Appendix 2

Report by Phlorum

Ecological Review of Strategic Option Sites proposed in the Eastleigh Borough Local Plan 2016-2036

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Ecological Review of the Strategic Option Sites Proposed in the Eastleigh Borough Local Plan 2016-2036

August 2018

ADD Campaign

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Executive Summary

ADD (Action Against Destructive Development - Eastleigh) appointed Phlorum Ltd to prepare an ecological report examining the draft Eastleigh Borough Local Plan 2016-2036 and presenting a comparative review of their proposed Strategic Growth Option (SGO) sites B, C, D and E (as shown in Maps 1, 2, 3, and 4 on pages 13, 15, 17, 18 and 20 of the Strategic Growth Option Comparative Assessment Background Paper, Eastleigh Borough Council, June 2018).

This report is based on a desk top review of previous reports (listed in Appendix A) which included consideration of the four proposed SGOs B, C, D and E with regard to their ecological value and any potential ecological impacts.

Eastleigh Borough Local Plan 2016-2036 and its policies concerning biodiversity generally, or with regard to potential ecological impacts arising from the development of the proposed SGOs, were examined in line with the government's National Planning Policy Framework paragraph 182 (see 1.5 of this report).

Ecological impacts were considered and assessed in relation to each of the four SGOs which offer seven possible combinations. Together with relevant information from previous reports and pertinent planning policies from Eastleigh Boroughs Local Plan 2016-2036 a comparative table was constructed presenting the potential ecological impacts and the net result for biodiversity at each possible option for the four proposed SGOs (see Table 1).

The mitigation measures proposed regarding potential ecological impacts at the SGOs were reviewed.

Key factors arising from additional factors and information considered pertinent were considered and presented.

In summary the ecological review of the draft Eastleigh Borough Local Plan 2016-2036 finds that:

- Negative ecological impacts arising from development are possible at SG's B, C, D and E and in the wider surroundings including the River Itchen Special Area of Conservation (SAC), the River Itchen Site of Special Scientific Interest (SSSI) and the Solent and Southampton Special Protection Area (SPA) and Ramsar and the Solent Maritime SAC.
- The development of Eastleigh Boroughs Council's preferred option of B+C together with the proposed North of Bishopstoke link road has the potential for the most significant negative ecological impact.
- The development of SGO C alone potentially has a reduced ecological impact in relation to B+C.
- The two variations of SGO D potentially have a lower ecological impact than B+C or C alone.
- The development of SGO E potentially has the lowest ecological impact of the four SGOs considered here.

- Taking account of mitigation strategy, the Habitat Regulations Assessment, (by Urban Edge Environmental Consulting for Eastleigh Borough Council, June 2018) found that there would be no adverse impacts on the integrity of areas protected under European legislation for nature conservation arising from the development of SGOs B+C and the proposed North of Bishopstoke link road.
- The Sustainability Appraisal Report carried out by Land Use Consultants (June 2018) concluded that there could be potentially significant negative effects on areas protected under European legislation arising from the development of SGO B. They state, 'any proposal which involved land take from the SAC would almost certainly result in an adverse effect on the integrity of that site and would therefore need to be able to demonstrate that there were a) No Alternatives and b) Imperative Reasons of Over-Riding Interest as to why such a project should nonetheless proceed (as well as compensation to preserve the overall Natura 2000 network). It could prove very challenging to meet those tests.'
- For the proposed development of SGO C the Sustainability Appraisal Report carried out by Land Use Consultants (June 2018) found that generally minor potential negative effects would arise with regard to biodiversity. They do however discuss cumulative effects which could result in significant negative effects on biodiversity resulting from the isolation of habitats and state that more information is required.
- The Sustainability Appraisal Report carried out by Land Use Consultants (June 2018) found that the proposed development of SGO D could have potentially significant negative effects with regard to increasing pollution, individually and collectively, however the details of these potential effects are currently uncertain and further information is required.
- At SGO E the Sustainability Appraisal Report (LUC, 2018) found a mixture of negligible or potential minor effects with regard to biodiversity, although this is noted as being uncertain prior to obtaining further information on design and layout of potential development here.
- Natural England (NE) in their comments on Policy wording on the Eastleigh Borough Council Local Plan Pre-submission recommend that in relation to water quality the Local Plan authorities acknowledge that uncertainty remains, continued joint working will be needed and that there may be a need for mitigation to accompany development during the later stages of the PUSH (Partnership for Urban South Hampshire) plan period. In relation to policy DM1 on general criteria for new development NE suggest amending the policy wording to include a requirement for all planning applications affecting greenfield sites greater than 0.1ha, or affecting known biodiversity interests, to be accompanied by a Biodiversity Mitigation and Enhancement Plan (BMEP) to be approved by the county ecologist. NE state the implementation of the approved BMEP should then be secured as a condition of any permission.

