

Report on HS2 Ltd's Bowood Lane Mitigation site

29th August 2021

This report is written by Mark Keir, of Jones' Hill Wood.

I have no formal qualifications in ecology, but I do have RHS Advanced Certificate and 25 years or more experience as a gardener/horticulturalist.

Having been central to much of HS2 Ltd's recent angst in Court, I have also spent many, many hours studying HS2's Environmental Statement, Ecology Site Management Plan, Natural England Licences and other documentation relating to HS2 works around Jones' Hill Wood and the Bowood Lane mitigation site.

Overview

HS2's proposed route cuts through the SW corner of Jones' Hill Wood, an ancient woodland in the heart of the Chilterns AONB. The Act of Parliament specified extensive mitigation adjacent to the Wood to in some degree, ameliorate the destructiveness of the construction and to adhere to the often repeated aspiration to no net loss to biodiversity.

Further to the originally planned mitigation, Fusion JV (main HS2 contractor at this point) had been forced in October 2020 through Court action to survey Jones' Hill Wood for a first time, apply for appropriate licence from Natural England (WML OR 58) and draw up considerable extra mitigation works to comply with that licence.

The issue of the Licence was called to question through the Courts and was the cause of some considerable concern to HS2 Ltd and Fusion JV, highlighting as it did HS2's much vaunted environmental ethics and their ability/inability to demonstrate their adherence to same. It might be assumed therefore that holding rigidly to the licence conditions would be a priority, and that the very best mitigation work would be put in place.

This report looks at that mitigation, it's present standard and likely success going forward, and how it measures up to compliance with that licence.

The map in Fig 1 shows the parcels of land involved.

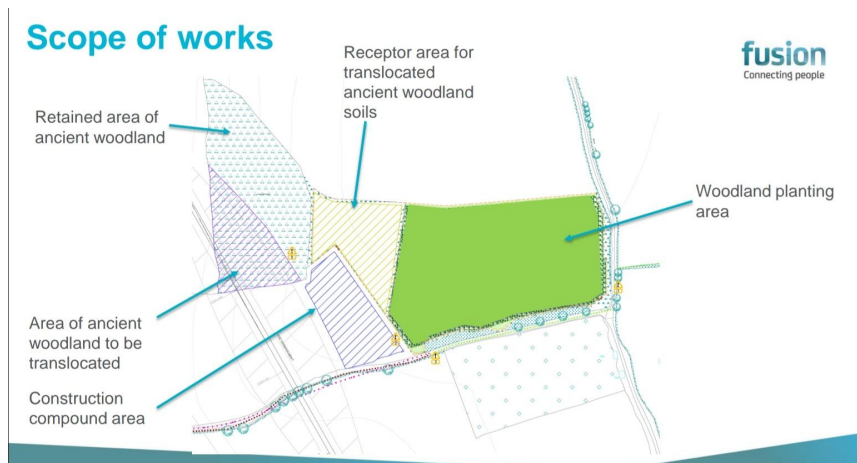


Fig 1

The areas of importance to this report are: "Receptor area for translocated ancient woodland soils", "Woodland planting area" and Jones' Hill Wood ("Area of ancient woodland to be translocated" and "Retained area of ancient woodland") itself.

What I have observed does not put HS2 Ltd in a good light. My observations have been made from the perimeter fence, with no access to the sites given to "protesters" or anyone else for that matter, but even from that sometimes distant vantage, there seems little to celebrate.

Receptor Site

The receptor site host soil was compacted (Fig 2) pretty much daily with heavy machinery over the whole of winter '20/21 and was waterlogged much of that time. This was never ameliorated.



Fig 2

Translocated soil was placed well out of acceptable season in April/May '21. The translocated ancient hedge (possibly 1500yrs old) was moved in April in dry desiccating winds. The translocated trees including those for live specimens were moved as late as late May, even into June 2021. Other whips and pot grown stock were planted May/June '21. None of these movements come even close to standards laid out in the Environmental Statement.

Of the translocated ancient hedge, it appears one plant is surviving, six barely surviving and unlikely to succeed. The other seventeen are quite dead including yews and hollies (Fig 3).



Fig 3

Few if any of the translocated trees taken for live specimens in the site have survived (Fig 4). In the receptor site there is a large empty space possibly equivalent to over a third the total area suggesting the area of mitigation falls well short of area of woodland destroyed (Fig 5). In addition to this the long new front to the ancient woodland, composed of newly exposed etiolated weak trees suggests that there will be much secondary damage unaccounted for in ecologists assessments.



Fig 4



Fig 5



Fig 6

The supposed bat flightline trees within the receptor site are, as far as bats are likely concerned, lost amid a jumble of erratically placed considerably larger trees and monoliths (Fig 7).



Fig 7

Bat boxes placed within the receptor site are unlikely to see any shelter from weather or light for at least 30 years. Presumably the fragmentation of habitat so ruthlessly executed will likely not be repaired any time before that.

A 2m wide strip of heavy weed infestation along the hedge line appears to have had an application of herbicide in August '21

There are many smaller whips and pot grown plants added to the hedge and throughout the translocated site. These tend to be deep in weeds so only a rough estimate of around 25 - 30% attrition can be given (Fig 8)



Fig 8

The immediate impression of the site is of something reminiscent to a WW1 battlefield. The Jones' Hill community long ago referred to this area as "The Graveyard".

Bat Flight Lines

There are two main lines of nursery grown semi-mature trees planted as flight corridors for bats, planted across the receptor site and the woodland planting site. Within the receptor site, as mentioned above, it is unlikely that these trees form any legible guide to bats (Fig 7).

The majority of these trees appear heading toward untimely death. (Fig 9, Fig 10)



Fig 9



Fig 10

Along the contiguous northern perimeter of the receptor site and woodland planting site there are 37 of these trees, all with watering bags, but 24 are stressed to very stressed with a 10 probably dead. Many of these despite being given quite substantial supports (some months after planting) are leaning at precarious angles (Fig 11) and, furthermore, the ties to those supports are poorly executed (Fig 12) with only a small handful of trees actually benefitting from that support. Most will soon be seriously damaged by chafing at a critical height as wind rocks the trees on the hard supports. The water bags have only been seen being filled twice since planting in April.



Fig 11



Fig 12

The second line of trees runs diagonally from Jones' Hill Wood to the unnamed wood at top of Bowood La. From a standpoint behind the northern fence, only 14 are assessable. 8 of those are clearly stressed, some possibly dead. 7 are close enough for the base of the tree to be discernable, and there are no water bags to be seen (Fig 13). Supports and tying follows the same pattern as above.



Fig 13

I believe these trees were originally considered supplemental, it seems odd they have taken on role of compulsory compliance requirement.

I have never seen any watering beyond the two bag fillings noted above. No bowser has been seen on the site or adjacent compound.

Woodland planting site

This area was mostly decompacted February/March '21. There was no other preparation.

Planting of whips took place March through April '21.

Overall the whips seemed well placed and in May '21 or later, sometime after planting, were provided with canes and paper rabbit guards (first time I've seen HS2 use these rather than plastic, good to see!).

According to HS2's documentation there was a proposed 22000 plants across this site, but pacing out, and looking at planting density I see scope for little more than 8 or 9000 plants here.

Given ponds have been added to the original plans for unexpected licence compliance requirements, and that there are large unplanted areas in the centre of the area, I suspect plant numbers are markedly below original quotes, to an extent that needs to be questioned. Is this a policy followed elsewhere? How is this to be reflected in the proclaimed 7 million trees to be planted?

Plans I have seen show hedging along a serpentine edge to the fence line, but what has appeared is a straight line (Fig 14).



Fig 14

The majority of whips seem to be progressing, though an attrition of about 25-30% looks likely.

Most of the area is under a major infestation of weeds with the majority of whips quite invisible (Fig 15).



Fig 15

That same weed infestation and associated seed fall will have major implications for any seeding of open "glade" at centre of this area.

There appears to have been an application of herbicide along the north and east hedge boundaries (Fig 13), possibly to reduce wind blown seed contaminating adjacent agricultural land. If this is the case it looks to be a futile underperformance. There is a very considerable seed bank here which the local farmer must wince painfully when he sees.

Jones' Hill Wood

Over a third of the Wood was actually felled. The expressed need for speed in Court was to facilitate constructing the urgently required haul road. As of September '21, there is little sign of any road building. Does this mean better mitigation could have been in place before felling? Does this mean more appropriate seasons for translocating and planting might have been found? Does this mean asking to waive the regulators rules for the sake of costs incurred was misleading?

Even now, the Woodland Management Zone is full of various detritus of the massive security presence posted there since October '20.

Still this beleaguered strip that is now a wide open front to the Wood is floodlit every night (Fig 16), though lamp numbers have been reduced. The noisy generators now only run at night, coming on after sun down.



Fig16

The flood lights still lie under some of the bat boxes sited here in April.

As mentioned above, the Wood now has a very wide open front allowing light and weather penetrate right through the heart of the Wood and already some weaker specimens on the supposedly safe side have sadly succumbed (Fig 17).



Fig 17

It is worth noting too, that the three prime potential roost site standing deadwoods are now frontline to the weather (By experience I can attest to the windiness of this Woodland!) and have been seen rocking significantly in fairly gentle winds.

<https://photos.app.goo.gl/4knGxzkp8jLTGoZT7>

Numbers of glis glis in the Wood seem much reduced, possibly many of them burrowed in the soil extraction area over winter. There may be a corresponding increase in grey squirrel numbers.

Tawny owls have recently started moving back in.

The bat population seems considerably less than prior to HS2 Ltd's engagement with this iconic Chiltern wood.

Over all, Jones' Hill Wood now looks set for further serious deterioration.

Summary

The work done on behalf of HS2 Ltd in and around Jones' Hill Wood has appeared shambolic, hurried, mis-timed and mismanaged. What has resulted is far from adequate. Although some of the work has been executed with seeming care, it is unlikely that given lacklustre and/or dismal work surrounding, that this was any more than box ticking. If this is the standard that Fusion/HS2 Ltd attain in full public glare and whilst a very public legal case on this very topic was ongoing or just recently finished, it does not bode well for HS2's work elsewhere. HS2 Ltd seem a very long way off claims of no net loss to biodiversity and of a green corridor of rich nature-scapes. The failure on so many counts suggests little faith can be put in HS2 Ltd or their contractors to adhere to the Environmental Statement.

Report on HS2 Ltd's Bowood Lane Mitigation site

HS2 Responses shown in Green

Please note

A non-response in relation to any particular statement or allegation in this document does not mean that we agree with such statement/allegation. We have confined our responses to the specific questions raised in this document.

1.1

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2.0 Overview

2.1

HS2's proposed route cuts through the SW corner of Jones' Hill Wood, an ancient woodland in the heart of the Chilterns AONB. The Act of Parliament specified extensive mitigation adjacent to the Wood to in some degree, ameliorate the destructiveness of the construction and to adhere to the often repeated aspiration to no net loss to biodiversity.

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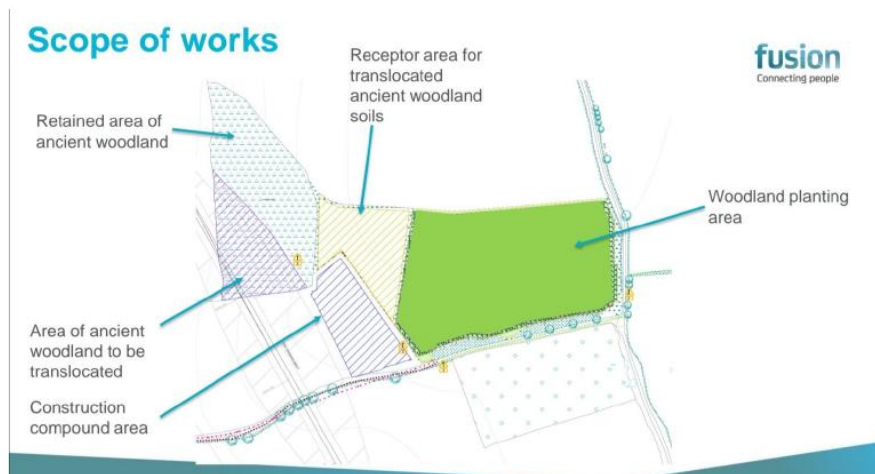


Fig 1

2.2

The areas of importance to this report are: "Receptor area for translocated ancient woodland soils", "Woodland planting area" and Jones' Hill Wood ("Area of ancient woodland to be translocated" and "Retained area of ancient woodland") itself.

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3.0 Receptor Site

3.1

The receptor site host soil was compacted (Fig 2) pretty much daily with heavy machinery over the whole of winter '20/21 and was waterlogged much of that time. This was never ameliorated.



Fig 2

Trial holes of the subsoil at the receptor site were undertaken under the supervision of a qualified soil scientist. This identified some damage to the topsoil in the receptor site location. The surveys identified no damage to the subsoils at the receptor site. All receptor site topsoil was progressively removed prior to the ancient woodland soil transfer taking place with regular inspection of soils undertaken.

3.2

Translocated soil was placed well out of acceptable season in April/May '21. The translocated ancient hedge (possibly 1500yrs old) was moved in April in dry desiccating winds. The translocated trees including those for live specimens were moved as late as late May, even into June 2021. Other whips and pot grown stock were planted May/June '21. None of these movements come even close to standards laid out in the Environmental Statement.

As works were undertaken outside the “translocation window” this was deemed a soil salvage. Aside from the seasonal window all other works were undertaken following translocation best practice. In addition to this HS2 will install additional compensation planting.

Containerised planting (pot grown stock hedgerow) can be planted all year around and were watered to aid growth following planting. This is in line with Nursery stock - British Standard BS3936-1/4

Losses of stock planting is assessed and managed in the maintenance period.

3.3

Of the translocated ancient hedge, it appears one plant is surviving, six barely surviving and unlikely to succeed. The other seventeen are quite dead including yews and hollies (Fig 3).

Existing Hedgerow was moved from the woodland edge to provide height and connectivity from the retained hedgerow and to retain soils within the root structure of existing hedgerow.



Fig 3

3.4

Few if any of the translocated trees taken for live specimens in the site have survived (Fig 4). In the receptor site there is a large empty space possibly equivalent to over a third the total area suggesting the area of mitigation falls well short of area of woodland destroyed (Fig 5) In addition to this the long new front to the ancient woodland, composed of newly exposed etiolated weak trees suggests that there will be much secondary damage unaccounted for in ecologists assessments.

All monolith and existing trees are relocated to provide vertical diversity within the site. Existing trees are translocated with the intention of survival. Should trees not survive they along with monoliths provide important standing deadwood features with ecological value.

9% (600m²) of the woodland soils were not translocated as the woodland soils were found to be substandard following previous protestor habitation, the required security operation or due to increased nutrient and intensity of weeds within the donor site. For clarity the woodland salvaged soils were placed at the same thickness and layer composition as per the donor site.

The retained woodland facing the removed woodland forms the Woodland Edge Management Zone and falls within Act limits. This zone will continue to be monitored and managed. An arboricultural survey was carried out and trees within this zone assessed to be wind firm and will continued to be monitored. Fallen trees outside of Act limits are the responsibility of the Landowner.



Fig 4



Fig 5



Fig 6

3.5

The supposed bat flightline trees within the receptor site are, as far as bats are likely concerned, lost amid a jumble of erratically placed considerably larger trees and monoliths (Fig 7).



Fig 7

The bat flight line was installed as per License conditions and provides a continuous line. Monoliths and larger relocated trees provide further ecological benefits in a random layout reflecting their position in the former woodland.

3.6

Bat boxes placed within the receptor site are unlikely to see any shelter from weather or light for at least 30 years. Presumably the fragmentation of habitat so ruthlessly executed will likely not be repaired any time before that.

A 2m wide strip of heavy weed infestation along the hedge line appears to have had an application of herbicide in August '21

There are many smaller whips and pot grown plants added to the hedge and throughout the translocated site. These tend to be deep in weeds so only a rough estimate of around 25 - 30% attrition can be given (Fig 8)

Bat boxes were installed as part of the Licence and are supplementary to boxes placed within the Woodland Edge Management Zone and a mature tree group along Bowood Lane that falls within Act Limits.

Herbicides have been used to control weeds to avoid impact to new planting within the planting site. The planting site is managed in line with the ecological site maintenance plan and performing in line with expectations

Trees transplanted into the ancient woodland soils are expected to supplement natural regeneration and weed growth is part of the regeneration phase and not artificially managed with herbicide.



Fig 8

3.7

The immediate impression of the site is of something reminiscent to a WW1 battlefield. The Jones' Hill community long ago referred to this area as "The Graveyard".

4.0 Bat Flight Lines

4.1

There are two main lines of nursery grown semi-mature trees planted as flight corridors for bats, planted across the receptor site and the woodland planting site. Within the receptor site, as mentioned above, it is unlikely that these trees form any legible guide to bats (Fig 7). The majority of these trees appear heading toward untimely death. (Fig 9, Fig 10)

The Bat Licence holder has continued to attend the site during construction and following completion. They are satisfied works are within the licence conditions.

Responded in Paragraph 3.5 and 4.2 (Below)



Fig 9



Fig 10

4.2

Along the contiguous northern perimeter of the receptor site and woodland planting site there are 37 of these trees, all with watering bags, but 24 are stressed to very stressed with a 10 probably dead. Many of these despite being given quite substantial supports (some months after planting) are leaning at precarious angles (Fig 11) and, furthermore, the ties to those supports are poorly executed (Fig 12) with only a small handful of trees actually benefitting from that support. Most will soon be seriously damaged by chafing at a critical height as wind rocks the trees on the hard supports. The water bags have only been seen being filled twice since planting in April.



Fig 11



Fig 12

Any failure of planted trees will be replaced in the Optimum Winter 2021/2022 planting season. Ongoing upkeep of the Bat flight line is stated as a Licence condition.

Substandard tree ties were identified and will be rectified this planting season (2021/2022).

A watering regime was established for the trees during the works. Upon demobilisation from the site watering ended.

4.3

The second line of trees runs diagonally from Jones' Hill Wood to the unnamed wood at top of Bowood La. From a standpoint behind the northern fence, only 14 are assessable. 8 of those are clearly stressed, some possibly dead. 7 are close enough for the base of the tree to be discernable, and there are no water bags to be seen (Fig 13). Supports and tying follows the same pattern as above.

Please refer to answer for 4.2.



Fig 13

4.4

I believe these trees were originally considered supplemental, it seems odd they have taken on role of compulsory compliance requirement.

I have never seen any watering beyond the two bag fillings noted above. No bowser has been seen on the site or adjacent compound.

