using Bleadon Road to Loxton lanes to bypass rush hour traffic at Banwell.

2.10 Bullet 3 – Reference to retention of 9m buffers to rhynes.

The primary objective and function of the buffer corridors to the rhynes will be to facilitate safe operation of ditch maintenance machinery to maintain the effectiveness of the rhyne networks. Grass will be cut prior to ditch maintenance operations to enable safe viewing of the bank edge – the primary objective will not be to optimise habitat for horseshoe bats. To support moths, which are key prey for greater horseshoe bats, the sward needs to be long over the bat activity period and some winter cover retained to support over-wintering insects. The grassland habitat management prescription for greater horseshoes is provided within the *North Somerset and Mendip Bats SAC Guidance on Development SPD,* Section A6.3, p.58).

2.10 Bullet 6 – With reference to 'strengthening' the north-south internal rhyne. This wording needs to be justified with sufficient information to demonstrate how this is proposed to be achieved and demonstrated. Lighting impacts are noted for the north and south of the site and it is not entirely clear if the north-south internal corridors may be impacted. There is also the potential for deterioration in habitats during land raising works which needs to be identified as a risk and evaluated within the assessment.

2.10 Bullet 7:

With regard to the referenced proposed north-south corridor, it needs to be explicitly stated whether the 6m buffer comprises a SUDS maintenance strip or whether it may be managed with the primary objective of maintaining and optimising habitats for horseshoe bats. Rhyne, and potentially SUDS, maintenance strips should be excluded from the Bat SAC SPD Annex 5 HEP calculation, unless it can be reasonably demonstrated that the habitat can and will be maintained in accordance

with greater horseshoe bat grassland management prescriptions; and that the corridor retains sufficient unlit links to functional commuting corridors.

For proposed retained boundary and north-south corridors to be considered for inclusion as horseshoe bat habitat, credible measures to demonstrate feasible avoidance or mitigation to protect retained habitats from light intrusion would be expected to be identified; and included as a suite of design code options within the ecological constraints plan.

Section 3 - North Somerset and Mendip Bats SAC

The Natural England condition assessments were not included for the SSSI roosts components of the SAC. These need to be provided within this section of the document (likely to have been an oversight by the ecologist, as provided for the Mendip Limestone Grasslands SAC at Section 4.6).

Section 4.6. The most recent condition assessment for the Crook Peak to Shute Shelve Hill SSSI component of the Mendip Limestone Grasslands SAC' indicates 94% is in unfavourable, recovering condition. A Natural England consultation response in relation this condition assessment is indicated as further informing the assessment as to causes underlying the unfavourable condition; and whether related to current recreational access pressures.

Section 6.12 is indicated as presenting a minimal representation of what is proposed in relation to impacts on commuting boundary habitat. A reference to 'minor fragmentation of hedgerow habitat' indicates a lack of awareness of what is required in relation to street light and junction lighting and crossings; and the scale of potential implications for bat commuting routes which will be subjected to light intrusion.

6.13 Similarly the noted provisions of hedgerow and buffer habitat – as no account is indicated of the proposed impact of the boundary Highways lighting requirements - it is assumed that all the retained habitats listed will be available to bats. This is not demonstrated, but rather that the northern and southern aspects will impacted by the previously mentioned street and junction lighting and two floodlit pedestrianised crossings.

Sections 3.11, 3.12 and 4.4 of the North Somerset Bat SAC SPD, outline the requirements for the developer to provide evidence to demonstrate that introduced light levels will not affect existing and proposed features used by SAC bats; and the need to consider new lighting external to the development; and the need to assess night flying insect abundances.

Section 3.11 states: 'evidence should take into consideration the effects from lighting outside the proposed development site, for example from installation of street lighting

along previously unlit sections of highway but now required to illuminate the section to and past an application site's entrance'.

6.13 Bullet 5. The extent of area for recreation is not provided; and no reference is made as to whether it is proposed to be retained at or below 0.5lux; and whether it could be subject to evening dog walking by residents using torches

Section 6.16 is not quite accurate and potentially somewhat misleading in that Band A relates solely to land within 2200m of the greater horseshoe bat maternity roosts (at Brockley Hall Stables, Kings Wood and Cheddar Gorge); and within 600m of lesser horseshoe bat breeding roosts (as set out in Table 1, p. 13 of the North Somerset Bat SAC SPD).