In conclusion the proposed development arising from the draft Eastleigh Borough Local Plan 2016-2036 could potentially result in significant negative ecological impacts which could cause a significant loss of biodiversity within the borough. The degree of ecological impact will depend enormously of the robustness of the proposed mitigation strategy and opinion is divided as to whether the data and surveys used to assess the potential ecological impacts and inform proposed mitigation are sufficiently detailed and also as to whether the mitigation measures proposed will be sufficiently effective to negate the foreseen negative ecological impacts. An ecological review of the available information regarding the proposed development of Eastleigh Borough Councils Strategic Growth Options, B, C, D and E finds that more surveys are needed to truly assess the ecological impacts and deduce any net result for biodiversity in Eastleigh Borough.

On the basis of the existing information it would appear that SGO E offers the least ecological impact followed by D and then C. The councils preferred option of SGO B/C together with the north of Bishopstoke link road has the greatest potential for significant ecological impact. Although there are many planning considerations which play a part in the selection of a strategic site, considering ecological factors alone, it is difficult to agree that the draft Eastleigh Borough Local Plan 2016-36 can be justified in accordance with NPPF with regard to the development of SGO B/C and the associated North of Bishopstoke link road.

1. Introduction

1.1 Phlorum Ltd has been commissioned by ADD (Action Against Destructive Development - Eastleigh) to produce an ecological report based on a desktop review of the draft Eastleigh Borough Local Plan 2016-2036 with regard to planning policy, associated reports and in relation to the proposed Strategic Growth Option (SGO) sites B, C, D and E (as shown in Maps 1, 2, 3, and 4 on pages 13, 15, 17, 18 and 20 of the Strategic Growth Option Comparative Assessment Background Paper, Eastleigh Borough Council, June 2018). The SGO sites are discussed further in chapter 2.

1.2 This report is informed following a review of the reports listed below (also presented as Appendix A):

- Potential aquatic ecological threats to the river Itchen from the draft Eastleigh Borough Local Plans – Final Report by Dr. Nick Everall, Aquascience Consultancy Limited, July 2018. (Source provided by ADD)
- The Southern damselfly and the Itchen Special Area of Conservation – Martin Larkin, July 2018. (Source provided by ADD)
- Eastleigh Borough Local Plan 2016-2036 - Sustainability Appraisal Report to accompany the Eastleigh Borough Proposed submission Local Plan at Regulation 19 consultation stage – Land Use Consultants, 2018.
- Eastleigh Borough Local Plan 2016-2036 (Appendix 7 Supplementary Site Selection Process, December 2017)
- Eastleigh Borough Local Plan – Strategic Growth Option Comparative Assessment Background Paper – Eastleigh Borough Council, June 2018.
- Strategic Eastleigh Site – Bat Trapping and Radio-tracking Baseline Report and Evaluation, August 2017.
- Strategic Eastleigh Site – Ecological Appraisal – WYG/The Highwood Group and Drew Smith Group, August 2017.
- National Planning Policy Framework - Department for Communities and Local Government March, 2012.
- Eastleigh Borough Local Plan 2016-2036 – Habitat Regulations Assessment, Urban Edge Environmental Consulting for Eastleigh Borough Council, June 2018.
- Bechsteins Bat Survey – Final report 2007-2011 -Bat Conservation Trust, 2011.
- Eastleigh Hydrological Sensitivity Study Task 1 revised report, JBA Consulting, May 2018.
- Tasks 1 & 2 Technical Note – Summary of potential impacts and constraints of proposed road alignments, JBA Consulting, May 2018.