Bat flight lines were required as part of the Bat Licensing condition. Regarding watering please refer to 4.2 above.

5.0 Woodland planting site

5.1

This area was mostly decompacted February/March '21. There was no other preparation.

Planting of whips took place March through April '21.

Overall the whips seemed well placed and in May '21 or later, sometime after planting, were provided with canes and paper rabbit guards (first time I've seen HS2 use these rather than plastic, good to see!).

According to HS2's documentation there was a proposed 22000 plants across this site, but pacing out, and looking at planting density I see scope for little more than 8 or 9000 plants

here.

Following feedback from the local authority the original planned 22,000 trees communicated during the stakeholder engagement period were reduced to 13,445 trees as it was felt the tree density at the woodland edge was too high. Subsequently 10,722 trees were planted on this site in the 2020-21 planting season, and 2,723 trees are planned to be planted in the 2021-22 planting season as well as any replanting requirement for failed trees.

5.2

Given ponds have been added to the original plans for unexpected licence compliance requirements, and that there are large unplanted areas in the centre of the area, I suspect plant numbers are markedly below original quotes, to an extent that needs to be questioned. Is this a policy followed elsewhere? How is this to be reflected in the proclaimed 7 million trees to be planted?

Plans I have seen show hedging along a serpentine edge to the fence line, but what has appeared is a straight line (Fig 14).



Fig 14

The requirement for the 3 no. waterbodies were identified through the approval of the bat licence, in discussion with Natural England. This required adaption of the planting design. Previously planted whips were removed for access and replanted within the site. Where possible waterbodies were located within maintenance areas of the planting area to reduce removal of whips.

Hedgerow planting is in accordance with the construction issued drawing and superseded by Bat Licence conditions.

HS2 commitment is to create an unprecedented 'green corridor' of new wildlife habitats and woodlands which will include planting up to 7 million new trees and shrubs between London and the West Midlands which will support delicately balanced local ecosystems running through the spine of the country.

5.3

The majority of whips seem to be progressing, though an attrition of about 25-30% looks likely.

Most of the area is under a major infestation of weeds with the majority of whips quite invisible (Fig 15).



Fig 15

HS2 have committed to replace the majority of failed trees over a five-year period during the establishment of the woodland. A natural thinning out is planned as the woodland matures so a low level of attrition is accepted. Current assessments reflect a 25% failure rate, this is as expected for an exposed hillside site.

Understory woodland Management is being carried out as per Maintenance schedule. Weeds competing with planting are treated with herbicide. Weed treatment was undertaken in the Autumn and will continue to be managed. Assessment of wildflower mix indicates performance meeting expectation.

5.4

That same weed infestation and associated seed fall will have major implications for any seeding of open "glade" at centre of this area.

There appears to have been an application of herbicide along the north and east hedge boundaries (Fig 13), possibly to reduce wind blown seed contaminating adjacent agricultural land. If this is the case it looks to be a futile underperformance. There is a very considerable seed bank here which the local farmer must wince painfully when he sees.

The grassland glades alongside controlled herbicide use and maintenance has established well and there is a diverse range of wildflowers which will colonise and in time thwart any weak annual weed growth. The threat to further grassland establishment by weed seed will be treated following the maintenance plan. The grassland rides will be cut in March and April 2022 to get rid of any prolific annual agricultural weed seed germination and arisings removed from site.

6.0 Jones' Hill Wood

6.1

Over a third of the Wood was actually felled. The expressed need for speed in Court was to facilitate constructing the urgently required haul road. As of September '21, there is little sign of any road building. Does this mean better mitigation could have been in place before felling? Does this mean more appropriate seasons for translocating and planting might have been found? Does this mean asking to waive the regulators rules for the sake of costs incurred was misleading?

Even now, the Woodland Management Zone is full of various detritus of the massive security presence posted there since October '20.

Construction of the internal haul route has progressed north from the access point off the A413 at Great Missenden compound, up to and past the Jones Hill Wood area.

If the Fusion clearance works at Jones Hill Wood were not completed until Autumn 2021, EKFB's access past Jones Hill Wood would have been severely impeded and this would have delayed internal haul route construction and Earthwork activities until Spring 2022.

6.2

Still this beleaguered strip that is now a wide open front to the Wood is floodlit every night (Fig 16), though lamp numbers have been reduced. The noisy generators now only run at night, coming on after sun down.

Due to presence of personnel onsite during hours of darkness, lighting is required to ensure their safety and wellbeing.



Fig16

6.3

The flood lights still lie under some of the bat boxes sited here in April.

As mentioned above, the Wood now has a very wide open front allowing light and weather penetrate right through the heart of the Wood and already some weaker specimens on the supposedly safe side have sadly succumbed (Fig 17).

Answered in 6.2

Answered in 3.4



Fig 17

6.4

It is worth noting too, that the three prime potential roost site standing deadwoods are now frontline to the weather (By experience I can attest to the windiness of this Woodland!) and have been seen rocking significantly in fairly gentle winds.

<https://photos.app.goo.gl/4knGxzkp8jLTGoZT7>

Additional Bat roosts, both new boxes and potential roost features have been placed within the Woodland Edge Management Zone in favourable locations as per the bat licence. Suitable roost features were identified prior to felling for reuse in this zone and have been attached to existing trees.

6.5

Numbers of glis glis in the Wood seem much reduced, possibly many of them burrowed in the soil extraction area over winter. There may be a corresponding increase in grey squirrel numbers.

Tawny owls have recently started moving back in.

The bat population seems considerably less than prior to HS2 Ltd's engagement with this iconic Chiltern wood.

Over all, Jones' Hill Wood now looks set for further serious deterioration.

7.0 Summary

7.1

The work done on behalf of HS2 Ltd in and around Jones' Hill Wood has appeared shambolic, hurried, mis-timed and mismanaged. What has resulted is far from adequate. Although some of the work has been executed with seeming care, it is unlikely that given lacklustre and/or dismal work surrounding, that this was any more than box ticking. If this is the standard that Fusion/HS2 Ltd attain in full public glare and whilst a very public legal case on this very topic was ongoing or just recently finished, it does not bode well for HS2's work elsewhere. HS2 Ltd seem a very long way off claims of no net loss to biodiversity and of a green corridor of rich nature-scapes. The failure on so many counts suggests little faith can be put in HS2 Ltd or their contractors to adhere to the Environmental Statement.

I respond to each of your comments in turn.

"Trial holes of the subsoil at the receptor site were undertaken under the supervision of a qualified soil scientist. This identified some damage to the topsoil in the receptor site location. The surveys identified no damage to the subsoils at the receptor site. All receptor site topsoil was progressively removed prior to the ancient woodland soil transfer taking place with regular inspection of soils undertaken."

Please show me the NPK levels you found on site. High residual NK from agriculture, even in subsoil, would result in an unwanted weed flush, which presumably does not equate to best practice?

"As works were undertaken outside the "translocation window" this was deemed a soil salvage. *So you accept you are no longer going for translocation as specified in the Environmental Statement? This is the same practice seen at Cubbington, Crackley and Broadwells? Is this now standard practice? Has this lowering of standards been made public? Has Parliament been informed?* Aside from the seasonal window all other works were undertaken following translocation best practice. In addition to this HS2 will install additional compensation planting. *In what way does this compensate for the poor practice above? Timing is a critical issue for translocation and without adherence all those puffed up ideals are worthless.* Containerised planting (pot grown stock hedgerow) can be planted all year around *And can be weed choked half the year to.* and were watered to aid growth following planting. *But this stopped when you weren't paid to do it anymore?* This is in line with Nursery stock - British Standard BS3936-1/4 Losses of stock planting is assessed and managed in the maintenance period."

Existing Hedgerow was moved from the woodland edge to provide height and connectivity from the retained hedgerow and to retain soils within the root structure of existing hedgerow. *You killed it. All of it. Any response?*





All monolith and existing trees are relocated to provide vertical diversity within the site. Existing trees are translocated with the intention of survival. Should trees not survive they along with monoliths provide important standing deadwood features with ecological value. *So you are content to provide nothing but standing deadwood resource?* 9% (600m²) of the woodland soils were not translocated as the woodland soils were found to be substandard following previous protestor habitation, *Please justify.* the required security operation *You mean the required security operation to secure the work you knew to be illegal? But thank you for accepting this responsibility!* or due to increased nutrient and intensity of weeds within the donor site. *Surely this should have been thought of first? How can you possibly adhere to best practice with such evident lack of forethought?* For clarity the woodland salvaged soils were placed at the same thickness and layer composition as per the donor site. The retained woodland facing the removed woodland forms the Woodland Edge Management Zone *(How many name changes? Is this Windsca...Seascale, sorry, Sellafeld?)* and falls within Act limits. *And is still trampled bare, full of your detritus and litter, and as per photographic evidence shown, full of highly etiolated weak trees, some of which have already succumbed. And no response to eliminating the weather and light protection and immediate feeding habitat around the known bat roosts?* This zone will continue to be monitored and managed. An arboricultural survey was carried out and trees within this zone assessed to be wind firm and will continued to be monitored. *I want to see this report please. It seems Jones' Hill and Leather Lane might be getting special treatment with these surveys. Is it worth noting these are two sites of protestor activity (non-violent, of course)* Fallen trees

outside of Act limits are the responsibility of the Landowner. *They fell as a result of your work which will still very likely be proven illegal. Whose responsibility? Have you asked the landowner of their thoughts? And they're still falling:*

The bat flight line was installed as per License conditions and provides a continuous line. *A rather discontinuous line! They are dying! Monoliths and larger relocated trees provide further ecological benefits When? Now? Are you serious? Have you ever been here and seen this? What benefits a bat a box 40ft up a telegraph pole in the middle of a field on top of a hill?*



Bat des res aloft, and bat corridor at the base - I think?

in a random layout reflecting their position in the former woodland. *All through you seem to be saying nothing more than "we ticked the boxes". Is this best practice? Is this the level of workmanship that the Environmental Statement promised to Parliament?*

Bat boxes were installed as part of the Licence and are supplementary to boxes placed within the *Hand on heart, tell me this is more than box ticking. Bat boxes 40 feet up an utterly isolated telegraph pole? Bat boxes within metres of 200mph trains? Bat boxes that had to replace illegally placed boxes? Does this work normally entail assault and theft?* Woodland Edge Management Zone and a mature tree group along Bowood Lane that falls within Act Limits.

Herbicides have been used to control weeds to avoid impact to new planting within the planting site. The planting site is managed in line with the ecological site maintenance plan and performing in line with expectations

Please show me what those expectations are. Are they written down? Do they comply with the Environmental Statement?

Trees transplanted into the ancient woodland soils are expected to supplement natural regeneration *The only arborocultural regeneration* and weed growth is part of the regeneration phase and not artificially managed with herbicide.

Responded in Paragraph 3.5 and 4.2 (Below)

Then I guess my response of minimum standards and box ticking holds true too. Have you compiled any reports of your mitigation works here or elsewhere? Do you monitor as you claim?

Any failure of planted trees will be replaced in the Optimum Winter 2021/2022 planting season. *Bit late to the party? Shouldn't this have been your primary working practice? Your lack of planning, your lack of engagement with legal requirements laid out in law and Environmental Statement, your lack of candour in Court, all led to the whole translocation process being un-timely, as was the case at Crackley, Cubbington and Broadwells. And here we are in December and no replacements yet forthcoming. Not being a magician myself, and not being able to watch your hurried panicking work practices unfold over 140 miles, perhaps you might provide documentary evidence of everywhere you have and everywhere you haven't attained those much vaunted and legally binding values laid out in the Environmental Statement.* Ongoing upkeep of the Bat flight line is stated as a Licence condition. *On going upkeep of dead trees. Fine profession.* Substandard tree ties were identified and will be rectified this planting season (2021/2022). *But why? Tying trees is not a seasonally dependent operation, why should such shoddy workmanship (first omitted, then done woefully badly, then re-done equally badly and then again equally badly - yes, THREE times and still desperately poor!) not be rectified immediately to save a few trees and add one more year to effective mitigation? Perhaps I've already answered that. Maybe this demonstrates an acceptance of minimum box ticking standards?* A watering regime was established for the trees during the works. *Through our intervention I believe?* Upon demobilisation from the site watering ended. *Well that's useful!!! That really does demonstrate box ticking!!! Does demob exonerate you from all responsibilities? Or did you expect the trees to follow you to your next post?*

Bat flight lines were required as part of the Bat Licensing condition. *Yes I remember. Wasn't there mention of some degree of maturity? Is that really exemplified with 2, 3 maybe 4yr (at most) old trees?* Regarding watering please refer to 4.2 above. *See above also!*

Following feedback from the local authority the original planned 22,000 trees communicated during the stakeholder engagement period were reduced to 13,445 trees as it was felt the tree density at the woodland edge was too high. Subsequently 10,722 trees were planted on this site in the 2020-21 planting season, and 2,723 trees are planned *Can you prove categorically that this isn't simply a response to my observations, which I have been making public since December 2020? Or, indeed have local authorities been invited to advise at other sites?* to be planted in the 2021-22 planting season *(And again, we're in December and nothing new has appeared.* as well as any replanting requirement for failed trees.

The requirement for the 3 no. waterbodies were identified through the approval of the bat licence, in discussion with Natural England. This required adaption of the planting design. Previously planted whips were removed for access and replanted within the site. Where possible waterbodies were located within maintenance areas of the planting area to reduce removal of whips. Hedgerow planting is in accordance with the construction issued drawing and superseded by Bat Licence conditions. *Please clarify.....planting according to construction drawing, not the bat licence conditions? Did you really mean that?* HS2 commitment is to create an unprecedented 'green corridor' *full of now isolated habitats owing to ripping out upwards of 500 hedges?* of new wildlife habitats *which will be divided by an equally unprecedented 140 mile long untransgressable barrier to natural connectivity, barring feeding and breeding patterns. No wildlife bridges in the Chilterns, are there any further up the line?* and woodlands which will include planting up to 7 million new trees *You see? There's that 7 million figure again. You've just shown that planting in this area is all but halved after Local Authority intervention (and I suspect that of those wonderful peaceful protesters). How can you justify this claim without expanding beyond Act limits?* and shrubs between London and the West Midlands which will support delicately *You're not kidding! Every ecosystem you come within a mile of will be quivering. "Delicately" is putting it very mildly. Deserts are balanced. local ecosystems running through the spine What happens if you're spine is broken?* of the country.

HS2 have committed to replace the majority *Define majority?* of failed trees over a five-year period during the establishment of the woodland. A natural thinning out is planned as the woodland matures so a low level of attrition is accepted. Current assessments reflect a 25% failure rate, this is as expected for an exposed hillside site. *When you started this was a relatively sheltered site, there being an ancient woodland nicely placed in the prevailing wind. Somebody felled that after lying in Court.* Understory woodland Management is being carried out as per Maintenance schedule. *Please send me a copy.* Weeds competing with planting are treated with herbicide. Weed treatment was undertaken in the Autumn and will continue to be managed. Assessment of wildflower mix indicates performance meeting expectation. *(Which you then sprayed?) Please show documentary evidence. All I saw was the expected massive flush of agricultural weed which of course I am happy to concede is wild flower, but existed through lack of, or poor and unplanned intervention on your part, and cannot be claimed as your mitigation.*

The grassland *Grassland? The only grasses here are wheat left over from previous agriculture.* glades alongside controlled herbicide use and maintenance has established well *Of course, what you really mean is the massive flush of weeds you didnt plan for has established well. Odd that. It was there latent in the soil all the time and it established as if by magic.*



and there is a diverse range of wildflowers *As much as oft repeated agricultural practices will allow. There's a huge diversity absent here.* which will colonise and in time thwart any weak annual weed *Do you so misunderstand weeds?* growth. The threat to further grassland establishment by weed seed will be treated following the maintenance plan *How? Herbicide? Grazing sheep? Please let me see this schedule. Does it really exist?.* The grassland rides will be cut in March and April 2022 to get rid of any prolific annual agricultural weed seed germination and arisings removed from site. *But you've already had people in there spraying the "grassland"!*

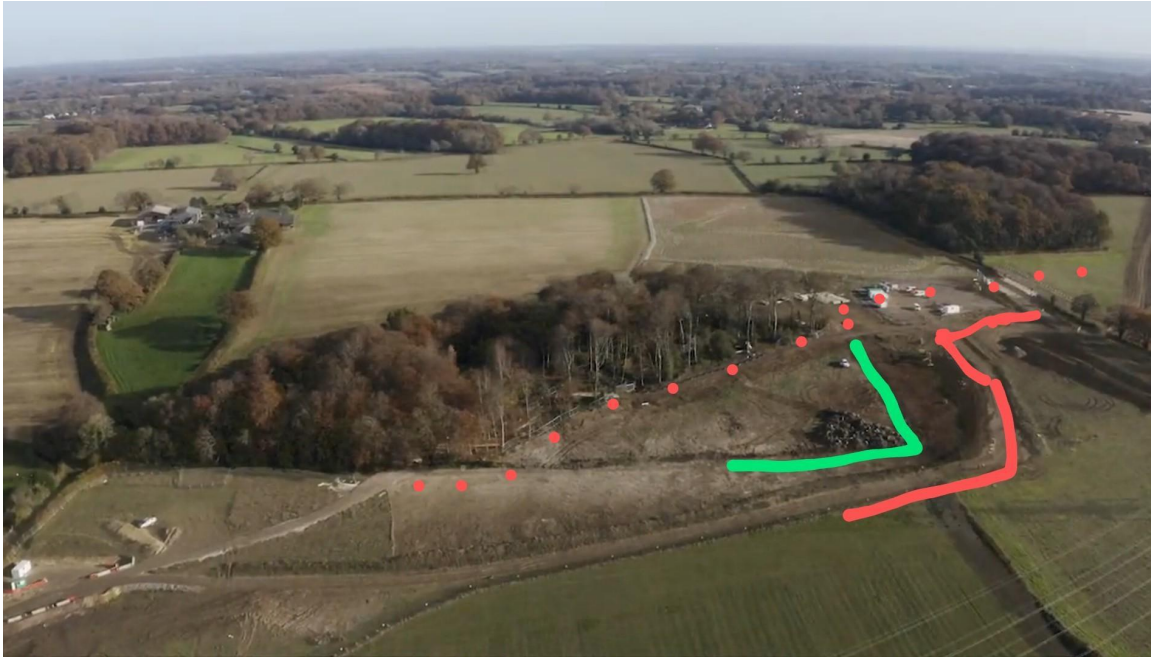
Construction of the internal haul route has progressed north from the access point off the A413 at Great Missenden compound, up to and past the Jones Hill Wood area. If the Fusion clearance works at Jones Hill Wood were not completed until Autumn 2021, EKFB's access past Jones Hill Wood would have been severely impeded and this would have delayed internal haul route construction and Earthwork activities until Spring 2022.