The Appeal Site falls within Band C, within a location known to support hibernation caves used by Annex 11 species of bats, such as at Purn Hill and Hay Wood to north of Bleadon. Accordingly, the zone indicates greater horseshoe bat non-maternity (non-breeding) roosts within 611-2440m; and non breeding lesser horseshoe bat roosts within 301-1250m.

Section 6.25

Bullet 2: Section 5.31 of the Bat SAC SPD sets out the definition to identify likely foraging. It would seem difficult however to discount incidental foraging as bats commute along hedgerows and within rhyne corridors.

Bullet 3. My understanding is that 3m is applied to the width of hedgerows, as this is the desired outcome for the final structure of retained and created hedgerows, to provide high quality habitat.

Bullet 4. The calculation is provided within guidance, as such it should be interpreted in relation to what is proposed. In this instance, significant land raising is required and it is not clear what is intended in relation to the retained and proposed habitat retention. It is not clear whether it will be possible to retain and protect habitat or to enhance prior to land raising works; or whether the habitat creation would be programmed post completion of works. Accordingly, there could be additional temporal delays between removal and reinstatement.

Bullet 5 It would be helpful if the wording further clarified whether there will be an additional temporal delay if habitat creation is delayed to post land raising; or conversely if an early establishment of mitigation planning would be feasible to be implemented and practicable to be protected from land raising works.

Section 6.31 – Mendip Limestone Grasslands SAC – Potential for impacts on greater horseshoe bat – The lighting impacts indicated on the southern hedgerow and northern rhyne corridor boundaries indicate a potential lighting impact on the horseshoe bat commuting routes within the site, potentially also impacting further HEP calculated provision. Accordingly, the reasoning is not considered to be valid as the HEP replacement habitat is likely compromised by the previously discussed street lighting, junction designs and overnight lighting requirements for junctions and pedestrianised crossings on Bleadon Road.

Further there is no assessment provided as to the likely seasonal use of the wider location by bats transitioning to hibernation and no discussion of the likely strategic importance of the site, in relation to its siting adjacent to a currently unlit section of the A370, falling between the western section of the Mendip Hills and the Bleadon Levels grassland and wetland habitats.

Section 6.37 deals with the potential mitigation measures to reduce lighting within the site; rather than any discussion of lighting impacts from new external sources.

Section 6.39 indicates that the location of junctions is flexible, but this is not the case as there are noted Highways constraints to the locations of the junctions and the lighting requirements have been evaluated.

Section 6.41. From the forgoing discussion of identified boundary impacts, it is clear that the conclusion that commuting routes can be retained and protected is not supported by the known facts regarding street lighting and junction design and pedestrianised crossing lighting requirements.

Annex EDP 8 - Lighting Impacts Review submission by illume design

This document is caveated in relation to the lack of detailed information, as all matters reserved but provides for some guiding principles, to include use of LED lighting; and provision of a 10m light attenuation zone between proposed retained bat habitats and on site development, to provide some distance for light attenuation from within the on site development. It is noted that this zone has been included in a new *Constraints Plan* (Sept 2019) Annex EDP 7 to the *Information to Inform a Habitat Regulations Assessment* (Dwg. CP001). It is not possible to comment as to whether 10m is likely sufficient for light attenuation from within the development, without provision of some further technical evidence. (For comparison, for the application under construction at Woodborough Farm, Winscombe, Clarkson Woods ecological consultancy proposed design codes as a 15m offset; or building orientation gable end to the retained unlit lesser horseshoe bat commuting corridor).

LED is proposed as a low UV source within the lighting submission, as this type of lighting may reduce the extent of displacement of insect prey. There remains uncertainty as to the final extent and variation in site lighting light specification, particularly as there is potential for various householders and businesses to retrofit external lighting, with potential implications for insect prey abundance with retained habitats.