1.3 The ecological information arising from a review of these reports is discussed in chapter 3.

1.4 Aspects of the draft Eastleigh Borough Local Plan and its planning policies pertaining to ecology and SGO sites B, C, D and E were considered with regard to government advice on examining Local Plans as detailed in paragraph 182 of the National Planning Policy Framework shown below:

Examining Local Plans

1.5 **182**. The Local Plan will be examined by an independent inspector whose role is to assess whether the plan has been prepared in accordance with the Duty to Cooperate, legal and procedural requirements, and whether it is sound. A local planning authority should submit a plan for examination which it considers is "sound" – namely that it is:

1.6 ● **Positively prepared** – the plan should be prepared based on a strategy which seeks to meet objectively assessed development and infrastructure requirements, including unmet requirements from neighbouring authorities where it is reasonable to do so and consistent with achieving sustainable development;

1.7 ● **Justified** – the plan should be the most appropriate strategy, when considered against the reasonable alternatives, based on proportionate evidence;

1.8 ● **Effective** – the plan should be deliverable over its period and based on effective joint working on cross-boundary strategic priorities; and

1.9 ● **Consistent with national policy** – the plan should enable the delivery of sustainable development in accordance with the policies in the Framework.

1.10 Strategic policies S1, S5, S6 and development management policy DM11 were considered in relation to SGOs B, C, D and E and these are discussed more fully in chapter 5.

1.11 The ecological impacts addressed arose from asking the following questions regarding the nature of the development at the proposed SGO sites:

- Is a direct or indirect ecological impact likely?
- What area will it affect?
- How long will it last and is it reversible?
- Will the impact on biodiversity be positive or negative?
- What will the net result be for biodiversity at that site?

1.12 The potential ecological impacts at each of the proposed SGO sites were considered in relation to:

- Statutory and non- statutory designated nature conservation sites.
- Protected species.
- Habitat fragmentation.
- Fragmentation of protected species populations.
- Increased wildlife disturbance.
- Increased light pollution.
- Increased air pollution.

- Increased water pollution.
- Increased spread of invasive species.

1.13 Information presented in previous reports (see Appendix A) was used to compile responses to these questions and assess potential ecological impacts in the form of a comparative table (see Table 1).

1.14 Where mitigation measures were proposed to counteract the potential ecological impacts of development at the Strategic Growth Option sites these were considered with regard to their robustness in relation to recommended guidelines by the governments nature conservation agency, Natural England. Mitigation measures are discussed in chapter 6.

1.15 Any additional information considered relevant to a comparative ecological review of the proposed SGO sites is considered in chapter 7.

1.16 The findings of this ecological review are summarised in chapter 8 of this report together with conclusions.

2. The Strategic Growth Option Sites

2.1 Recognising the major need for new development in Eastleigh Borough over the Local Plan period to 2036, as identified by the Partnership for Urban South Hampshire's (PUSH) Spatial Position Statement (2016), the Council's Issues and Options paper (December 2015) set out 8 different Strategic Growth Options (SGOs). Public consultation and a sustainability appraisal (by Land Use Consultants on behalf of Eastleigh Borough Council (EBC) 2015) were undertaken on these options:

- **Option A** – extensions to settlements.
- **Option B** – Expansion of Bishopstoke and Fair Oak to the north/north east with related development in Allbrook village.
- **Option C** – Expansion of Fair Oak to the east and north.
- **Option D** – Expansion of Bishopstoke to the south and Horton Heath to the west.
- **Option E** – Expansion to West End to the north of the M27.
- **Option F** – Extending Hedge End to the north-east and Botley to the north
- **Option G** – Hamble Airfield
- **Option H** – Redevelopment of Eastleigh Riverside for employment uses

2.2 By June 2018, in their Eastleigh Borough Local Plan 2016-2036, Strategic Growth Option – Comparative assessment background paper, EBC had narrowed the choice of site down to one preferred option, the area referred to as SGO **B/C** (north/east of Bishopstoke/Fair Oak) with an associated north of Bishopstoke link road (NBLR) to the M3 junction 12.

2.3 Phlorum were asked to carry out an ecological review which would enable a comparison of SGO **B/C** with previous SGO sites **D** and **E**. The areas considered, SGOs **B**, **C**, **D** and **E,** are as shown in Maps 1, 2, 3, and 4 on pages 13, 15, 17, 18 and 20 of the Strategic Growth Option Comparative Assessment Background Paper (Eastleigh Borough Council, June 2018).