This is an out and out lie. Currently you have off road vehicles using a dirt track along 90% of the route as shown quite graphically here:

<https://twitter.com/ilonatheoak/status/1465106321271922690?t=DSC6fEtIiaBS1kWXOys6gA&s=19>

Traffic past Jones' Hill has been absolutely minimal with the only plant/HGV traffic directly attributable to the felling of the wood.

It is very notable that what you claim to be a haul road in use (mudtrack) avoids the original footprint of Jones' Hill having been established prior to felling. Was it really necessary to fell the Wood and avoid due diligence? Did you lie in Court too?



Green shows corner of Jones' Hill, orange the present "haul road", dotted orange the proposed route for which JonLes' Hill was so urgently felled.



This is your "haul road" at Bowood Lane



This is where it's supposed to cross Bowood Lane with Jones' Hill in background



And this where current traffic does cross Bowood La.



And this is the only section yet constructed, 2miles away, 2yrs ago, all tarmac'd and ready to go, except you built it too steep to get your trucks up!

Due to presence of personnel onsite during hours of darkness, lighting is required to ensure their safety and wellbeing. *But this lighting is all in the WMZ where you have no personnel. This lighting is directed upward into the canopy, not down to ground. Personnel are all equipped with headlamps and very powerful strong torches (some even have lasers!) which they have demonstrated frequently and Illegally. This lighting all depends on the constant noise and pollution of diesel generators. Has this been factored in to mitigation plans? If you had followed procedures as laid out in the Environmental Statement none of this would be necessary.*



Lighting in the WMZ

Lighting at Bowood La icompound s also directed at the monoliths and bat boxes.

Additional Bat roosts, both new boxes and potential roost features have been placed within the Woodland Edge Management Zone in favourable locations *Favourable? Are you now estate agents for bats? Are you really saying a woodland bared to cold north winds, denuded of undergrowth, shade removed and within a couple metres of the massive construction work and then to trains hurtling by 14 times an hour is favourable?*



Is this a favourable bat des res?

as per the bat licence. Suitable roost features were identified prior to felling for reuse in this zone and have been attached to existing trees

Possibly one of the most important paragraphs in the report has had no response from you....as yet. Perhaps you might do so now:

6.5 Numbers of glis glis in the Wood seem much reduced, possibly many of them burrowed in the soil extraction area over winter. There may be a corresponding increase in grey

squirrel numbers. Tawny owls have recently started moving back in. The bat population seems considerably less than prior to HS2 Ltd's engagement with this iconic Chiltern wood. Over all, Jones' Hill Wood now looks set for further serious deterioration.

Can you supply any survey data to demonstrate the veracity or otherwise of above, or to demonstrate your ongoing concern?

There is little or nothing in your response that diminishes the concerns raised in the report. Indeed, quite the opposite. The falsehoods and evasion just keep tumbling forth, and add concern upon concern. Is there nothing we can trust HS2 Ltd on? Can Parliament trust what you say? Can the Courts? Can the Press? Can Natural England? Jones' Hill Wood should have been a call to arms of all the brilliance that HS2 could muster, instead we see shoddiness, evasiveness and dishonesty, some might even say criminality.

The level of concerns raised by protesters, locals, councillors and MPs just in the few miles that HS2 crosses the Chilterns urges a a major reassessment. Is there anything here that is fit for purpose?

Failures to protect vital ecology and biodiversity at Leather Lane and other sites along HS2 line



By Lindsey Spinks, Sophie Dewsnap, Sarah White and

Carol-Anne O'Callaghan

from the Campaign to Save Leather Lane

1. Background

The Holloway of Leather Lane has formed over centuries of use and forms an irreplaceable part of the Chilterns landscape. The sunken lane, lined with Oaks to the South has created an important foraging route for bats that soar down the lane, using the trees and hedgerows as a source for food and vital connectivity and habitat. A bat survey carried out on 9th May 2021 registered 6 species of bat¹ including the endangered Barbastelle bat. We followed this up with a series of readings using an Anabat reader throughout June 2021, and the continuous presence of at least 7 species of bats including barbastelle bats continuously using this corridor has been confirmed by Ecologist Sam Watson.²

It is very clear from walking Leather Lane that there is far more Ecology on the Southern side and therefore foreseeable harm to biodiversity. The use of the term “vegetation” by HS2 and EKFB in fact refers to an entire Ecosystem including ancient oaks, hedgerows and other bushes and abundant Flora, including ancient woodland indicator species such as Dogs Mercury providing habitats and food for numerous species including the bats and tawny owls that nest here.

The Bat Conservation Trust cites habitat loss and severing of routes as one of the main causes of decline in bat populations.³ Their main recommendations are that an independent third party with the appropriate expertise in this area should be recruited to carry out monitoring of the bat population and provisions to protect, manage and monitor mitigation and compensation measures in the long-term should be outlined clearly and well-designed prior to the commencement of work.

In March this year, over 40,000 members of the public signed a petition to stop the felling and save the trees, and Richard Buxtons' solicitors intervened with the threat of court action to protect the bats believed to be roosting there. This is not only a local issue, it is one of national importance. As we lose biodiversity in one area, it will impact on others: decline in local populations of endangered bats such as the barbastelle will affect their favourable conservation status and HS2's commitment to Net Loss is undermined wherever ecosystems are destroyed without proper mitigation.

This vital corridor should be protected in order to conserve key connectivity and the conservation status of all species depending on Leather Lane for foraging and connectivity to habitats. Indeed a European report from 2011 that was submitted to HS2 at consultation stage states *“One of the most important issues is fragmentation of landscapes by human activities and infrastructure — a major cause of the alarming decrease in many European wildlife populations...Fragmentation analysis must*

¹ Leather Lane Bat Survey 9 May 2021 Metatable

² Watson, S. (2021). Anabat Express Detector Report - Leather Lane

³ <https://www.bats.org.uk/about-bats/threats-to-bats>

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be integrated into transport and regional planning so that cumulative effects are considered more effectively in the future.”⁴

Independent ecologist Sam Watson has attended Leather Lane on several occasions and analysed data from an Anabat detector that was placed there in June.⁵ He notes:

*“To date, the data collected from Leather Lane has confirmed the presence of at least seven species of bat: common and soprano pipistrelle *Pipistrellus pipistrellus* and *P. pygmaeus*, noctule *Nyctalus noctula*, serotine *Eptesicus serotinus* and barbastelle *Barbastella barbastellus* and at least one species from each of the *Plecotus* and *Myotis* genera. **Of these, soprano pipistrelle, noctule and barbastelle are identified as Species of Principal Importance further to the Government’s duties under Section 41 of the Natural Environment and Rural Communities Act 2006. Barbastelle is also considered very rare in Britain.**”*

“Of significance in the data is the regularity with which bats are recorded by the detector, with typically only a few minutes between each registration.... Furthermore, this high level of activity is maintained throughout the night, indicating that bats utilise the lane more-or-less continually.

*A likely reason for this is the context of the lane when seen at a landscape scale. Leather Lane is broadly aligned west-east perpendicular to the A413, making it one of only three single carriageway roads across a stretch of land over 7km long between Frith Hill at Great Missenden to the south and Hale Road at Wendover to the north. Particular to Leather Lane though is the fact that it is also below the level of the adjacent land for much of its length; a ‘holloway’, and there is a continuous hedgerow along the southern side for the entire length of the lane. **These two characteristics create a sheltered corridor and optimal conditions for bat activity and it is not unreasonable to suggest that the lane is unique when compared to the other lanes. Landscape scale features that provide high quality commuting routes are a key factor in the maintenance of local bat populations, providing sheltered corridors between roosts and feeding areas.***

This is particularly important for the barbastelle bat which is known to forage as much as 20km from roost sites. Removal or significant alteration to the lane and its particular characteristic therefore poses a significant risk of, at best, disrupting or hindering bat movement, or, at worst, removing an important bat corridor entirely.”

In his letter to the **Leather Lane campaign this Tuesday, 13th July**, renowned Bat Expert John Altringham stated:

“Having looked at the bat report and the maps of nearby ancient woodland, it is self-evident that as

⁴ European Environment Agency. (2011). Landscape Fragmentation in Europe. *Joint EEA-FOEN report*. No 2/2011 pp 6

⁵ Watson, S. (2021). Anabat Express Detector Report - Leather Lane

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*few trees as possible should be removed, to retain foraging habitat, roost potential and connectivity across this fragmented landscape. All species are under considerable pressure and their small populations reflect the already degraded nature of the landscape. **Further stress on species through habitat degradation, loss and fragmentation will inevitably lead to further decline and possibly local extinction.** The Annex II barbastelle already has a thin and patchy distribution in the UK, so local loss of this species is of national importance, in part because it leads to ever more isolated local populations which become increasingly vulnerable to the effects of climate change and other pressures.”*

The barbastelle (*Barbastella Barbastellus*) is a UK Biodiversity Action Plan species (see details of the NERC Act 2006⁶), which means that it is a conservation priority on both a local and national scale. It is included in Annex II (and IV) of EU Habitats and Species Directive, and requires special measures for conservation including designation of Special Areas for Conservation. It is listed as Near Threatened on the global IUCN Red List of Threatened Species, and it is highly recommended old trees are maintained in sufficient numbers to preserve these rapidly dwindling species.⁷

As local woodlands, trees and hedgerows are felled, we believe that the biodiversity of Leather Lane is more crucial than ever and provides natural mitigation for the loss of biodiversity nearby. The “mitigation” for Jones’ Hill Wood at Bowood is poorly executed compensation and a travesty for anyone who cares about nature or re-wilding. If you compare the photo of Leather Lane with Bowood you can see the difference – rich ecology and biodiversity and a natural, well established feeding route versus mitigation for loss in the area – a barren wasteland.

Our own investigations, along with several independent reports^{8,9} show that HS2 have failed in their Environmental obligations, in particular:

1. They have not carried out adequate Environmental Impact Assessments and baseline surveys;
2. The Precautionary Principle, as required by international law, was adopted in the Environmental Statement but has not been applied;
3. They have failed in their commitment to biodiversity and net loss;
4. They have not applied the Mitigation Hierarchy;
5. They have breached their own EMRs;
6. Key aspects of Design Principles have not been incorporated into the project design.
7. HS2 has not engaged with the community and has not carried out the Consultation process in a transparent and meaningful manner.

HS2 did not put adequate measures in place following the Environmental Statement in 2013, the

⁶ S. 40 NERC Act 2006

⁷ Piraccini, R. 2016. *Barbastella barbastellus*. The IUCN Red List of Threatened Species 2016: e.T2553A22029285. <http://dx.doi.org/10.2305/IUCN.UK.2016-2.RLTS.T2553A22029285.en>

⁸ Microsoft Word - HS2 Review of EcIA-3.docx (hs2 action alliance.org)

⁹ [ecology-technical-group-assessment-and-review-of-the-hs2-ltd-approach-to-the-natural-environment-including-recommendations-for-phase-2.pdf](#)

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House of Commons Select Committee in 2015 and the House of Lords Select Committee in 2016. In fact, groups and members of the public involved in the consultation process were told that the ES set out the "Worst case scenario" – in fact the reality is much worse and the real threat to biodiversity and the species depending on sites such as Leather Lane for survival have not been considered, let alone mitigated for.

The "consultation" process produced 2 reports on what was expected and ancillary legislation that was specific to certain areas. It was expected that HS2 would carry out surveys and meet at least the "Environmental Minimal Requirements". This never happened. We understand that HS2 only carried out bat surveys on 42% of the route which has led to mass failings and criminal offences under Wildlife protection laws. Had HS2 taken its environmental commitments seriously, they would have acted on findings of Barbastelle Bats in nearby Little Missenden and Ellesborough in 2016.

In the case of Leather Lane, HS2 has failed to carry out appropriate assessments as required under the Environmental Impact Assessment regulations. As a result, key issues, such as the bat corridor, were not properly identified.

Even though HS2 have adopted the Precautionary Principle, as required by law and the Design Principles they have committed to, they have failed to implement this and have pressed on with felling without full surveys and adequate mitigation. They have also failed in their commitment to 'no net loss' by failing to identify, protect and mitigate for the biodiversity on Leather Lane - this not only includes the irreplaceable oak trees, but the rich ecology on the Southern Side and the essential bat corridor this creates for foraging and commuting bats. They have a duty of care and, as with all development projects, should apply the Mitigation Hierarchy to AVOID harm to biodiversity, which would be achieved by aligning the over-road either parallel to the existing Lane or building an over-bridge to the North of Leather Lane.

2. Fragmentation of Habitats and Landscapes

Several reports on the risk of fragmentation to the landscape and habitats were put forward to HS2 and Parliament at the consultation stage. One included the European Environment Agency report into Landscape Fragmentation, which states:¹⁰

Landscape fragmentation increases the risk of populations becoming extinct, as isolated populations are more vulnerable to natural stress factors such as natural disturbances (e.g. weather conditions, fires, diseases), i.e. lower resilience. Landscape fragmentation is a major cause of the rapid decline of many wildlife populations. As landscape fragmentation contributes to the destruction of established ecological connections between adjoining areas of the landscape (Haber, between adjoining areas of the landscape (Haber, 1993; Jaeger et al., 2005a), it also affects entire communities and ecosystems. The possibility for two animals of the same species to find each other in the landscape is a

¹⁰ European Environment Agency. (2011). Landscape Fragmentation in Europe. *Joint EEA-FOEN report*. No 2/2011

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prerequisite for the persistence of animal populations (e.g. because of the need for genetic exchange between populations and for the recolonisation of empty habitats includes only effects that are known. There may be various additional effects about which our knowledge is still very limited, such as cumulative effects (combination with other human impacts), response times of wildlife populations and effects on ecological communities (e.g. cascading effects).

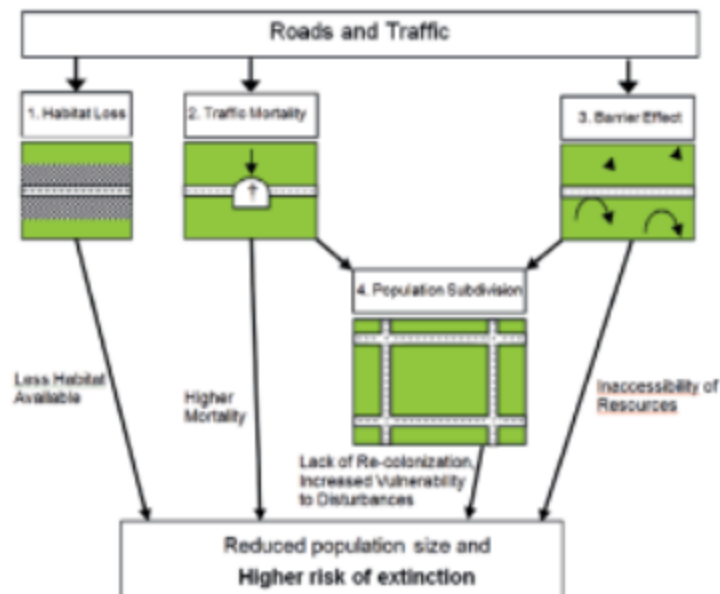


Figure 1.3 The four main effects of transportation infrastructure on wildlife populations (e.g. because of the need for genetic exchange between populations and for the recolonisation of empty habitats includes only effects that are known. There may be various additional effects about which our knowledge is still very limited, such as cumulative effects (combination with other human impacts), response times of wildlife populations and effects on ecological communities (e.g. cascading effects).

“Therefore, the precautionary principle should be employed.”

Page 53: 4.2 Implications for nature conservation, traffic and urban planning

Application as a tool for performance review

Measures for controlling landscape fragmentation can only be implemented effectively if there is an awareness of the problem and feasible solutions are proposed. Decision-makers and the general public should therefore be made more aware of the problems of landscape fragmentation and habitat loss and need to be informed about suitable measures.

Relevance to biodiversity

The long response times of many species to changes in landscape structure present a particular challenge. The current population densities may not be the response to the current landscape

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pattern but to earlier landscape patterns decades ago, and wildlife populations may continue to decline for many years even if the degree of landscape fragmentation does not increase in the future. Given that the negative effects of habitat fragmentation and isolation often only become apparent after several decades, it is likely that further population losses will be incurred in the coming decades as a result of the landscape changes

“This makes it all the more essential that a precautionary approach is adopted that guides landscape fragmentation in the desired direction in the coming decades, while future research projects should fill the remaining gaps in knowledge.”

The exact thresholds for a population or a species are largely unknown, and it is unlikely that they will be known any time soon. Therefore, any hopes for a general hard number for the maximum acceptable level of fragmentation will be disappointed. **Rather, the precautionary principle should be applied in the assessment of landscape fragmentation, and the implementation of limits requires a consultation process.**

As stated previously, this has not been the case for Leather Lane or other corridors in the Chilterns, inadequate surveys were carried out and no precautionary principle has been applied, resulting in actions that are fragmenting vital habitats and connectivity across the landscape with inadequate mitigation. This will have a huge impact on biodiversity and populations of species both locally and nationally.

This situation flies in the face of the principles of sustainability and is contrary to the precautionary principle.

HS2 need to:

(1) Apply the Mitigation Hierarchy in order to AVOID impacts where possible - only once this process has been complete should they consider mitigation and then compensation;

(2) For the above reason, HS2/EKFB must fully consider the option we are presenting (now known as Option 7) as it will direct the over bridge to the North of Leather Lane and preserve the remaining 87 veteran oak trees and bat corridor;

(2) to restore connectivity across existing transportation infrastructure with most effective design based on evidence¹¹.

The European report puts forward several mitigation measures under 4.3.1 Measures in traffic planning and regional planning, including tunnels and wildlife passages. We are sure that HS2 and EKFB are aware of this report, along with several other reports that were submitted to them at the Parliamentary Consultation stage.

3. Commitment to Biodiversity/No Net Loss

¹¹ [Conservation Evidence: Evidence Data](#)

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HS2 are bound to apply the Mitigation Hierarchy - an established practice in the construction industry and reinforced in HS2's own Ecology document which provides the basis for HS2's approach to assessing, mitigating and compensating any ecological impacts caused by the scheme.

3.1.1 states:

“ The design of the Proposed Scheme will reflect the ‘mitigation hierarchy’ consistent with the current National Planning Policy Framework¹ and guidance on Environmental Impact Assessment as may be applicable to the Proposed Scheme.”