Discussion and Conclusion

The proposal is considered to pose a risk of impacting the potential landscape commuting corridor at this location between the Mendips and Bleadon Levels. The proximity of a number of hibernation roosts and supported by high quality habitats (ancient woodland (Hay Wood), species rich limestone grasslands and the wetland habitats of the Levels and Moors (to include Bleadon Level) indicate key habitat features (hibernation caves, high quality foraging and landscape connectivity, to include an unlit crossing over the A370) that are important to contributing to the favourable conservation status of horseshoe bats (and other species detected on site). There is a risk that what is implemented may have impacts that undermine the conservation objectives (e.g. in relation to distribution and abundance of horseshoe bat populations). Natural England's Mendip Limestone Grasslands supplementary advice (p.32) emphasises the key importance of retaining connectivity across the landscape for greater horseshoe bat:

Connectivity between sites is important as the bats navigate using linear features particularly such as hedgelines, walls and ditches. They use many caves within Somerset and migrate quite large distances including flying to and from Gloucestershire and Devon. It was found that the Greater Horseshoe Bats used 76 different sites on Mendip in one year.

Environmental factors such as additional requirements for junction off-site lighting and local habitats have not been adequately assessed and presented, to facilitate an informed assessment of the site context and consequently the likely extent of risks posed by the development. It is considered there is not reasonable confidence that the potential value of the location for bats, and notably horseshoe bats, has been adequately considered. The landscape context to the site needs to be taken into consideration within the assessment, particularly to inform the likely seasonal use of this location by bats.

Impacts can be divided into impacts on regular local commuting and foraging and potential for impacts on seasonal migrations of bats, as bats transition to different functional roosts, during different seasons. Major roads are subject to ribbon developments, and therefore unlit crossing areas with vegetation to guide bats close to the road, is significant to retaining landscape permeability for bats, particularly for those species, such as greater horseshoes which commute and migrate over significant areas of the landscape.

The directional orientations and locations of seasonal bat migrations are unknown and readily missed unless they coincide with periods of five-night automated detector surveys. In particular, greater horseshoe bats exploit significant landscape areas with functional roosts of the SAC extending across and beyond the North Somerset district.

Hence bats will be undertaking seasonal transitional migrations to and from hibernation caves within the Mendips, but the actual pathways are unknown. Accordingly, the precautionary principle is required and a key objective for horseshoe bat mitigation must be to retain landscape permeability by retaining, protecting and enhancing dark corridor routes through the site for each key orientation (north-south and east west) that link meaningfully with unlit, ideally vegetated, corridors.

Accordingly, known or potential impacts on boundary bat commuting corridors are particularly significant, particularly within a landscape context location that currently provides an unlit crossing point over the A370 that links the Mendip Hills habitats (ancient woodlands, hibernation caves and species rich limestone grasslands) to the further bat foraging habitats provided by farmland and the wetland foraging opportunities of the Bleadon Levels to the south of the A370.

Omission of assessment of residual impacts and in combination assessment.

Annex 5 calculation. It has not been possible to complete an independent check of the calculation within the time available, by the deadline, but the indicated impacts of new highways junction design and lighting requirements will result in a reduction in feasibility for the retained and replacement habitat provision within the southern and northern boundaries, which are not indicated to be feasible to be retained unlit. Further detailed lux plans would be required to further inform the extent of the light intrusion into these boundaries

It needs to be demonstrated that habitats included in the replacement calculation can and will be retained unlit and that the primary objective of management will be to support the continued foraging of horseshoe bats using the site and to enhance the foraging opportunities for bats; and that this will not be undermined by other competing objectives.

References:

Bat Conservation Trust/Institution of Lighting *Bats and Lighting in the UK – Guidance Note 08/18* (pp. 8 onwards provides a useful review of the recent research literature in relation to potential impacts of artificial lighting:

https://cdn.bats.org.uk/pdf/Resources/ilp-guidance-note-8-bats-and-artificial-lighting-compressed.pdf?mtime=20181113114229

Burrows L. (2018). *North Somerset and Mendip Bats Special Area of Conservation (SAC) – Guidance on Development SPD (Adopted January 2018).*

Natural England (2019) – *European Site Conservation Objectives – Supplemental advice on conserving and restoring site features – Mendip Limestone Grasslands Special Area of Conservation (SAC) Site Code: UK0030203*