SGO B/C (with and without the link road)

2.4 There are three possible combinations of SGO B/C. The first is area B plus C without the proposed link road. The proposed new Northern Bishopstoke link road (NBLR) would provide a new route from Fair Oak to Allbrook and the M3 at junction 12. This is seen as a theoretical option by Eastleigh Borough Council but useful for the purposes of examining the potential impact of the link road. The second combination is B plus C with the link road and 'do something' (meaning that this option has fewer improvements to the existing road network and doesn't include Bishopstoke road corridor improvements) and lastly B plus C with link road and 'do more' (this has a higher level of intervention and additional improvements to the motorway junction). It is estimated that SGO B/C will provide 5,300 dwellings. This is 1,950 dwellings more than the Boroughs housing trajectory needs up to 2036. The aim is to achieve a degree of self-containment by providing most facilities and to deliver significant new infrastructure, including roads.

SGO C

2.5 It is estimated that SGO C will provide a total of 4,204 dwellings. This could provide 854 dwellings more than the Boroughs housing needs trajectory to 2036.

SGO D

2.6 It is estimated that SGO D plus a supplement of land to the north-east of Fair Oak or immediately south of D will provide a total of 3,350 dwellings. This would supply the required number of dwellings for the Boroughs housing needs trajectory to 2036.

SGO E

2.7 It is estimated that SGO E plus a supplement of land to the north-east of Fair Oak will provide a total of 3,350. As with SGO D This would supply the required number of dwellings for the Boroughs housing needs trajectory to 2036.

2.8 Although D/E had been previously considered by EBC as an alternative option to B/C, no assessment was made by the council in the later stages of the process of options D and E combined which would provide more than the boroughs predicted need for 3,350 dwellings by 2036, in fact a combined option could provide a possible 5,747 dwellings, in addition to the 1,400 permitted dwellings. This option was not considered because in physical terms it was deemed this development would completely eliminate the potential for any countryside gap to be established between the major urban areas of Southampton/West End and Bishopstoke/ Fair Oak/Horton Heath (Eastleigh Borough Local Plan 2016-2036 Strategic Growth Option – Comparative assessment background paper, EBC June 2018).

3. Information Review

3.1 The reviewed reports (see Appendix A) addressed varied subjects which concern nature conservation designations, planning policies, biodiversity and ecological impacts arising from the draft Eastleigh Borough Local Plan 2016-2036 at the four proposed SGO sites. An overview of their content and key points regarding potential impacts at the SGOs are given below.

- Potential aquatic ecological threats to the river Itchen from the draft Eastleigh Borough Local Plans – Final Report by Dr. Nick Everall, Aquascience Consultancy Limited, July 2018.

3.2 This report (provided by ADD) disputes the findings of the Eastleigh Borough Local Plan 2016-2036 – Habitat Regulations Assessment (Urban Edge Environmental Consulting for Eastleigh Borough Council, June 2018) where it concludes that the Highbridge area, where the road bridge works are proposed, is not critical to the Southern Damselfly (Coenagrion mercuriale) population. Dr. Nick Everall claims that this site is key to the overall meta-population to prevent it becoming fragmented and that even if mitigation measures were considered in principle then this species is so rare that it is hard to believe that something as environmentally impacting as a road development is even being considered at this site. He states that, 'the paucity of the current aquatic ecological survey work or existing data analyses presented in the ecological and habitat assessment reports to date cannot fully address potential adverse effects of water pollution, physical modification, nutrient enrichment siltation or water abstraction if it does not yet fully comprehend the aquatic species rarity present and therefore the known cause and effect relationship with these variables from the scientific literature'. Further to this he says, 'all the evidence I have seen, supported by the various ecological and habitat survey reports (Rushbrook, 2017, WYG, 2017 and Eastleigh Borough Council, 2018), indicates that Precautionary Principles need to be applied to this scheme at this stage'. With regard to mitigation of impacts he discusses the fact that, 'no SuDS (Sustainable Drainage Scheme) provides 100% pollutant removal and their efficacy can tail off over time if not well maintained such that mitigation measures will always risk impact upon the receiving fauna of the Itchen wetlands'. Later he clearly states, 'I cannot see that building on the potentially proposed scale on a river conduit and porous chalk aquifer is not an unacceptable risk which in my opinion the current proposed mitigation measures will not address given the present condition of the river and the desired level of protection for a SAC'.