The Hierarchy requires any construction project to AVOID harm to biodiversity as a first step. The design option presented by HS2/EKFB does not even address this - had they done so, we would expect to see an over bridge design that avoids the lane of trees altogether by either running alongside Leather Lane, straight down to the A413, or an overbridge on the Northern Side which is an arable field.

HS2 keep making claims about their planting of saplings - not only are the figures not resalinity on the ground - tree planting is NOT Mitigation, which is Tier 2 of the Hierarchy. Instead, they are leaping to Tier 3 - bypassing point 1 and 2 and only dealing with Compensation.

1. **Avoidance:** the first step of the mitigation hierarchy comprises measures taken to avoid creating impacts from the outset. Avoidance is often the easiest, cheapest and most effective way of reducing potential negative impacts, but it requires biodiversity to be considered in the early stages of a project.
2. **Minimisation:** these are measures taken to reduce the duration, intensity and/or extent of impacts that cannot be completely avoided.
3. **Rehabilitation/restoration:** The aim of this step is to improve degraded or removed ecosystems following exposure to impacts that cannot be completely avoided or minimised.

Typically, however, even after their effective application, additional steps will be required to achieve no overall negative impact or a net gain for biodiversity.

4. **Offset:** offsetting aims to compensate for any residual, adverse impacts after full implementation of the previous three steps of the mitigation hierarchy. Biodiversity offsets are of two main types: 'restoration offsets' which aim to rehabilitate or restore degraded habitat, and 'averted loss offsets' which aim to reduce or stop biodiversity loss in areas where this is predicted. Offsets are often complex and expensive, so attention to earlier steps in the

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mitigation hierarchy is usually preferable.¹²

It goes without saying that if damage can be AVOIDED in the first place, the following steps do not even need to be considered - this is a win-win situation that preserves biodiversity and saves costs.

Section 40(1) of NERC states:

'Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity'. This is known as the Biodiversity Duty and 'is a factor that they must consider [along with other factors which are not necessarily of an ecological nature] when deciding whether to, and how to, exercise their functions'.

In terms of species, biodiversity is considered by the act to be principally those listed in s.74 of the CROW Act (i.e. UK Biodiversity Action Plan (BAP) Priority species; the Secretary of State has a duty under s.41 of NERC to review and revise this list), which includes the four Annex II species discussed earlier and also the common pipistrelle bat which includes two species *Pipistrellus pipistrellus* and *Pipistrellus pygmaeus*.

In accordance with PPS9, developers must be able to demonstrate that they have considered alternative options to prevent 'significant harm' to 'biodiversity interests'. In terms of PPS9 'biodiversity interests' refers not only to UK Biodiversity Action Plan Species, such as the bat species as listed in s.74 of the CROW Act, but also to local Biodiversity Action Plan species and all other species protected under the WCA and the Habitats Regulations.

As public authorities, this provision also applies to HS2 and the Department for Transport as well as Buckinghamshire Council.

The public authorities to whom this duty applies are listed in s.40(4) of the NERC and notably includes local planning authorities (previously under CROW this duty only applied to Ministers of the Crown, Government departments and the Welsh Assembly Government), as well as public bodies, such as HS2. (See: Recital (D) of the Development Agreement.)

If local planning authorities must exercise the Biodiversity Duty when assessing planning applications, then by implication so must developers if their proposals are to be viewed favourably. If a development would result in significant harm to important foraging/commuting habitat of a s.74 bat species, then the local planning authority must take this into consideration ('have regard') when assessing the planning application. The Guidance for Local Authorities on Implementing the Biodiversity Duty (Defra, undateda) supports this view stating that local planning authorities 'should give proper consideration to biodiversity outside of designated areas', which includes 'habitats of principal importance'.

¹² [Mitigation hierarchy - The Biodiversity Consultancy](#)

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Had they carried out an EIA, HS2 would have adequate survey data to show that Leather Lane is a bat corridor and they would have put measures in place at the outset to avoid destroying the corridor.

HS2 has adopted the **Precautionary Principle** in its ES but this has not been applied. If it had been, sustainability would have been inherent to all further decisions and a commitment to the protection of Ecology and Biodiversity would have been at the core of all planning and decision making.

The EU communication on the Precautionary Principle (EU, 2000) states

'The precautionary principle applies where scientific evidence is insufficient, inconclusive or uncertain and preliminary scientific evaluation indicates that there are reasonable grounds for concern that the potentially dangerous effects on the environment, human, animal or plant health may be inconsistent with the high level of protection chosen by the EU'.

Any reasonable person would see that there was a huge risk to Ecology on the Southern Side and, as such, HS2 should have taken measures to avoid dangerous effects. Surely a reasonable person, or let's say, an Ecologist would see the potential for harm to the Environment, Animal, Human and plant healthy by felling a row of 99 mature oak trees in an AONB that is known to be, and identified by HS2, as being a habitat to numerous species, including bats? The local residents can see this so we presume an HS2 Ecologist would.

The absence of Baseline Surveys and subsequent prevention and mitigation measures means that HS2 are unable to achieve zero net loss for Leather Lane and therefore for the entire project.

Section 85 of the Countryside and Rights of Way Act 2000, and Section 40(1) of NERC states that 'every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity'.

If HS2/EKFB design an over-lane rather than a road, they would not only be creating a solution for the bat corridor but also incorporating the Design Principles prepared by the AONB group that requires HS2 to maintain the integrity of the Holloway.

The survey data provided is patchy and lacks information regarding location, but we did find grid references for three records of Barbastelle bats commuting in Little Missenden and Ellesborough area in 2016 and 2017 respectively. This should have prompted a more thorough survey - Barbastelles are European Protected Species under the Habitats Directive and their commuting corridors and resting places must be protected. I have seen references to Pipistrelles and other species but not Barbastelles in HS2's Ecology documents.

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5. Surveys

We believe that HS2 are in breach of the EIA Directive ("the Directive") and have not carried out adequate baseline surveys. There have been references to Leather Lane as a corridor that connects bats to habitats in various documents, but there is no in-depth data to provide more information and mitigation for this. Had HS2 carried out an EIA as required by law, they would have identified Leather Lane as a crucial bat corridor and put more effective mitigation measures in place, which would include routing the over road elsewhere to avoid destruction of this vital corridor for Ecology and bats.

Article 2(1) of the Directive requires all measures necessary are taken to ensure that, prior to consent, projects likely to have significant effects on the environment by virtue, *inter alia*, of their nature, size or location are made subject to a requirement for development consent and an assessment with regard to their effects.

The Directive requires that projects likely to have significant environmental effects are assessed before development consent is given. As a result, the competent authority is obliged to carry out an environmental impact assessment in respect of a project even after the grant of outline planning permission, when the reserved matters are subsequently to be approved, if it becomes apparent, in the course of the second stage, that the project is likely to have significant effects on the environment by virtue *inter alia* of its nature, size or location. This assessment must be of a comprehensive nature, so as to relate to all the aspects of the project which have not yet been assessed or which require a fresh assessment.

We assert that this is the case for Leather and insist that HS2/EKFB carry out a full EIA on the bat corridor and adopt appropriate mitigation methods including a narrower, one way bridge and bat corridor to guide the bats over the track.

HS2 has failed to put adequate mitigation measures in place following the Environmental Statement in 2013, the House of Commons Select Committee in 2015 and the House of Lords Select Committee in 2016.

The process produced 2 reports on what was expected and ancillary legislation that was specific to certain areas. It was expected that HS2 would carry out surveys and meet at least the "Environmental Minimal Requirements". This never happened. We understand that HS2 only carried out bat surveys on 42% of the route which has led to mass failings and criminal offences under wildlife protection laws.

We believe that, had HS2 carried out adequate EIA's for Leather Lane, they would have recognised that it is an essential ecological corridor and could therefore have put appropriate measures in

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place to prevent and mitigate loss.

HS2's Environmental Statement ("ES") recognises the importance of Leather Lane for key connectivity at Para 7.3.20, yet it has done nothing to mitigate for this loss. It refers to "Occasional passes" of species and has not included barbastelle bats and has not looked in to which type of Myotis bats are using Leather Lane, such as the endangered Beichstein bat.-

Our ongoing surveys show constantly high levels of bat activities including the endangered barbastelle bat. Lack of adequate surveys has resulted in a breach of HS2's duty of care to protect the bat corridor and conservation status of the barbastelle bat:

*"Bat assemblage using mature hedges, trees and tree-lined lanes for foraging and commuting at Rocky lane, Bowood lane, Kings lane and Leather Lane; Baseline and rationale for valuation: Driven and walked activity transects in the southern and central part of this area recorded five species; common pipistrelle and soprano pipistrelle (in low to moderate numbers) with occasional passes of **Myotis species, noctules and serotine bats**. The activity indicates that this habitat is likely to be used for foraging and commuting between roosts and other foraging sites. In addition to the species listed above, the desk study indicates the presence of four brown long-eared roosts and a common pipistrelle roost within 1km of the land required for the proposed scheme. **The hedgerows are the only connectivity between the large areas of woodland to the east and west of the land required. Noctule bats and soprano pipistrelle bats are species of principal importance.**"¹³*

Key organisations and stakeholders who were involved at the consultation stage were told that the information put forward in the ES was the worst case scenario. The fact is, that the actual situation for Leather Lane and many other areas is far more complex than what was put forward and decisions have been based on inadequate information. The ES acknowledges the presence of 5 species of bat - in fact **there are at least 7 species including the Barbastelle Bat¹⁴**, a European Protected Species that has been frequently recorded.

If its importance as a supportive habitat was recognised back in 2013, the following questions need to be asked:

1. Why were no further surveys undertaken, despite the duty imposed on HS2 Ltd to accurately assess the Environmental Impact on bats and other Ecology?
2. Why was no mitigation put in place? Mitigation measures have been set out in the LEMP but nothing specifically for Leather Lane - this should have been set out from the outset and certainly

¹³

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/397883/Volume2_CFA10_Dunsmore_Wendover_and_Halton.pdf pp 106

¹⁴Watson, S. (2021). Anabat Express Detector Report - Leather Lane

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before the consultation process began.

3. Why were alternative options to the over road not considered? We know that local interest groups petitioned the Government to pursue alternatives, in particular the Tunnel. The tunnel option would prevent habitat fragmentation as "if a road or railway goes through a tunnel that is longer than 1 km, the landscape in this area is considered as connected."¹⁵ Lord Berkeley has stated that HS2 and EKFB misled Parliament in this regard.¹⁶

4. We conclude that had HS2 and its subcontractors carried out adequate EIA as required by law, more protection and mitigation would have been put in place for Leather Lane and we would not be in a position where we are still petitioning HS2 and its subcontractors to adhere to its binding commitments.

In her independent review of the HS2's process for Phase 1, Jo Treweek concluded¹⁷:

"The ES fails to provide adequate ecological information for reliable assessment of impacts, does not place sufficient emphasis on avoidance of impacts at source and does not provide sufficient detail about measures to reduce or compensate for residual impacts"

"The level of assessment given for species of conservation importance is more akin to a scoping study than full impact assessment. The concluding statement that "there are no likely significant residual ecological effects during operation" seems unlikely"

The Environmental Statement and CFA refer to Leather Lane and acknowledge its importance as a bat corridor for commuting between habitats and foraging.

Environmental Statement - Community Forum Area 9¹⁸

2.2.16

*The Proposed Scheme will continue north-west in the South Heath cutting past Leather Lane overbridge where it will leave this area. Key features of this section will include Leather Lane overbridge, which will be approximately 4m above existing ground level, providing an offline replacement of Leather Lane (see Map CT-06-034a, Volume 2, CFA9 Map Book). **The approaches to the bridge will be planted to integrate the structure into the landscape and maintain and enhance existing habitat links across the route for bats and other wildlife.***

7.4.19 states

¹⁵ European Environment Agency. (2011). Landscape Fragmentation in Europe. *Joint EEA-FOEN report*. No 2/2011 pp 27-28

¹⁶ Lord Berkeley letter 22 3 21 to Andrew Stephenson and Bns Vere ref. Wendover tunnel

¹⁷ Microsoft Word - HS2 Review of EclA-3.docx (hs2actionalliance.org)

¹⁸ Volume2_CFA9_Central_Chilterns.pdf (publishing.service.gov.uk)

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*“No significant effects are expected on the bat assemblage associated with mature hedges, trees and tree-lined lanes at the southern end of the area. The construction of the South Heath cutting, the Rocky Lane south cutting and the Small Dean viaduct southern approach embankment will remove mature hedges, trees and tree-lined lanes, particularly from Rocky Lane, Bowood Lane, King’s Lane and Leather Lane. These features are used by common and soprano pipistrelles, a Myotis species, noctules and serotines. The width of the land required for the construction of the Proposed Scheme (that ranges between 60m and 550m) is therefore likely to reduce CFA Report – Dunsmore, Wendover and Halton/No 10 | Ecology 114 the frequency with which this assemblage crosses the land required for the construction of the Proposed Scheme. **However, no known roosts will be removed and extensive foraging sites (predominantly woodland) will be retained on either side of the route, as such loss of habitat is unlikely to result in an adverse effect on the assemblages’ conservation status.**”*

The Assessment and Review of the HS2 Ltd approach to the Natural Environment¹⁹ concludes that HS2 did not carry out adequate connectivity mapping and habitat monitoring:

“HS2 Ltd only surveyed and acquired habitat and species data adjacent to the line of the route; therefore, it could not conduct connectivity mapping to evaluate nationally or regionally important ecological corridors. If HS2 had, it could have put the appropriate underpasses or green structures (bridges and cut-and-cover) for a range of species at their critical crossing points with the line.”

“Given that HS2 will constitute a complete barrier to movement of animals through the landscape it is essential that the need for crossings is researched thoroughly and that suitable designs are developed. The information presented in the EIS is not sufficient to support a reliable determination of the number and type of crossings needed nor to design them to suit different species’ requirements.”

The LEMPs build upon but do not repeat, the HS2 general environmental requirements set out in the Control of Construction Practice (CoCP):

“Increasing the connectivity of the existing woodland and hedgerow features will enhance existing linear vegetative features used by bats for foraging routes and flight lines. This will enable bat flight routes to be manipulated, encouraging the bats to be directed away from the HS2 route whilst main works activities are taking place. These planting sites will be a key factor in ensuring that the green bridges to be constructed by the MWC will become part of the surrounding landscape and are integrated into the mosaic of existing woodlands and hedgerows of the area. It is expected that the green bridges will be positioned so the existing flight lines across the HS2 route are maintained.”

¹⁹ HS2 Ecology Technical Group | National Trust

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Renowned UK bat expert John Altringham has confirmed to us directly on 13th July 2021:²⁰

"I have been involved in discussions with HS2 in which they have acknowledged the need to protect foraging sites and flight corridors. At a parliamentary select committee meeting on HS2, at which I gave evidence, HS2 agreed to the provision of substantial green bridges to mitigate disrupted flight corridors for Bechstein's bats in the Bernwood Forest area."

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We believe that, had HS2 carried out adequate surveys for the Chilterns as they did in Bernwood Forest, then adequate mitigation would have been put in place, particularly as the bat corridor is used by the endangered Barbastelle bat.

The survey data provided by HS2 after persistent requests for information from Richard Buxtons' solicitors (where HS2 failed to meet deadlines) is haphazard, with all sorts of data on the same sheet from various UK locations that fails to provide the reader with any consistent or usable information. The two relevant points that we could track from its grid reference showed a commuting Barbastelle Bat in nearby Little Missenden and Ellesborough in 2016. It is well known that Barbastelle bats travel up to 20km and use corridors such as Leather Lane, so why do we not see reference to Barbastelle bats in HS2's endless Ecology documentation and why was no real effort made to survey this essential bat corridor and put effective design plans and mitigation in place?

The AVDC area LEMP for the Chilterns and provisions for bats is scarce compared to the section on Bernwood Forest – one can guess that this is because a survey was undertaken to monitor roosts and flight paths in the Bernwood forest. Such a survey was not undertaken in the Chilterns, which is why, we believe, we are dealing with such poor survey data and lack of mitigation measures.

If the bat corridor has not been covered in the screening process, that would not remove the need for an appropriate assessment if the application of the Habitats Directive required it. In the legal case of Buckinghamshire County Council and HS2, the courts accepted the submission about the need for, and absence at the moment of, credible evidence of a risk which should have been considered in relation to cumulative impact.²¹

The need for "appropriate assessment" arose by virtue both because of the significant impacts on the

²⁰ [John Altringham HS2 Leather Lane](#)

²¹ *Buckinghamshire County Council & Ors, R (on the application of) v Secretary of State for Transport* [2013] EWHC 481 (Admin) (15 March 2013) ("BCC"), at [231].

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environment that were bound to occur because of the size, nature and location of the development, and by virtue of r.12(1) of the Habitats Directive because of the high risk of the disturbance to various legally protected bat species such that the development activity during construction and operation would be in breach of the Directive.

6. Habitats Directive

Under the r.39(1)(d) of the Habits Regulations ("Regulations") it is an offence 'to damage or destroy a breeding site or resting place of such an animal', referring to Annex IV species. This is a transposition of Article 12(1)d of the Habitats Directive ("HD"), which states:

'the deterioration or destruction of breeding sites or resting places' of an Annex IV species is prohibited. As the HD does not provide a specific definition of a breeding site or resting place, the European Directive EDGEC (2007) states 'there is room for different interpretations', due to the wide range of species listed in Annex IV. The EDGEC goes on to advise that Article 12.1(d) should be understood as 'aiming to safeguard the ecological functionality of breeding sites and resting places'.

On 26 April 2021, Natural England confirmed that 'at the time of writing, Natural England have not granted any site registrations under the class licence to HS2 or contractors for works affecting bats at Leather Lane. '

Therefore, any felling now would ultimately result in a breach of r.12(1)(b) of the Habitats Directive (to prevent the disturbance of Annex II listed species), the maintenance, or restoration, at favourable conservation status in their natural range of the natural habitat types listed in Annex I to the Habitats Directive or the species listed in Annex II to that Directive; (r.12(3)(a)), as well as a breach of Art. 6(3) for the failure to carry out an 'appropriate assessment' of its implications for the site in view of the site's conservation objectives if it cannot be excluded, on the basis of objective information, that it will have a significant effect on that site, either individually or in combination with other plans or projects, before felling begins.