Schofield H.W. (2008) *Lesser Horseshoe Bat Conservation Handbook*

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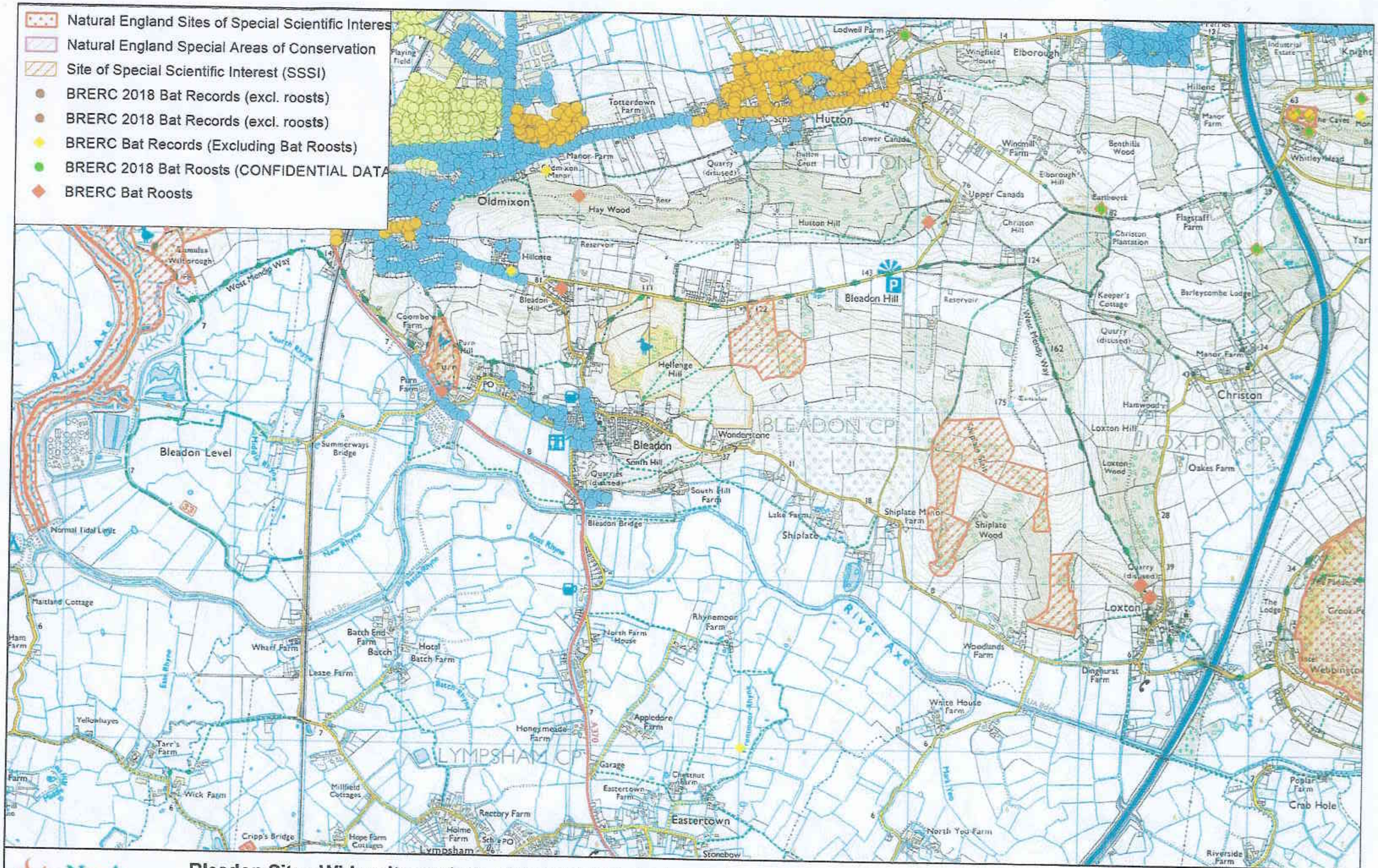

North Somerset Council

Bleadon Site - Wider site context - street lighting-designated sites-bat roosts

Scale: 1:20000
Date: 14 October 2019

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