- The Southern Damselfly and the Itchen Special Area of Conservation – Martin Larkin, July 2018.

3.3 In this report (provided by ADD) Martin Larkin discusses the importance and protection of Southern Damselfly (Coenagrion mercuriale) and he is also of the opinion, along with Dr. Nick Everall, that the importance of the Highbridge site for this species is not fully recognised and that this site is critical to the conservation of the meta-population within the Itchen Valley. Most of the population of Southern Damselfly is within the Itchen's Special Area of Conservation (SAC) and is the prime reason for the SAC status. He discusses the work of Dr. Ben Rushbrook, senior ecologist at Arcadian Ecology, with regard to the increasing isolation and fragmentation of suitable sites together with the limited dispersal capabilities of the Southern Damselfly. Dr Rushbrook makes the interesting point that, 'a study of a motorway and railway bridge over the River Itchen SAC found that although movement beneath/across the bridges was recorded, many individuals were observed turning back in front of the bridges'. Dr. Rushbrook also agrees that the precautionary approach must be adopted. Martin Larkin concludes by saying, 'if confidence in the reliability or guarantees of the proposed conservation strategy is not robust, that must call into question the integrity of the local plan'.

- Eastleigh Borough Local Plan 2016-2036 - Sustainability Appraisal Report to accompany the Eastleigh Borough Proposed Submission Local Plan at Regulation 19 consultation stage – Land Use Consultants, 2018.

3.4 This report was prepared in conjunction with EBC as part of the integrated Sustainability Appraisal and Strategic Environmental Assessment of the emerging Eastleigh Borough Local Plan 2016-2036. Background information and the resultant tables contained in this report regarding proposed development at SGOs B, C, D and E particularly with regard to protecting, enhancing and managing biodiversity and improving its quality and range were examined and used to inform the results presented in Table 1. See the original report for detailed information. In chapter 10 on the cumulative effects of the Publication Draft Local Plan they state, 'Eastleigh Borough lies within a very sensitive area with regards to biodiversity, as it contains and is adjacent to both the internationally designated River Itchen SAC and the Solent and Southampton Water SPA, SAC and Ramsar site, as well as a number of other nature designations and links. Many of the site allocations have potential to impact these nature designations, particularly through water runoff and drainage either directly into these sites or via other watercourses. In order to address this, the Local Plan incorporates many of the recommendations from ecological assessments carried out by the Council, such as providing buffers to watercourses or SUDs, as well as requiring site level HRA at a number of sites. The plan also includes measures to ensure that these features are not affected by changes to water abstraction, such as requiring development to include water use efficiency measures. Due to the sensitive nature of the Borough and amount of development required, it is considered unlikely that all impacts on biodiversity can be avoided and therefore there will be some degree of loss or degradation related to development. However, the Local Plan includes several measures to prevent this as far as possible, as well as providing mitigation for any loss and promoting net gain. This is likely to protect biodiversity to a greater extent than if development were to come forward without the Local Plan in place. As such, cumulative mixed minor positive and minor negative effects are expected with regards to SA objective 10.'

- Eastleigh Borough Local Plan – Strategic Growth Option Comparative Assessment Background Paper – Eastleigh Borough Council, June 2018.

3.5 This report was used to examine the extent of SGOs B, C, D and E as shown on their maps 1, 2, 3, and 4, pages 13, 15, 17, 18 and 20. Relevant information relating to the four SGOs and potential impacts on biodiversity, as presented in Chapter 9, were reviewed and incorporated into Table 1. In this assessment paper they conclude, 'each of the SGOs has the potential, without mitigation measure, to affect nearby ecology designations of international or national importance. The Habitat Regulations Assessment for the proposed submission Local Plan (including SGO B/C) concludes that there will be no adverse effect on the integrity of international sites with mitigation measures incorporated'.

- Strategic Eastleigh Site – Bat Trapping and Radio-tracking Baseline Report and Evaluation, August 2017.

3.6 This report details the results of advanced bat surveys carried out in 2017 in North Eastleigh to better understand the bat fauna present and from which to be able to assess any significant ecological impacts. Recommendations were made for bats species present regarding the development proposals at SGO B/C.

- Strategic Eastleigh Site – Ecological Appraisal – WYG/The Highwood Group and Drew Smith Group, August 2017.