On 13th July 2021, respected UK bat expert John Altringham confirmed to us:²²

"Having looked at the bat report and the maps of nearby ancient woodland, it is self-evident that as few trees as possible should be removed, to retain foraging habitat, roost potential and connectivity across this fragmented landscape. All species are under considerable pressure and their small populations reflect the already degraded nature of the landscape. Further stress on species through habitat degradation, loss and fragmentation will inevitably lead to further decline and possibly local extinction. The Annex II barbastelle already has a thin and patchy distribution in the UK, so local loss of this species is of national importance"

²² John Altringham HS2 Leather Lane

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7. Chilterns AONB

Furthermore, HS2 has a duty of care to protect the AONB²³. A dedicated ecology group was set up for this purpose and put forward design principles. An Assurance was provided by HS2 during the passage of the High Speed Rail (London - West Midlands) Act 2017 through Parliament that the guidance would be used by HS2 and their contractors to inform their design throughout the Chilterns AONB.

Instead of taking the plans onboard, EKFB have recently told us they intend to use a standard 2 road on the overbridge, thereby not maintaining the Holloway and the proposals put forward in the

Design Principles.²⁴ Apart from not maintaining the landscape and its character, it will require more Earthworks and destruction of Ecology including the Oak trees.

At the time plans were put forward for the routes for the over bridge, stakeholders and members of the community were unaware of the importance of the bat corridor and the impact its fragmentation would have on their conservation status.

If EKFB proceed with the over bridge on the Southern side, they will destroy more trees and fragment the bat corridor further. If they incorporate the designs put forward and keep to a minimum 4.5 metre lane, we believe that the over road, or over land, can be redirected to the Northern side within the Act limits.

²³ Part IV of the Countryside and Rights of Way Act 2000 (CROW Act) provides the main legislative framework for AONBs. The main relevant sections are: **Section 82** – specifies that the primary purpose of designation of an AONB is to conserve and enhance natural beauty.

²⁴ [6974-Chilterns AONB_HS2 CEIP_Part 1_Detailed Design Principles_low res.pdf](#)

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With regards to planning permission in the AONB, the competent national authorities may grant authorisation to a plan or project only if they are convinced that it will not adversely affect the integrity of the site concerned. If doubt remains as to the absence of adverse effects, they must refuse authorisation.

8. Mitigation

It appears that HS2 have not conducted adequate surveys and have therefore not put mitigation in place or even considered appropriate mitigation techniques – the term “vegetation” is wholly inadequate for a series of Oaks and the Eco systems present along the entire Corridor.

HS2’s Ecology Document States:²⁵

3.1.1 The design of the Proposed Scheme will reflect the ‘mitigation hierarchy’ consistent with

²⁵ Microsoft Word - Ecology final (hs2.org.uk)

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the current National Planning Policy Framework¹ and guidance on Environmental Impact Assessment as may be applicable to the Proposed Scheme.

3.1.2 Using the hierarchy, priority is given to avoiding or preventing effects where reasonably practicable; if not, to reducing or abating those effects; and then, if necessary, to offsetting them through repair (restoration or reinstatement) or compensation.

3.1.3 The approach to be used by HS2 Ltd for ecological mitigation and compensation is proposed to be set out in the Scope and Methodology Report (SMR)²⁶ addendum which will be contained in the ES and will explain the factors determining the cases in which these should be applied.

3.1.4 The ecological impact assessment will take account of current guidance published by the Chartered Institute of Ecology and Environmental Management (CIEEM). It considers all ecological receptors which have the potential to be affected by the construction and/or operation of the Proposed Scheme.

This begs the question, Why has this not happened, despite petitions from local interest groups and experts?

In his report, Sam Watson states:

"In accordance with the mitigation hierarchy of the NPPF the first option should be to avoid any impact to Leather Lane that could compromise its bat corridor function. Whilst it may not be possible or indeed in the best interest of bats to re-route the track to entirely avoid Leather Lane, the first consideration should be to avoid a direct impact. One option for this would be to put the track through a tunnel and thereby maintain the integrity of the lane intact. I am not aware that this has been given full consideration [and] therefore ruled out as an option.

*Where avoidance has been shown not to be possible, design changes should be made to maintain the characteristics of the lane, in particular its location below the level of the surrounding land, together with the mature trees and a hedgerow along the southern side. **Minimising the width of the track and area either side would ensure that at this location only the very narrowest cut was needed. A green bridge along the alignment of the existing road to ensure there is no break in the corridor should also be considered.** As stated in the NPPF, only once such options have been fully considered and ruled out, should the last report of compensating for the impact be considered."*

The Campaign to save Leather Lane Oaks demands:

- 1. Stop felling until over bridge design is agreed and bats and other animals go into hibernation;**
- 2. Apply the Mitigation Hierarchy as required by HS2's own legal commitments and seriously**

²⁶ HS2 Phase One environmental statement: scope and methodology - GOV.UK (www.gov.uk)

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consider the design to route the overbridge to the Northern side which would AVOID harm to the corridor on the Southern side;

3. Adopt the design principles submitted by the Chilterns AONB group and fulfil assurances to parliament by allowing a lane instead of a 2 way road;

4. Create a corridor over the track for the bats to prevent unnecessary deaths and protect their conservation status;

We have located numerous reports concerned with landscape fragmentation and its impact on habitats and survival of species, including bats.

Some of these reports were submitted to HS2 at Consultation stage and we initially saw a lot of PR and commitments to the precautionary principle and biodiversity through schemes such as the green bridge^{27 28} but nothing has, in fact, come of it.

In its report NECR181 on Green Bridges²⁹(the Report”) , Natural England states:

“It is well documented that transport infrastructure can have a negative impact on the environment. Road and rail schemes can fragment habitats, create barriers to species movement and can sever and fragment areas of valued landscape affecting both visual enjoyment and our ability to access greenspace. However, research has shown that when managed appropriately existing road and rail corridors have the potential to be enhanced to provide connecting corridors through otherwise biodiversity poor landscapes such as intensively farmed landscapes and urban areas, providing important habitats for some species such as pollinators.”

It goes on to say:

“Literature review forms part of Natural England’s commitment to deliver the Natural Environment White Paper’s (NEWP) commitment 32 which states, “the Government will work with its transport agencies and key delivery partners to contribute to the creation of coherent and resilient ecological networks, supported, where appropriate, by organisation-specific Biodiversity Action Plans.”

We would expect to see this followed through in HS2’s environmental commitments and at planning stage:

“Transport infrastructure and its operations can have significant adverse effects on biodiversity and landscape, including fragmentation and wildlife-vehicle collisions (Bennett et al., 2011). The overall

²⁷ HS2 launches plans for unprecedented ‘green corridor’ stretching alongside the railway - GOV.UK (www.gov.uk)

²⁸ Green’ bridges will guide bats across HS2

²⁹ Natural England. (2015). Green Bridges - A Literature Review. Natural England Commissioned Report NECR181

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impact of infrastructure on natural environments is termed 'fragmentation'; being the separation of ecosystems and/or habitats of plant and animal populations into smaller, more isolated units."

The Report refers to mitigation and requirements at planning stage:

"Looking at existing road networks in a region, Clevenger and Ford (2010) discuss taking a landscape based approach, key habitat linkages or zones of important connectivity for wildlife should be identified, then potential crossing locations should be prioritised based on future planned projects, scheduling and ecological criteria. This approach helps to strategically plan mitigation schemes at a regional or ecosystem level. The paper identifies the key benefits of this approach to be an ability to prioritise objectives, incorporate landscape patterns and processes into planning and to address stakeholder concerns. By taking a regional level approach, project specific work will consider the larger ecological network"

The Report, which we are sure was presented to HS2 at consultation stage suggests the following surveys:

"in terms of planning specifics, the paper identifies that the following resources should be used to identify wildlife habitat linkages and movement corridors; aerial photographs, land cover vegetation maps, topographic maps, land ownership maps, wildlife habitat maps and wildlife movement data, field research, road kill data and road network data."

We, as local residents and lay men, have taken the initiative to record bat activity on Leather Lane, and, as a result, have identified it as an active corridor. Why then, did HS2 not take such steps and put effective mitigation in place?

If you have not read or considered the Report previously, we recommend you do so now - it supports our claims and also makes suggestions on how bridges can be designed in order to consider and protect the species that are affected by fragmentation, including a paragraph specifically relating to bats.

The authors of a 2011 Joint EEA-FOEN report on landscape fragmentation³⁰ recommend putting into practice the following three measures with highest priority. This report was submitted to HS2 at the consultation stage. Commitments to green bridges were made at the beginning with widespread PR but nothing has been followed through and we were told by Kimberly Birtwhistle in our recent meeting that EKFB would not be putting any green corridors in. We understand that EKFB and HS2 will be cutting costs and wanting to save money but this is not acceptable and flies in the face of all HS2's commitments and legal obligations.

1. Application of fragmentation analysis as a tool in transportation planning and regional

³⁰ European Environment Agency. (2011). Landscape Fragmentation in Europe. Joint EEA-FOEN report. No 2/2011

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planning:

The cumulative effects of new transportation infrastructure on the degree of landscape fragmentation should be analysed quantitatively and in more detail in the planning process. The effective mesh density method should be included in the planning process as an instrument for this task, in combination with other relevant criteria (such as habitat amount and quality), e.g. to compare alternative transportation corridors for new roads and railway lines. This task is particularly important because these roads and railroads have strong disturbance effects. In addition, the uncertain effects of landscape fragmentation need to be considered more seriously and studied more systematically, e.g. through the use of the before-after-control- impact (BACI) study design (see above).

2. Immediate protection of large unfragmented areas, ecologically significant areas, and wildlife corridors:

The remaining large unfragmented areas, ecologically significant areas, and functional wildlife corridors should be protected immediately from further fragmentation by adding appropriate criteria and rules to the existing networks of protected areas, such as Natura 2000 and Emerald networks, national parks, and green infrastructure corridors. Critical areas should be identified where further fragmentation is an imminent threat and their rapid preservation is crucial before they would be lost to fragmentation by roads and railroad.

3. Monitoring of landscape fragmentation:

Landscape fragmentation is an essential indicator of threats to biodiversity, to the sustainability of human land-use, and to landscape quality. It should be implemented in monitoring systems of biodiversity, sustainable development, and landscape quality.

These requirements underpin our demands to HS2 and EKFB to mitigate for the loss of connectivity on Leather Lane and support our request to have a one way over bridge in addition to the bat corridor.

We defer to the respected Authority for Bats in Britain and hope that EKFB will do the same:

The BCT published guidelines in 2012: “Overpasses: hop-overs and bridges”³¹

Measures to create passing-over opportunities for bats include hop-overs (using crowns of trees) as well as green bridges and viaducts.

³¹ Gunnell, K., Grant, G., Williams, C. 2012. Landscape and urban design for bats and biodiversity. Bat Conservation Trust. Pp. 27, 29.

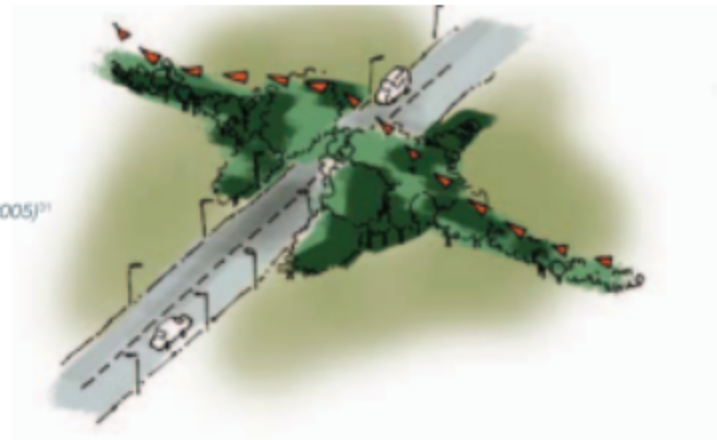
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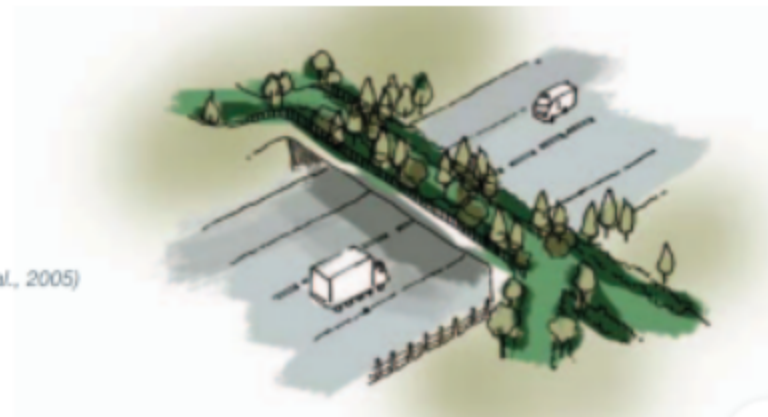
Hop-overs
(adapted from Limpens et al., 2005)²¹



Partially or completely vegetated bridges, called green bridges or habitat bridges, can be built to assist animals with dispersal across roads. These can range from pedestrian bridges with one side adapted to provide a grass verge, to substantial bridges with mature trees and grassland. The provision of green bridges allows bat movement from a nearby roost to feeding areas and alternative roosts.

The most critical element to encourage use of a green bridge by bats is the absence of lighting both from the bridge itself and from the traffic below. Bridge walls must be solid to prevent light penetration. Green bridges with linear trees and shrub features tend to be used more frequently than those with scattered tree and shrub features.

Green bridge
(adapted from Limpens et al., 2005)



Wire or mesh structures, known as bat gantries or bat bridges, have been proposed as artificial road crossing structures for bats. However, evidence from research does not support bat gantries as effective mitigation for the impact of roads. The Bat Conservation Trust advises caution in the use and siting of bat gantries. Further robust and comparable pre- and post-construction monitoring of

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the use of bat gantries needs to be carried out to objectively assess their effectiveness as mitigation. Prior to specifying such structures, all other options should be examined and advice sought from the Highways Agency. We encourage more investigation of natural crossing points such as hop-overs, elevated verges and green bridges that could deliver a benefit for the bat species involved, and also for other wildlife impacted by such developments."

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Table 4. Summary of suitable features to facilitate the movement of bats (adapted from Limpens et al., 2005)

Bat species	Passing over					Passing under				
	High over landscape	Hop over at crown height	Hop over vegetation	Hop over vegetation + wall	Over or along viaduct/bridge	Culverts (h x w = 1 x 2m)	Bridge over water (h < 1m)	Tunnels (h x w = 4 x 4 m)	Bridge over water (h > 2m)	Tunnels (h x w = 6 x 6 m)
Lesser horseshoe bat				*	*	*	*	*	*	*
Natterer's bat				*	*	*	*	*	*	*
Bechstein's bat				*	*		*	*	*	*
Brown long-eared bat				*	*		*	*	*	*
Grey long-eared bat				*	*		*	*	*	*
Greater horseshoe bat				*	*		*	*	*	*
Whiskered bat		*	*	*			*	*	*	*
Brandt's bat		*	*	*			*	*	*	*
Barbastelle bat		*	*	*			*	*	*	*
Daubenton's bat		*	*			*	*	*	*	*
Soprano pipistrelle	*	*	*	*			*	*	*	*
Common pipistrelle	*	*	*	*			*	*	*	*
Nathusius' pipistrelle	*	*	*	*			*	*	*	*
Serotine bat	*	*	*	*	*			*	*	*
Noctule bat	*	*	*	*	*			*	*	*
Leisler's bat	*	*	*	*	*			*	*	*

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From: Bats, roads and railways John Altringham and Anna Berthinussen School of Biology, University of Leeds³²

"The effects of roads on bats – habitat destruction, fragmentation, degradation and collision mortality Loss of habitat Road development frequently involves the removal of trees and buildings that hold potential or actual bat roosts.

The removal of trees, hedges, scrub, water bodies and unimproved ('natural') grassland also reduces available foraging habitat. The road surface alone removes significant areas of habitat: 7 ha for every 10 km of 7 m wide, two-lane, single carriageway road. Roadside hard shoulders, verges, junctions, service areas and other structures remove additional potential habitat, of variable biodiversity value and therefore impact. The Barrier Effect Roads are potential barriers to flight between roosts and foraging sites and between summer, mating and winter roosts. They could therefore reduce home range size and quality and restrict migration, which could increase mortality and reduce reproductive potential.

Roads may act as barriers because they interrupt existing linear flight lines, because some species are reluctant to cross open ground, because some species avoid lit areas (road and vehicle lights) and, at least initially, because they represent sudden changes in the bats' familiar landscape. Roads may therefore fragment habitat, decreasing its area and quality. Since habitat area and quality are major determinants of population size, then habitat fragmentation will lower the sustainable population size."

Considering that the HS2 track will run for 140 miles in phase 1, it is absolutely imperative that the bats of Leather Lane have a crossing point at Leather Lane itself.

Fig. 2. Flight style and habitat use by insectivorous bats. Drawing by Tom McOwat

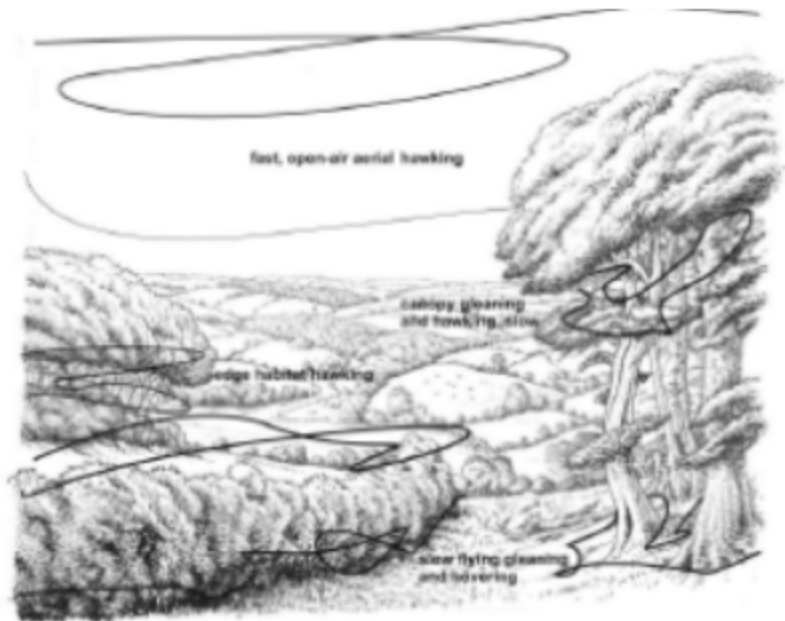
³² 12676_WC1060AppendixA

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Cumulative effects, extinction debt and the importance of scale

Most of the factors discussed will be cumulative. The effects of each individually need not therefore be great for the combination to have a profound effect on a bat population. Furthermore, there will be a lag, known as the extinction debt, between cause and effect (e.g. Tilman et al. 1994, Loehle & Li 1996). This is illustrated in Fig. 3. Fig. 3. The multiple causes of bat population reduction by roads and the delayed response (extinction debt). Adapted from Forman et al. (2003).