3.7 This ecological appraisal in relation to the general area of SGO B+C identified the presence of and potential for notable habitats and species which could present a constraint to development and made further survey recommendations and outlined mitigation proposals.

- National Planning Policy Framework - Department for Communities and Local Government March, 2012.

- Eastleigh Borough Local Plan 2016-2036 – Habitat Regulations Assessment, Urban Edge Environmental Consulting for Eastleigh Borough Council, June 2018.

3.8 This Habitat Regulations Assessment (HRA) updates earlier work and re-examines each of the policies and proposed allocations for likely significant effects on nearby European sites. The HRA examines likely impact pathways and defines a mitigation strategy capable of preventing adverse effects on ecological integrity. In their summary they found, taking account of the mitigation strategy, no likely significant effects on SACs, SPA's, pSPA's or RAMSAR sites and no adverse effects on the integrity of the River Itchen SAC. They found the Eastleigh Borough Local Plan to be compliant within the Habitats Regulations with regard to: Emer Bog SAC, Mottisfont Bats SAC, New Forest SAC/SPA/Ramsar; River Itchen SAC; Solent Maritime SAC; Solent & Dorset Coast pSPA; and Solent & Southampton Water SPA/Ramsar.

- Bechsteins Bat Survey – Final report 2007-2011 -Bat Conservation Trust, 2011.

3.9 This report was reviewed with regard to the recorded presence of Bechsteins bat in the western area of Eastleigh Borough. It provided background information on the habitat preferences of this bat and distribution records in the south of England between 2007 and 2011.

- Eastleigh Hydrological Sensitivity Study Task 1 revised report, JBA Consulting, May 2018.

3.10 This report commissioned by EBC identifies the hydrological sensitivities within the north of Eastleigh Borough, with particular regard to the proposed North of Bishopstoke link road (NBLR) route. The location of the development and the NBLR are within close proximity of the River Itchen SAC, which constitutes an ecological and hydrological constraint to development. This study advises on the alignment of this NBLR with regard to hydrological sensitivities. The entire River Itchen is designated Site of Special Scientific Interest (SSSI) and Special Area of Conservation (SAC). The overall status of the SSSI is 'Unfavourable - Recovering'. Historic trends have been for a decrease in flow velocities and increased siltation, affecting macrophyte cover. Inappropriate water levels, with siltation and abstraction cited as problems, are noted more recently, with discharges causing reduced water quality. In this report they note that in terms of surface water the River Itchen SAC has a very high sensitivity value in relation to its potential to be impacted by the proposed development.

- Eastleigh Hydrological Sensitivity Study Conceptual Surface Water Drainage Strategy – Final Report, JBA Consulting, May 2018.

3.11 This report addresses the following tasks the following tasks:

- Task 1 - to identify the hydrological sensitivities within the north of the borough by relevant environmental assessments and hydraulic modelling;
- Task 2 – to advise on the alignment of the proposed North Bishopstoke link road (NBLR) to ensure the impacts on the existing streams are minimised;
- Task 3 – to recommend sustainable management of post-development surface water runoff from the future developments and roads to minimise the impact on the water quality and quantity of the local watercourses.

3.12 Under the heading of amenity and biodiversity this report states, 'the route of the NBLR (north of Bishopstone link road as shown in Figure 2-2 (see their original report) would not be the optimum road route considering its required span over the significant floodplain of the River Itchen'. In their conclusions they make the following statement, 'considering the scale of the proposed development there is a potential for the existing water quality and quantity in the local watercourse network to be adversely affected' and, 'the route of the currently proposed NBLR should be re-assessed to minimise the impact of the new crossing on the River Itchen floodplain'.

- Tasks 1 & 2 Technical Note – Summary of potential impacts and constraints of proposed road alignments, JBA Consulting, May 2018.