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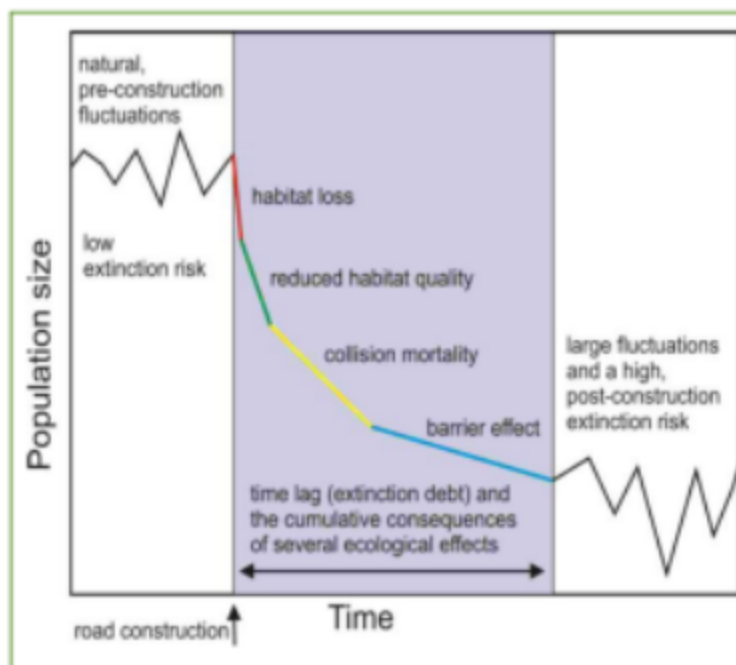


Fig. 3. The multiple causes of bat population reduction by roads and the delayed response (extinction debt). Adapted from Forman et al. (2003).

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The first step in a conservation strategy to minimise the impact of a new road should be to select a route that avoids disturbance to important bat habitat. To be effective this requires an understanding of the behaviour and ecology of the affected species and detailed knowledge of their distribution. Our knowledge in both areas is growing but far from complete. One approach that can deliver detailed, site-specific information relatively quickly is GIS-based habitat suitability modelling, which can be based on existing data sets, such as those held by museums and record centres (e.g. Jaberg & Guisan 2001) or data collected specifically for the purpose, for example by acoustic survey (e.g. Bellamy et al. 2013). No such surveys have been carried out by HS2.

We understand that EKFB/HS2 will prioritise costs and time frames over Ecology, but we remind you of your duty of care to protect these species and provide the mitigation that we are requesting which is both reasonable and possible.

The importance of connectivity and the maintenance of existing flightlines

It is common practice to maintain and enhance a 'connected' landscape, i.e. a landscape with a broad range and high density of interconnecting linear features such as hedgerows and treelines. This not only increases the value of the landscape for foraging and commuting, but may give bats more flexibility in how they adapt to a changing landscape and in particular the appearance of barriers in the form of roads. We are not talking about a one off case here, but where destruction of habitat and landscape across the HS2 route, creating a cumulative effect as bats lose habitats and corridors, the imperative is even greater.

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We remind HS2 and EKFB of their obligations under the Environmental Minimum Requirements: General Principles, Code of Construction Practice, Environmental Memorandum, Heritage Memorandum:

Environmental Minimum Requirements: General Principles

1.1.5

The nominated undertaker will in any event, and apart from the controls and obligations referred to in paragraph 1.1.3, use reasonable endeavours to adopt mitigation measures that will further reduce any adverse environmental impacts caused by Phase One of HS2, insofar as these mitigation measures do not add unreasonable costs to the project or unreasonable delays to the construction programme.

In turn, Part 9.1.2 of the Code of Construction Practice provides:³³

'The contractors will, where it is reasonably practicable, reduce any habitat loss within the land required for Phase One of HS2 by keeping the working area to the minimum required for construction of Phase One of HS2.'

Moreover, 1.1.10 provides:

'The Nominated Undertaker will prepare site-specific management plans for these identified environmentally sensitive worksites, focusing on mitigation, compensation and monitoring requirements, with opportunities for enhancement in relation to the identified environmental topics as outlined within the Environmental Memorandum.'

Again, the LEMP states:

'1.2.5 It is anticipated that the following general descriptions of work activities will take place prior to and during the construction period within this local authority boundary:

advance works, including: site investigations and surveys further to those already undertaken;

'enabling works, including: utilities works in the wider area including an overhead line diversion at Chesham Road Vent Shaft; highway and public right of way (PRoW) diversions; building demolitions; site clearance, habitat removal, creation and(sic) environmental mitigation measures.'

Further, in the Table at 9.3.1:

³³

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/593592/Code_of_Construction_Practice.pdf

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“The Scheme will result in the loss of confirmed bat roosts in trees and buildings.

The Scheme will result in the loss of trees and buildings identified as having moderate or high potential to support roosting bats, but no evidence of their use has been recorded to date through survey work.

*The Scheme will result in the loss of and disruption to bat foraging areas and commuting routes. **The control measures are, respectively:***

*“**Adopt a precautionary approach.** Follow appropriate Working Method Statement for demolition of buildings and felling of trees.*

Where practicable, undertake activities causing loss or disruption during seasonal periods when bats are likely to be less active.

Retain as much of the key habitat for as long as possible and establish new areas as quickly as possible to reduce the effects.

Ensure lighting is directed away from foraging areas and commuting routes. Reduce night time working in close proximity to foraging areas and commuting routes.”

So, why are EKFB intending to fell 12-15 oak trees on Leather Lane in the height of summer when bats and other wildlife are most active and when bridge designs have not even been agreed?

Lighting has been an ongoing issue at Leather Lane and has surely caused disturbance. They have also breached the EMRs by consistently directing lighting at the trees, see image overleaf.

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The description of the proposed development must include appropriate mitigation measures, the purpose of which, in turn, is to enable public discussion to take place about whether the measures will be successful or whether more effective measures can be taken to ameliorate the anticipated harm. Public participation has effectively been denied at this late stage in the process.

By preserving the Oak trees and Ecology on the South side, you are keeping an important green space intact. The mitigation site at Jones' Hill Wood is more like Hiroshima than an ancient woodland and will never be replaced, not even in 100-200 years. The saplings next door have not been watered or cared for and will never replace ancient sites such as Jones' Hill Wood and Leather Lane.

The attached ESMP³⁴ shows the high volume of bat roosts nearby, many of which have been destroyed by HS2 – the 2km radius encompasses Leather Lane and we have good reason to believe that displaced bats are using Leather Lane as a vital corridor for foraging and possibly habitat.

The mitigation provided by Leather Lane is far more established and superior to anything HS2 could attempt to re-create, so why destroy it? You would only be able to do so with good reason.

This is an opportunity for HS2 and EKFB to turn this around and put the measures in place to preserve an ancient Holloway, a vital and iconic part of the AONB and honour and preserve the natural world for all bats, biodiversity and for generations to come.

³⁴ HS2. (2020). AWE2b-4 - Ecology Site Management Plan - Jones' Hill Wood Ancient Woodland. 1EW03-FUS_THE-EV-PLN-CS03-000001 pp 64, 66

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Leather Lane *left*



Jones' Hill Wood receptor site and new hedgerow *above*

9. Community Engagement

5.2 Community relations LEMP

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5.1.1 The nominated undertaker and its contractors will produce and implement a community engagement framework and provide appropriately experienced community relations personnel to implement the framework, to provide appropriate information and to be the first point of contact to resolve community issues. The nominated undertaker will take reasonable steps to engage with the community, particularly focusing on those who may be affected by construction impacts, including local residents, businesses, landowners and community resources, and the specific needs of protected groups (as defined in the Equality Act 2010).

5.1.2 Regular meetings will be held at community forum locations between the lead contractor, the nominated undertaker, the local authority and representatives of the local community or other stakeholders to discuss construction issues and the forthcoming programme of works. Experienced support for local businesses, landowners, and voluntary and community organisations that may be affected by the works will be provided by the nominated undertaker.

Therefore, this makes clear that you have a duty to engage with the community, including the local authority, to discuss issues that affect them. These issues include designs and if the designs are not to conserve or enhance the amenity of the AONB, then this forum would be the correct place for residents to notify the local authority and then under the Schedule 17 of the Act para 2(5)(a)(i) the local authority has the right to refuse the application.

In practice there needs to be a specific meeting with the local authority and local people where the designs are discussed with the contractor and all interested parties.

5.2.1 As detailed within Section 5 of the CoCP, the Nominated Undertaker and Contractors will implement the Community Engagement Framework. The framework will focus on engagement during construction with the local communities and on the specific needs of protected groups (as defined in the Equality Act 2010) especially those who may be affected by construction impacts in the immediate vicinity of the works. A range of tools will be used to achieve this that will tailor engagement to local needs.

5.2.2 Successful management of the project will involve understanding communities and their needs, actively engaging, listening and responding. The arrangements for this are set out in the HS2 Community Engagement Framework.

10. Schedule 17

EKFB will shortly be applying for a Schedule 17 licence. As noted in the recent Hillingdon case ([2020] EWCA Civ 1005), this is another opportunity for scrutiny and for the Local Authority to ensure that all conditions have been met.

It is common ground that HS2 Ltd has failed to provide sufficient evidence and information to enable

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local authorities to perform their statutory duty to evaluate requests for approval from HS2 Ltd against ecological and archaeological considerations: *London Borough of Hillingdon Council, R (on the application of) v High Speed Two (Hs2) Ltd* [2020] EWCA Civ 1005, at [45].

For the [decision-maker] to perform the evaluation of environmental information, an exercise of planning judgment is required whereby the design is measured against the risk to [the environment] and this, in turn, informs an assessment of the need for reasonable mitigation or modification measures: *Hillingdon*, EWCA Civ 1005, at [27].

The environmental information must include in the environmental statement the views of statutory consultees, such as those of the community, Conservation Board, Natural England and the Highways Authority, and any representations made by other persons about the environmental effects of the development (reg. 2(1)). Any grant of planning permission that does not take this environmental information into consideration is invalid.

This is because the purpose of the environmental information is not just to mitigate or prevent harm occurring, but also to enable public discussion to take place about whether the measures will be successful, or [whether] more effective measures can be taken than those proposed to ameliorate the anticipated harm. The procedural requirement of the EIA that the decision on the project take 'environmental information' into account (reg.3(4)) has therefore not been complied with.

The Environmental Statement should launch the Environmental Impact Assessment, which should, if conducted appropriately, have referred to key parts of legislation put in place to protect wildlife and biodiversity including the Mitigation Hierarchy.

We are in contact with Buckinghamshire Council in this regard and hope that statutory duty will be discharged by all parties to protect the integrity of the Act and the Ecology it purports to protect.

5) If the relevant planning authority is a qualifying authority, it may only refuse to approve plans or specifications for the purposes of this paragraph on the ground that—

(b) the development ought to, and could reasonably, be carried out elsewhere within the development's permitted limits.

We are in touch with Buckinghamshire Council ("BC") on this matter and believe that there are strong grounds for refusal for all the reasons set out above. The *Hillingdon* case has confirmed that HS2 has a duty to provide BC with adequate information and that the authority is entitled to decline to process, or to refuse, the application during 8 week consultation period until HS2 furnishes them with that information, and we believe that there is a strong possibility of refusal at this stage.

Schedule 17 of the Act states with regards to 'Earthworks':

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That the design or external appearance of the works ought to, and could reasonably, be modified—

- (a) to preserve the local environment or local amenity,
- (b) to prevent or reduce prejudicial effects on road safety or on the free flow of traffic in the local area, or
- (c) to preserve a site of archaeological or historic interest or nature conservation value.

If the development does not form part of a scheduled work, that the development ought to, and could reasonably, be carried out elsewhere within the development's permitted limits.

It is in the best interests of all concerned to iron this issue out now so that we can avoid lengthy legal action and adopt the alternatives proposed. As Buckinghamshire Council is a qualifying Authority, it can refuse the designs. From our perspective, the designs do not preserve the local environment or local amenity and they do not preserve nature conservation value.

[1] [Leather Lane Bat Survey 9 May 2021 Metatable](#)

[2] [Watson, S. \(2021\). Anabat Express Detector Report - Leather Lane.](#)

[3] [Threats to bats - About Bats - Bat Conservation Trust](#)

[4] [European Environment Agency. \(2011\). Landscape Fragmentation in Europe. *Joint EEA-FOEN report*. No 2/2011](#)

[5] *Buckinghamshire County Council & Ors, R (on the application of) v Secretary of State for Transport* [2013] EWHC 481 (Admin) (15 March 2013) ("BCC"), at [231]

[6] [Ashton, J., Lukasiewicz, A. \(2021\) Bat Survey Report Leather Lane, Great Missenden, Buckinghamshire. Wild Horizons Ltd](#)

[7] [Watson, S. \(2021\). Anabat Express Detector Report - Leather Lane](#)

[8] S. 40 NERC Act 2006

[9] Piraccini, R. 2016. *Barbastella barbastellus*. The IUCN Red List of Threatened Species 2016: e.T2553A22029285. <http://dx.doi.org/10.2305/IUCN.UK.2016-2.RLTS.T2553A22029285.en>

[10] [Microsoft Word - HS2 Review of EclA-3.docx \(hs2actionalliance.org\)](#)

[11] [ecology-technical-group-assessment-and-review-of-the-hs2-ltd-approach-to-the-natural-environment-including-recommendations-for-phase-2.pdf](#)

[12] [European Environment Agency. \(2011\). Landscape Fragmentation in Europe. *Joint EEA-FOEN report*. No 2/2011](#)

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- [13] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/397883/Volume2_CFA10_Dunsmore_Wendover_and_Halton.pdf pp 106
- [14] Watson, S. (2021). Anabat Express Detector Report - Leather Lane.
- [15] European Environment Agency. (2011). Landscape Fragmentation in Europe. *Joint EEA-FOEN report*. No 2/2011 pp 27-28
- [16] Lord Berkeley letter 22 3 21 to Andrew Stephenson and Bns Vere ref. Wendover tunnel
- [17] Microsoft Word - HS2 Review of EclA-3.docx (hs2actionalliance.org)
- [18] Volume2_CFA9_Central_Chilterns.pdf (publishing.service.gov.uk)
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- [20] John Altringham HS2 Leather Lane
- [21] John Altringham HS2 Leather Lane
- [22] Part IV of the Countryside and Rights of Way **Act** 2000 (**CRow Act**) provides the main legislative framework for AONBs. The main relevant sections are: **Section 82** – specifies that the primary purpose of designation of an AONB is to conserve and enhance natural beauty.
- [23] 6974-Chilterns AONB_HS2 CEIP_Part 1_Detailed Design Principles_low res.pdf
- [24] Microsoft Word - Ecology final (hs2.org.uk)
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- [28] Natural England. (2015). Green Bridges - A Literature Review. Natural England Commissioned Report NECR181
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- [30] Gunnell, K., Grant, G., Williams, C. 2012. Landscape and urban design for bats and biodiversity. Bat Conservation Trust. Pp. 27, 29
- [31] 12676_WC1060AppendixA
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D1740

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/593592/Code_of_Construction_Practice.pdf

[33] HS2. (2020). AWE2b-4 - Ecology Site Management Plan - Jones' Hill Wood Ancient Woodland. 1EW03-FUS_THE-EV-PLN-CS03-000001 pp 64, 66

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Microsoft Word - Bat flight path legal protection article - draft 18 with photos amended Dec 2007.doc
(biodiversitybydesign.co.uk)

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Issued to Fusion Joint Venture

OVERVIEW

This organisational licence is issued to Fusion Joint Venture and permits suitably experienced employees and staff of contractors to undertake certain activities affecting barbastelle bat *Barbastella barbastellus*, common pipistrelle bat *Pipistrellus pipistrellus*, soprano pipistrelle bat *Pipistrellus pygmaeus*, noctule bat *Nyctalus noctula*, brown long-eared bat *Plecotus auritus*, and Natterer's bat *Myotis nattereri* (all of which are European Protected Species (EPS)) which would otherwise be unlawful. The licence facilitates the enabling and construction works for a high speed rail line between London and Birmingham (Phase 1).

Fusion Joint Venture is responsible for the conduct of all activities performed under the authority of this licence.

Natural England Ref: WML-OR58

Organisational Licence

The following annexes form part of this licence:

- WML – OR58(A) (Map of area covered by this licence)
- WML – OR58(B) (permitted activities and licensed methods for bats)

The following documents are also integral to this licence:

- Jones' Hill Wood Work Schedule
- Jones' Hill Wood Method Statement
- Jones' Hill Wood Bat Impacts Maps
- Jones' Hill Wood Bat Mitigation Licence Location Map
- Jones' Hill Wood Bat Habitat Creation Map
- Jones' Hill Wood Bat Habitat Management and Monitoring Plan
- HS2 Environmental Minimum Requirements
- Ecological Site Management Plans

Issued under

Conservation of Habitats and Species Regulations 2017 (as amended) ("the 2017 Regulations")

IMPORTANT

This licence authorises acts that would otherwise be offences under the legislation referred to above. Failure to comply with its terms and conditions:

- may be an offence under the 2017 Regulations or mean that the licence cannot be relied upon. The maximum penalty available for failing to comply with a condition of a licence under the 2017 Regulations is, at the time of the issue of this licence, an unlimited fine and/or a six month custodial sentence; and
- may result in this licence being revoked and/or the refusal to grant future licences.

If the activity that you wish to undertake is not covered by this licence, or if you are unable to comply with any of the terms and conditions which apply to the use of this licence, then the Licensee will need to apply to Natural England for an amendment to this licence or you need to apply for a separate licence.

This licence is not a consent or assent for the purposes of Part II of the Wildlife and Countryside Act 1981 (as amended) ("the 1981 Act") in respect to Sites of Special Scientific Interest. It is your responsibility to get consent if required (see Information & Advice note c).

Under the Conservation of Habitats and Species Regulations 2017 Natural England has granted this licence to affect barbastelle bat *Barbastella barbastellus*, common pipistrelle bat *Pipistrellus pipistrellus*, soprano pipistrelle bat *Pipistrellus pygmaeus*, noctule bat *Nyctalus noctula*, brown long-eared bat *Plecotus auritus*, and Natterer's bat *Myotis nattereri*, for the purpose of:

Imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment, under regulation 55(2)(e) of the 2017 Regulations, being satisfied that as regards the purpose specified in this licence that there is no satisfactory alternative and that the actions authorised will not be detrimental to the maintenance of the populations of the species concerned at a favourable conservation status in their natural range.

to: **Fusion and Murphy Joint Venture** (hereafter referred to as the “**Licensee**”) of The Gate House, Gatehouse Way, Aylesbury, Buckinghamshire, HP19 8DB.

To: Carry out the activities detailed in

- Annex WML – OR58(B)

Between the dates of: 01 April 2021 and 31st December 2031

Project Description: Licensed activities associated with enabling and construction works for a high speed rail line between London and Birmingham (Phase 1).

At: The Licensed Area shown as Area of JHW inside LLAU hatched in light blue on the map in Annex WML-OR58(A).

This licence is granted subject to the Licensee, including its servants and named agents, adhering to:

- the licence terms and conditions specified below and in the Annexes to this licence:
and
- the Jones' Hill Wood Method Statement, the Jones' Hill Wood Work Schedule, the Jones' Hill Wood Bats Impacts Map, the Jones' Hill Wood Bat Compensation Maps, and the HS2 Environmental Minimum Requirements.

Terms and requirements that express conditionality are conditions of this licence whether so called or not.

The headings used in this licence and its Annexes are for convenience only and shall have no effect upon the interpretation of this licence or its conditions.

DEFINITIONS used in this licence

Accredited Agent(s)	A suitably trained and experienced person who has been appointed by the Named Ecologist (in accordance with Condition 3) and who is able to carry out work under this licence without the personal supervision of the Named Ecologist.
Appointed Person	An employee of the Licensee who is nominated to act as a single point of contact for Natural England with regard to this licence and is responsible for overseeing use of the licence, including record keeping, reporting and compliance.
Assistant(s)	A person assisting a Named Ecologist or Accredited Agent who has been appointed by the Named Ecologist (in accordance with Condition 3) and who is only authorised to act under this licence whilst they are under the direct supervision of the Named Ecologist or an Accredited Agent.
HS2 Environmental	The environmental minimum requirements set out the government's high

Minimum Requirements	level environmental and sustainability commitments that accompany the High Speed Rail (London - West Midlands) Act 2017.
Ecological Site Management Plans (ESMPs)	HS2 Ltd Contractors are required to produce ESMPs for habitat creation areas, designated sites and ancient woodlands, as prescribed by paragraph 4.8.3 of the Environmental Minimum Requirements (EMRs). These plans set out the site-specific control measures for HS2 contractors working within local authorities along the Phase One route.
Licensed Area	The area covered by this licence including Jones' Hill Wood and surrounding area at SP 88724 04372 shown as Area of JHW inside LLAU hatched in light blue on the map in Annex WML-OR58(A).
Named Ecologist	██████████ (NE Customer Number ██████████), being a professional ecological consultant who has satisfied Natural England that he has the relevant skills, knowledge and experience of the species concerned (or such other person as approved in writing by Natural England) and who is authorised by the Licensee to act on its behalf for the purposes of this licence.
Jones' Hill Wood Bat Impacts Maps	The two impact maps, given reference numbers Figure D(i) Impact Plan dated 05 March 2021 and Figure D(ii) Fragmentation of foraging / commuting habitat dated 05 March 2021, of the Licenced Area submitted to Natural England on 05 March 2021, or the latest revised version that has been submitted by the Licensee and approved in writing by Natural England.
Bat Mitigation Licence Location Map	The map, given reference number C5a(ii) Location map (detail) dated 05 March 2021, of the Licenced Area submitted to Natural England on 05 March 2021, or the latest revised version that has been submitted by the Licensee and approved in writing by Natural England.
Jones' Hill Wood Bat Habitat Creation Maps	The map, given reference number Figure E3 Specification for mitigation / compensation dated 17 March 2021, of the Licenced Area submitted to Natural England on 05 March 2021, or the latest revised version that has been submitted by the Licensee and approved in writing by Natural England.
Jones' Hill Wood Method Statement	The method statement for bats at the Licensed Area, submitted to Natural England using template WML-A13.3 (01/19), on 05 March 2021 with amendments provided in the response to the e-mail signature sent by NE to Fusion on 18/03/2021 received on 22/03/2021, or the latest revised version that has been submitted by the Licensee and approved in writing by Natural England. Further information included the Jones' Hill Wood Bat Habitat Management and Monitoring Plan (see definition below) should take priority where discrepancies are noted.
Jones' Hill Wood Bat Habitat Management and Monitoring Plan	The Jones' Hill Wood Bat Habitat Management and Monitoring Plan Rev A (dated 18/03/2021) and Figure E4 Monitoring, management and maintenance plan (dated 05 March 2021) provided in response to an email signature submitted to Natural England on 22/03/2021, or the latest revised version that has been submitted by the Licensee and approved in writing by Natural England.
Jones' Hill Wood Work Schedule	The schedule of works at the Licensed Area, submitted to Natural England dated 18/03/2021 using template WML-A13a-E5a&b, or the latest revised version that has been submitted by the Licensee and approved in writing

by Natural England.

References to specific sections, figures or other parts of a document apply to the relevant section, figure or part in the revised and approved version unless otherwise stated.

LICENCE CONDITIONS

1. This licence includes Annex WML-OR58(A) and Annex WML-OR58(B), which contain additional terms and conditions of use.

People authorised to use this licence

2. Licensed activities may only be carried out under this licence by:
 - a) the Named Ecologist;
 - b) Accredited Agents; and
 - c) Assistants.
3. An Accredited Agent or Assistant must carry a signed copy of the authorisation letter from the Named Ecologist, appointing them by name for the purpose of this licence, while carrying out licensed activities in the Licensed Area and must produce this authorisation letter to any police or Natural England officer on request.

Working under this licence

4. The Licensee has primary responsibility for ensuring that all activities carried out in the Licensed Area comply with the terms and conditions of the licence.
5. Before commencing activities under this licence, the Licensee shall nominate an Appointed Person whose details will be provided to Natural England in writing to oversee use of this licence. The Licensee shall promptly update Natural England in writing of a replacement Appointed Person if that person changes.
6. The Named Ecologist is responsible for undertaking and/or overseeing the work undertaken in respect of the licensed species. The Named Ecologist is responsible for checking the suitability and competence of any Accredited Agents or Assistants employed in the Licensed Area to undertake the required duties.
7. The Licensee and all persons acting under this licence must comply with:
 - a) the terms and conditions of this licence and its Annexes WML – OR58(A) and WML – OR58(B); and
 - b) the Jones' Hill Wood Method Statement, Bat Mitigation Licence, Jones' Hill Wood Location Map, the Jones' Hill Wood Work Schedule, the Jones' Hill Wood Bat Impacts Map and the Jones' Hill Wood Work Bat Compensation Maps; and
 - c) HS2 Environmental Minimum Requirements.
8. If there are conflicts or inconsistencies between commitments in the documents in condition 7(b) and the terms and conditions of this licence and its annexes, the licence and annexes will prevail. Any other conflicts or inconsistencies between the documents in condition 7(b) will be interpreted on a precautionary basis to ensure the protection of bats.
9. While engaged in licensed activities, the Licensee shall make a copy of the licence and its Annexes available for inspection on each site in the Licensed Area where the activities are taking place and shall produce it on demand to any constable or an officer of Natural England.
10. All reasonable precautions must be taken to ensure that unnecessary suffering and harm to the species covered by this licence is avoided.

Where the licence may be used

11. This licence may only be used within the Licensed Area and for the activities specified in Annex WML-OR58(B).

Surveying and Monitoring

12. Pre felling surveys must be appropriately resourced and undertaken at suitable times and in accordance with Annex WML-OR58(B).
13. Monitoring must be undertaken in accordance with section E4.2b of the Jones' Hill Wood Method Statement and The Jones' Hill Wood Bat Habitat Management and Monitoring Plan (see definition above). Any relevant amendments to monitoring will be agreed with Natural England through a licence modification request and the Strategy will be reviewed before the end of the licence.

Recording and reporting requirements

14. The Licensee must maintain a record of all bat-related activities carried out under the authority of this licence necessary for reporting to Natural England, including (as a minimum):
 - a) a list of all persons authorised to act under the licence and in what capacity (i.e. Accredited Agent or Assistant);
 - b) any action undertaken under this licence;
 - c) any mitigation or compensation provision;
 - d) any surveying and monitoring conducted;
 - e) any dead or injured bat found in the Licensed Area; and
 - f) any incidents or reports of activities in breach of this licence, including details of steps taken, and any disciplinary, remedial or corrective action.

These records are to be kept until two years after the final licensed action is undertaken and are to be made available for inspection by Natural England at any reasonable time.

15. Survey and monitoring records for bats must be submitted to the Local Biological Record Centre and to the relevant national recording scheme (or National Biodiversity Network (NBN) Atlas if there is no appropriate scheme) every other year.
16. An annual report of activities conducted under this licence must be sent by the Licensee to Natural England (at the address given below) for the first reporting year of 01 April 2021 – 31 December 2021 and submitted by 14 January 2022, and thereafter by 14 January for each subsequent reporting year of 01 January – 31 December, even if the licence is not used.
17. The long-term Mitigation, Monitoring and Management of the site will be reviewed after 8 years.

Future management

18. All ESMPs applicable to the Licensed Area, or any part of it, must be updated to include the bat specific habitat management, maintenance and monitoring by or on behalf of the Licensee before the 31st July 2021, or prior to required actions and in line with the licensing requirements of the Jones' Hill Wood Method Statement and Jones' Hill Wood Bat Habitat Management and Monitoring Plan (see definition above). The Licensee shall ensure compliance with the requirements of all ESMPs applicable to the Licensed Area, or any part of it, for the full period of the licence and will consult with Natural England in relation to any amendment or proposed amendment to any such ESMP.

Licence compliance

19. For the purpose of ascertaining whether the conditions of this licence are being, or have been, complied with, the Licensee, the Named Ecologist and each Accredited Agent, Appointed Person and Assistant shall permit an officer of Natural England reasonable access to land where operations are being undertaken under this licence. Officers of Natural England shall also be permitted to be present during any operations carried out under the authority of this licence. Any such officer of Natural England may be required to produce his/her identification on demand and will be permitted to be accompanied by such persons as he/she considers necessary for the purpose of the visit. The Named Ecologist and each Accredited Agent, Appointed Person and Assistant shall give all reasonable assistance to an officer of Natural England and any persons accompanying him/her.
20. Failure to comply with the terms and conditions of this licence (including the recording and reporting requirements) will, by default, render this licence null and void and it may not be relied upon until such time that Natural England confirms in writing that its use may resume.
21. Natural England must be informed of all breaches to this licence within 48 hours of the Licensee becoming aware of a breach occurring. Unless advised otherwise by Natural England, the Licensee must take the necessary steps to address any breaches or poor practice identified as soon as practicable.

Issued by and on behalf of Natural England on:

30 March 2021

INFORMATION and ADVICE

- a. Any requests for information in a licence will be considered under the Environmental Information Regulations 2004 and the Freedom of Information Act 2000 as appropriate.
- b. The licence may be modified, extended, terminated or revoked at any time by Natural England or the Secretary of State, but this will not be done unless there are good reasons for doing so.
- c. This licence conveys no authority for actions prohibited by any other legislation. For example, anyone acting under this licence is not exempt from the provisions of Section 28E of the 1981 Act. This means that owners/occupiers are obliged to give notice to Natural England if they propose to carry out an operation likely to damage a Site of Special Scientific Interest (SSSI). To identify SSSIs and the features for which they are designated, refer to www.magic.gov.uk. For further advice or to request consent for an activity please contact the Natural England 'Responsible Officer' for the relevant site(s). Contact details are available from the Natural England Enquiry Service (see below).
- d. No person convicted on or after 1 January 2010 of an offence under the Conservation of Habitats and Species Regulations 2017, the 1981 Act, the Protection of Badgers Act 1992, the Deer Act 1991, the Hunting Act 2004, the Wild Mammals (Protection) Act 1996, the Animal Welfare Act 2006 or the Protection of Animals Act 1911 (all as amended) may use this licence without the permission of Natural England unless, in respect of that offence, either:
 - i. they are a rehabilitated person for the purposes of the Rehabilitation of Offenders Act 1974 and their conviction is treated as spent; or
 - ii. a court has made an order discharging them absolutely.

Any request to use the licence by a person to whom this note applies will be considered on its merits.

- e. The common name or names of species given in the Licence, Annexes, and associated documents are included by way of guidance only; in the event of any dispute or proceedings, it is the scientific name of a species that will be taken into account.

Training requirements

- f. Training must be relevant to the conditions and the activities permitted by the licence and should be undertaken at regular intervals. This should include: identification of European and other protected species, and non-native species relevant to the activities authorised by this licence and signs indicating they may be present; surveying techniques; best practice guidance and reasonable avoidance measures; mitigation techniques and methods, and a working knowledge of the relevant law.

General Welfare Considerations

- g. Persons acting under this licence may photograph any protected species named in this licence in connection with licensed work provided that this causes no additional disturbance or any other harm.
- h. Under the Animal Welfare Act 2006 it is an offence to cause any unnecessary suffering to an animal under the control of man (section 4). This applies to the treatment of animals (including non-target species) held in nets, traps, etc.

The limits of licences

- i. Licences permit action only for the purposes specified on that licence.
- j. Licences do not permit actions prohibited under any other legislation (unless it is clearly stated that the licence does), nor do they confer any right of entry upon land.
- k. Unless otherwise stated the provisions of Natural England licences only apply landward of the mean low water mark in England. The Marine Management Organisation is responsible for all licensing seaward of the mean low water mark.
- l. No work shall be carried out under this licence on a National Nature Reserve except with the prior written permission of Natural England's 'SSSI Adviser' for the relevant site(s) (contact details available from Enquiry Service – see below).

Compliance and enforcement

- m. The Licensee is expected to monitor compliance with the licence and to take action in the event that poor practice and/or non-compliance are identified. A person may be barred from using this licence by Natural England, for example, if that person breaches the conditions of this licence. In these circumstances Natural England will notify the Licensee.
- n. Natural England checks compliance with licences and the attached conditions. Where breaches are identified, these may be subject to enforcement action.

Contact details for Natural England

For licensing enquiries (& Reporting):

Telephone 020 802 61089

Email HS2wildlifelicensing@naturalengland.org.uk

Postal address

Wildlife Licensing, Natural England, Horizon House,
Deanery Road, Bristol BS1 5AH

For other enquiries use the Enquiry Service:

Telephone 0300 060 3900

Email enquiries@naturalengland.org.uk

Web [Natural England - GOV.UK](http://NaturalEngland.gov.uk)

Other useful contacts

Local Record Centres: to find out where your nearest Local Record Centre is visit the Association of Local Environmental Record Centres website at: <http://www.alerc.org.uk/find-an-lrc.html>

Legislation: to view the full text of the legislation referred to in this licence visit <http://www.legislation.gov.uk>

Feedback and Complaints: we welcome and value your compliments, complaints, suggestions and comments about our services. Please see our 'Contact us' section for more details. <https://www.gov.uk/government/organisations/natural-england#org-contacts>

Using and Sharing Your Information



Who is collecting my data?

The data controller is Natural England, Foss House, Kings Pool, 1-2 Peasholme Green, York, YO1 7PX. You can contact the Natural England Data Protection Manager at: Natural England, County Hall, Spetchley Road, Worcester, WR5 2NP; foi@naturalengland.org.uk.

Any questions about how we are using your personal data and your associated rights should be sent to the above contact. The Data Protection Officer responsible for monitoring that Natural England is meeting the requirements of the legislation is: Defra group Data Protection Officer, Department for Environment, Food and Rural Affairs, SW Quarter, 2nd floor, Seacole Block, 2 Marsham Street, London SW1P 4DF.

DefraGroupDataProtectionOfficer@defra.gsi.gov.uk.

What of my data is being collected and how is it used? What is the legal basis for the processing?

The information on the licence application form and any supporting material will be used by Natural England to undertake our licensing functions. This will include, but is not limited to assessing your application, issuing a licence if applicable, monitoring compliance with licence conditions and collating licence returns and reports. The personal information we will process will include, but is not limited to your name and contact details, customer type and reasons for wanting a licence.

Processing is necessary for the performance of a task carried out in the public interest or in the exercise of official authority vested in the data controller. That task is to conduct the licensing functions as delegated by Defra to Natural England under Part 8 Agreement under section 78 of the Natural Environment and Rural Communities Act 2006

Who will my data be shared with?

Your personal data may be shared by us with the Department for Food, Environment and Rural Affairs and its executive agencies including the Rural Payments Agency and the Environment Agency. This will be used to monitor and evaluate the effectiveness of our work.

It may also be shared with:

- Police.
- HS2 LTD.

We will respect personal privacy, whilst complying with access to information requests to the extent necessary to enable Natural England to comply with its statutory obligations under the Environmental Information Regulations 2004, and the Freedom of Information Act 2000.

If you are relying on my consent to process my data, can I withdraw my consent?

No, because the processing is not based on consent.

How long will my data be held for?

Your personal data will be kept by us for 7 years after the expiry of your licence or longer if stated in the licence conditions.

What will happen if I don't provide the data?

Failure to provide this information will mean that Natural England will not be able process your licence application.

Will my data be used for automated decision-making or profiling?

The information you provide is not connected with individual decision making (making a decision solely by automated means without any human involvement) or profiling (automated processing of personal data to evaluate certain things about an individual).

Will my data be transferred outside of the EEA?

The data you provide will not be transferred outside the European Economic Area.

What are my rights?

A list of your rights under the General Data Protection Regulation, the Data Protection Act 2018, is accessible at: <https://ico.org.uk/for-organisations/guide-to-the-general-data-protection-regulation-gdpr/individual-rights/>

How do I complain?

You have the right to lodge a complaint with the ICO (supervisory authority) at any time. Should you wish to exercise that right full details are available at: <https://ico.org.uk/for-organisations/guide-to-the-general-data-protection-regulation-gdpr/individual-rights/>

Natural England's Information Charter can be found here:

<https://www.gov.uk/government/organisations/natural-england/about/personal-information-charter>

ANNEX WML – OR58(A)

This Annex defines the boundaries and areas of the Licensed Area –
As shown on Figure C5a(ii)



ANNEX WML – OR58(B)

Permitted activities and licensed methods for bats within the Licensed Area



OVERVIEW

This Annex specifies the activities and operations affecting bats that are permitted within the Licensed Area and includes relevant conditions.

Surveys and inspections for bats in trees identified as having bat roost potential must be undertaken to establish whether bats are present prior to undertaking tree works. This Annex does not permit works to trees where a species of bat or roost types not covered by this licence is present.

Activities permitted

- I. Capture
- II. Transport
- III. Disturb
- IV. Damage or destroy the resting places
- V. Damage or destroy breeding places of specified bat species (See Table 1 and Table 2 below).

This licence permits activities affecting the following roost types only: Day roosts; Transitional/occasional roosts; and Maternity roosts (see Definitions at Condition B27).

Purpose(s) for which these activities may be conducted

Imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment.

IMPORTANT

These activities are subject to the terms and conditions set out in the main licence in addition to those in this Annex. All terms and conditions in this Annex must be fully adhered to whether or not they are identified in Table 1. Terms and conditions that have a particular relevance to an activity are identified in Table 1 for ease of reference only.

Definitions in the main licence also apply to this Annex and further definitions specific to this Annex are set out at Conditions B27 and B28.

Interpreting the table of permitted activities and operations

- *Permitted activities and operations*: a brief description of each activity or operation permitted under the licence.
- *Actions made lawful by this licence*: for each activity or operation listed the presence of a corresponding 'X' indicates which acts are made lawful if conducted in accordance with the terms and conditions of this licence.

Table 1: Permitted activities and operations

Permitted activities and operations	Actions made lawful by this licence							Additional condition No. especially relevant to the action	Permitted methods	Species permitted
	Capture	Transport	Disturb	Damage resting place	Damage breeding sites	Destroy resting place	Destroy breeding sites			
Noise, lighting and vibration caused by construction related activities			X	X	X			B1, B2, B3, B4, B10	Disturbance by noise, lighting and vibration	Barbastelle bat, common pipistrelle bat, soprano pipistrelle bat, noctule bat, brown long-eared bat, and Natterer's bat.
Pre-works inspection of trees	X	X	X	X	X			B1, B2, B3, B4, B5	By hand; Endoscope; Torch illumination; Static hand-held net;	
Roost loss through tree felling	X	X	X	X	X	X	X	B1, B2, B3, B4, B5, B6, B7, B8, B9, B10, B11, B12, B13, B14, B15, B16, 17, B18	Exclusion by one way door or valve; Permanent exclusion; Destructive Search by Soft Demolition; Destructive Search by Soft Felling; Mechanical Demolition	

Table 2: Licensable activities and maximum numbers:

Species	Licensable activities and maximum numbers:						
	Capture	Transport	Disturb	Damage resting place	Damage breeding sites	Destroy resting place	Destroy breeding sites
Common pipistrelle bat	5	5	Not Specified	0	0	4	1
Soprano pipistrelle bat	2	2	Not Specified			1	0
Barbastelle bat	1	1	Not Specified			1	1
Noctule bat	1	1	Not Specified			1	0
Brown long-eared bat	2	2	Not Specified			2	1
Natterer's bat	1	1	Not Specified			1	0
Maximum total				0	0	10	3

The maximum number(s) stated in the above table refers to the maximum number of individuals of the stated species that can be captured or transported under the terms of this licence and the maximum number/s of resting places (see definition B27) or breeding sites that can be damaged or destroyed under this licence (if applicable).

ANNEX B LICENCE CONDITIONS

Working under this licence:

- B1. This licence is only to be used in connection with the Project Description and only when alternatives recognised by the Named Ecologist or an Accredited Agent are not appropriate to the conservation of bats.
- B2. The Licensee, the Named Ecologist, Accredited Agents, the Appointed Person and Assistants must adhere to the activities and timescales agreed in the Jones' Hill Wood Work Schedule.
- B3. The Named Ecologist or an Accredited Agent must ensure that all those involved with the licensed works understand by way of a 'tool box talk' that bats are present; the legislation relating to bats; measures that will be used to protect them; good working practices; licensed activities and what to do should bats be found. This information must be provided before any licensed works commence on site. A written record that this has been undertaken, and that it covers the above points, must be kept by the Named Ecologist or Accredited Agent and made available to Natural England or any police officer on request.

Methodology:

- B4. All relevant animal welfare legislation must be complied with at all times.
- B5. All works must be undertaken using best practice methodology to ensure minimal risk to bats. Persons acting under this licence must abide by the advice on excluding bats, handling bats and working in bat roosts in the most up to date edition of the ["Bat Mitigation Guidelines"](#) and the ["Bat Workers Manual"](#). ["The Bat Survey - Good Practice Guidelines"](#) are available from the BCT website. You are expected to check whether this guidance has been updated and if so, to ensure that you act in accordance with the most up to date version. In addition to this:
- a) The use of endoscopes, artificial light from torches, Destructive Search by Soft Demolition (see Definition in Annex Condition B27) temporary obstruction of roost access, temporary or permanent exclusion methods (including installation) and use of static hand held nets must only be undertaken or directly supervised by the Named Ecologist, or an Accredited Agent.
 - b) Where capture and/or handling of bats are necessary, only the Named Ecologist, Accredited Agent, or an Assistant may do so. Capture/handling/exclusion of bats must only be undertaken in conditions suitable for bats to be active.
 - c) Where bats are discovered and taken under this licence they must either be relocated to a suitable roost for the species, or where bats are held this must be done safely and bats released on site at dusk in, or adjacent to, suitable foraging/ commuting habitat in safe areas within or directly adjacent to the pre-works habitat. Where a bat is unexpectedly discovered in adverse weather conditions, condition B14 must be followed.
 - d) Endoscopes and handheld nets are only to be used to assist with the locating and capture of bats.
 - e) Temporary and permanent exclusion must be carried out using techniques specified in the most up to date edition of the *'Bat Workers Manual'*. If one-way exclusion devices are to be used, each device must remain in position for a period of at least 5 consecutive days/ nights throughout a spell of suitable weather conditions, or longer until these conditions prevail.
 - f) Prior to destructive works, an inspection using torches and/or an endoscope must be performed internally to search for the presence of bats. If any bat species covered by this licence is found and is accessible, each will be captured by gloved hand or hand-held net, given a health check and then each placed carefully inside a drawstring, calico cloth holding bag or similar for transport.
 - g) Following inspection and exclusion operations, the removal of any feature with bat roost potential, will be only performed by hand and under direct ecological supervision. Where applicable, materials will be removed carefully away and not rolled or sprung to avoid potential harm to bats. The undersides of materials will be checked by the Named Ecologist or Accredited Agent for bats that may be clung to them before removal.
- B6. For trees that are safe to climb and that possess Potential Roosts Features (PRFs) that can be accessed, pre-felling climbing inspections will be undertaken no more than three days prior to tree felling. For known roosts and PRFs consisting of cavities (or similar), Destructive Search by Soft Felling (see Definition in Annex Condition B28) will take place on the same day as the pre-felling inspection.
- B7. For PRFs confirmed as containing no bats, the PRF will be immediately felled or made unsuitable for bats. Materials used for soft blocking must be appropriate for intended purposed and not risk entrapping or capturing bats or other wildlife.
- B8. For PRFs that contain bats, bats will be removed in line with the procedures specified in Condition B5 above.
- B9. Should bats be discovered inside a tree and cannot be successfully captured due to the nature of the roost feature, climbers will withdraw.

In this circumstance, during the active bat season (April-October), an emergence survey followed by dawn re-entry survey in suitable weather conditions will be undertaken in relation to the confirmed roost (using infrared (IR) cameras) to identify when bats have left the roost and not re-entered. This will be followed by tree climbing and soft blocking of the roost prior to felling. If tree climbing is not possible the tree must undergo a Destructive Search by Soft Felling (see Definition in Annex Condition B28).

Impacts:

- B10. Disturbance of bats and damage and/or destruction of bat roosts will be limited to those trees shown on the Jones' Hill Wood Bat Impacts Maps.

Undertaking works on roosts under this licence:

- B11. A written record must be kept of capture and exclusion efforts undertaken, including weather conditions (including over-night minimum temperature and rainfall), numbers and species of bats captured/taken and duration of exclusion process.
- B12. Destructive Searches by soft felling (See Definition in Annex Condition B28) may only be carried out when it is dry and mild and after temperatures have not dropped below 8°C for 4 days.
- B13. Licensable activities impacting satellite, maternity and hibernation roosts (see Definition in Annex Condition B27) must not be undertaken while the roost is in use for these purposes. Where the roosts are excluded ahead of seasonal use, appropriate compensation (if required) must be in place and available for use prior to exclusions taking place.
- B14. If individual bats are discovered unexpectedly, including during periods of adverse weather, then the following steps must be taken:
- a) Works to that building/structure must stop immediately. If the Named Ecologist or an Accredited Agent is not on site, he/she must be contacted immediately to attend the site.
 - b) Do not expose the bat or cause it to fly out of the roost on its own accord.
 - c) The bat must only be handled by the Named Ecologist or an Accredited Agent unless it is in immediate danger. The bat must be carefully placed in a lidded ventilated box with a piece of clean cloth and a small shallow container with some water. The box must be kept in a safe, quiet location.
 - d) Care must be taken to avoid rousing the bat during transfer to a suitable location – which may be a suitable hibernation box or other alternative roost constructed, providing a safe, quiet environment with stable, suitable temperature and relatively high humidity, safe from further disturbance.
 - e) The Named Ecologist must re-assess the structure and determine whether works can continue under this licence, or whether a modification to the licence is required before works re-commence. A written record must be kept of this decision and made available to Natural England or any police officer on request. This incident must also be reported on the licence return form.
 - f) Any underweight or injured bats must be taken into temporary care by an experienced bat carer and looked after until such time that the bat can be transferred to a suitable replacement roost at the same site, or weather conditions are suitable for release at the same site.
- B15. Natural England must be notified in writing, to HS2wildlifelicensing@naturalengland.org.uk, within 48hrs of encountering 1 or more bat

of any species.

- B16. Provision must be made for prompt assistance to deal with any injured bat. Any injured or dead bats must be reported to Natural England on the licence return form.
- B17. Mechanical Demolition (see Definition in Annex Condition B28) of a structure must only take place after the structure been declared free of bats by the Named Ecologist or Accredited Agent.
- B18. If individual bats are discovered unexpectedly, including during periods of adverse weather, then the following steps must be taken:
- a) Works to that building/structure must stop immediately. If the Named Ecologist or an Accredited Agent is not on site, he/she must be contacted immediately to attend the site.
 - b) Do not expose the bat or cause it to fly out of the roost on its own accord.
 - c) The bat must only be handled by the Named Ecologist or an Accredited Agent unless it is in immediate danger. The bat must be carefully placed in a lidded ventilated box with a piece of clean cloth and a small shallow container with some water. The box must be kept in a safe, quiet location.
 - d) Care must be taken to avoid rousing the bat during transfer to a suitable location – which may be a suitable hibernation box or other alternative roost constructed, providing a safe, quiet environment with stable, suitable temperature and relatively high humidity, safe from further disturbance.
 - e) The Named Ecologist or an Accredited Agent must re-assess the structure and determine whether works can continue under this licence, or whether a modification to the licence is required before works re-commence. A written record must be kept of this decision and made available to Natural England or any police officer on request. This incident must also be reported on the licence return form.
 - f) Any underweight or injured bats must be taken into temporary care by an experienced bat carer and looked after until such time that the bat can be transferred to a suitable replacement roost at the same site, or weather conditions are suitable for release at the same site.

Compensation and mitigation:

- B19. All compensation features as shown on Figure E3 must be erected or created adjacent to the impacted areas under the direct supervision of the Named Ecologist or Accredited Agent.

B20. Bat roost mitigation features must be provided in accordance with the ratios set out in Table 4 below.

Table 4. Provision of bat roost mitigation features as specified on Figure E3.

Roost feature type (Existing confirmed roost or Potential Roost Feature (PRF))	Minimum replacement ratio (roost mitigation feature: roost or tree lost)
Used by barbastelle bat (any roost other than maternity roost or hibernation roost)	6 bat boxes
Used by brown long-eared bat (any roost other than maternity roost or hibernation roost)	4 bat boxes
Used by Natterer's bat (any roost other than maternity roost or hibernation roost)	2 bat boxes
Used by noctule bat and Natterer's bat (any roost other than maternity roost or hibernation roost)	2 bat boxes
Used by common pipistrelle bat and soprano pipistrelle bat (any roost other than maternity roost or hibernation roost)	5 for each species (10 in total)
The creation of monoliths within the ancient woodland receptor site shown on Figure E3.	At least x3 monoliths to be installed
The creation/translocation of Potential Roost Features (PRFs) to be created within the WEMZ shown on Figure E3.	At least x6 PRFs to be created/translocated

B21. A roost mitigation feature may comprise either a suitable bat box, an existing PRF on a felled tree which has been relocated to an adjacent enhancement area (i.e. a 'monolith' if laid on the ground) or a new 'veteranised' feature created within either a retained tree or on a felled and relocated monolith.

Post-development site maintenance and habitat management requirements:

B22. Maintenance of bat boxes must comply with the HS2 Technical Standard - Ecological Monitoring Strategy (ECMS) (ref: HS2-HS2-EV-STR-000-000029 C01 dated October 2018).

B23. In accordance with the Environmental Minimum Requirements (see Definitions) for HS2 Phase One, the licensee must submit to Natural England the Ecology Site Management Plan (ESMP) for Jones' Hill Wood (ref: 1EW04-LMJ-EV-PLN-NS06_NL17-054002, for review and approval, at draft stage and any future versions.

Post-development monitoring and reporting requirements:

B24. Post-impact bat population monitoring must be implemented, in accordance with section E4.2b of the Jones' Hill Wood Method Statement, Jones' Hill Wood Bat Habitat Management and Monitoring Plan and E5b of the Jones' Hill Wood Work Schedule (see

definitions above).

- B25. An annual monitoring report outlining the results of monitoring and an assessment of any significant impacts must be submitted annually to Natural England following the completion of all specified methods in each calendar year for the duration of monitoring works (see Condition 16 of the licence).
- B26. It is a condition of this licence that the following reports are completed and returned to Natural England as specified:
- I. Report of action within 14 days (two weeks) after the expiry of the licence;
 - II. Interim annual reports.
 - III. Report on the Conservation Status of the bat species present within Jones' Hill Wood during the operational phase to be submitted to Natural England for review. This should be after the monitoring in year 8 has been completed.

Definitions used in this annex:

B27. For the purpose of this licence the following roost types are defined as:

- a. **Day roost:** a place where individual bats, or small groups of males, rest or shelter in the day but are rarely found by night in the summer.
- b. **Night roost:** a place where bats rest or shelter in the night but are rarely found in the day. May be used by a single individual on occasion or it could be used regularly by the whole colony.
- c. **Feeding roost:** a place where individual bats or a few individuals feed during the night but are rarely present by day.
- d. **Transitional / occasional roost:** used by a few individuals or occasionally small groups for generally short periods of time on waking from hibernation or in the period prior to hibernation.
- e. **Maternity roost:** where female bats give birth and raise their young to independence.
- f. **Satellite roost:** an alternative roost found in close proximity to the main nursery colony used by a few individual breeding females or small groups of breeding females throughout the breeding season.
- g. **Hibernation roost:** where bats may be found individually or together during winter. They have a constant cool temperature and high humidity.
- h. **Potential Roost Feature (PRF):** features that bats could use for roosting. PRFs that may be used by bats are listed in [The BCT Bat Surveys for Professional Ecologists: Good Practice Guidelines \(3rd edition\)](#)
- i. **Resting Place:** A tree in which bats rest is defined as a resting place.

B28. For the purpose of this licence the following licensed methods are defined as:

- a. **Destructive Search by Soft Demolition:** the taking apart of a bat structure in a controlled and careful manner by hand, or in some instances with the assistance of hand-held tools and machinery, under direct ecological supervision. Only the Named Ecologist, Accredited Agent or Assistant may take any bats found.
- b. **Destructive Search by Soft Felling:** the felling of a tree in a controlled and careful manner, with the assistance of hand-held tools and machinery, under direct ecological supervision. Only the Named Ecologist, Accredited Agent or Assistant may take any bats found.
- c. **Mechanical Demolition:** destruction of a structure that previously supported a bat roost using mechanical means after the structure has been declared free of bats by the Named Ecologist or Accredited Agent. Mechanical demolition usually is preceded by Destructive Search by Soft Demolition or other soft demolition exercise or completion of an exclusion process.

Brief appraisal of semi mature trees at Bowood La woodland planting

Tree 1:	Poor. Sparse catkins, few buds slightly swollen.
Tree 2:	Poor. Very sparse catkins, no sign buds swelling.
Tree 3:	Presumed dead.
Tree 4:	Adequate. Reasonable sprinkling catkins, and definite bud swelling.
Tree 5:	Presumed dead, though rare slight bud swelling - probably vestigial.
Tree 6:	Little sign of life, presume dead.
Tree 7:	Very poor. Scarce sign of bud swelling.
Tree 8:	Poor. Some sign of bud swelling at tips.
Tree 9:	Fine. Good spread bud swelling and burst.
Tree 10:	Presume dead.
Tree 11:	Fine. Good spread bud swelling, leaf burst.
Tree 12:	Poor, though limited bud swelling.
Tree 13:	Presume dead.
Tree 14:	Fine, bud swelling all over.
Tree 15:	Fine, bud swelling all over.
Tree 16:	Poor, though clear signs bud swelling.
Tree 17:	Upper fine, lower down has problem.
Tree 18:	Presume dead.
Tree 19:	Presume dead.
Tree 20:	Very poor, very limited bud swelling.
Tree 21:	Very poor, very limited bud swelling.
Tree 22:	Poor, sporadic spread of bud swell.
Tree 23:	Presume dead.
Tree 24:	Mostly fine though areas appear dead.
Tree 25:	Poor. Light scattering of bud swell, large areas appear dead.
Tree 26:	Poor. Signs of life confined to highest areas and bark in poor quality.
Tree 27:	Fine. Good spread of bud swell.
Tree 28:	Presume dead.
Tree 29:	Poor. Thin scattering of life in topmost reaches.
Tree 30:	Good.
Tree 31:	Fine. plenty bud swell.
Tree 32:	Presume dead.
Tree 33:	Fine - good. Good spread of life signs.
Tree 34:	Fine. Good spread of bud swell.
Tree 35:	Poor. Sparse signs of life.
Tree 36:	Fine. Little slow for birch, but good signs of life.
Tree 37:	Good. Strong life signs - bud swell and burst.

Please note the saplings in the background. Very few signs of life and some considerable and obvious carnage. No signs of replanting!