3.13 Under the subject of potential ecological impacts and constraints they state, 'the road crossings and enabling works are likely to take place within the River Itchen SAC and SSSI, or in the immediate surrounds of the designated sites. These features are designated due to their botanical and fish interest, and include species such as Salmon and Bullhead. It is also an important catchment for Otter, Southern Damselfly and White-clawed Crayfish. Further assessment will be needed to ensure these sites will not be adversely affected by the proposed works. For a SSSI, this will involve liaising with the relevant Natural England officer. For the SAC, a Habitat Regulations Assessment is required and will need to demonstrate that the features that qualify it for designation will not be adversely impacted upon as a result of the works. Reasonable time should be allowed for this exercise as approval and changes to proposed works may be required'. They go on to recommend further detailed habitat surveys at the proposed works areas for macrophytes, habitat suitable for Southern Damselfly, habitat suitable for amphibians and preferably a National Vegetation Classification (NVC). With regard to protected species they state the following are required; bat activity and roosting surveys, water vole activity surveys, otter activity surveys, fish surveys for SAC Annex II fish species and Brook Lamprey, a white-clawed crayfish survey and a Southern Damselfly survey.

4. Planning Policies

Local Plan

4.1 It is considered that the draft Eastleigh Local Plan 2016-2036 contains the following nature conservation policies relevant to the sites. A summary of these policies is provided below. For the full list of polices please refer to the draft Eastleigh Local Plan 2016-2036.

Strategic Policy S1 – Delivering sustainable development

- To be sustainable, new development in the Borough should meet community needs without compromising the identity of the Borough or its individual settlements, or the ability of future generations to meet their own needs;

In the context of this report we are particularly concerned with **S1 vi** -

- avoid impacts on the Hamble and Itchen catchments and associated flora and fauna species by preserving water quality and flows from development and safeguarding potential yield of local water resources used for public water supplies having regard to the impacts of abstraction;

and **x** which states:

- maintain, enhance, extend and connect the natural habitats within and landscape value of the Borough, extending natural habitats into new and existing development.

Strategic Policy S5 – New Communities, land north of Bishopstoke and land north and east of Fair Oak

- This policy concerns an area of land to the north and east of Bishopstoke and Fair Oak, as defined on the policies map, which is allocated as a strategic location for two new communities. Development will be in accordance with the principles of development set out in this policy, the North of Bishopstoke and Fair Oak Supplementary Planning Document (SPD) and a detailed masterplan to be approved by the Council. Development will include new homes, employment space, retail and community facilities, open spaces and a new link road (Allbrook Hill, north of Bishopstoke and Fair Oak link road, see policy S6).

4.2 Parts of this policy concerning ecology include 2b where the issue of lighting is addressed in relation to avoiding adverse impacts on ecology and 12, 13 and 4.33 which are shown below:

- **12**. Development will not be permitted unless it is demonstrated through project-level Appropriate Assessment (Habitats Regulations Assessment) that it (either alone or in combination with other plans or projects, and subject only to imperative reasons of overriding public interest in the absence of alternative solutions) will not adversely affect the integrity of the River Itchen Special Area of Conservation or any other European Site. Development will be required to protect headwater ecosystems and hydrological flows and preserve the flood zone around Bow Lake. Buffers will be required in accordance with DM6. A contribution towards strategic mitigation measures for any adverse effect on the southern damselfly as set out in policy DM11 will be required.

- **13**. Development will not adversely affect the ecological functioning of the Sites of Importance for Nature Conservation and priority habitats such as ancient woodland/hedgerow complex or the protected and priority species that use them. An appropriate area of land will remain undeveloped around the headwaters and tributaries of the River Itchen, the Sites of Importance for Nature Conservations (SINCs) and ancient woodland, and other measures provided as required, including a visitor management plan for the woodland.

- **4.33** The development lies close to important environmental designations and species. It is important that the layout and design of development does not adversely affect these designations. An Environmental Impact Assessment and a further Appropriate Assessment (Habitat Regulations) will be required at the planning application stage. However, it is likely that the following measures will be required:

    - buffers left free of development around important features: (Measures will be put in place to mitigate any adverse effects on Southern Damselfly populations so as to ensure no adverse effect on the integrity of the River Itchen SAC) [20 metres*] around headwaters and watercourses;
    - [30-50 metres*] around ancient woodland Sites of Importance for Nature Conservation, the precise buffer within that range will be determined by the further assessment and detailed design;
    - Large enough to preserve the root zones of trees and tree lines of value;
    - 5 metres* around hedgerows that are retained (with like for like replacement of any species rich hedgerows which are lost);
    - retain semi improved and marshy grassland where possible or else ensure it is replaced;
    - Great Crested Newt habitats on the eastern edge of the site are appropriately protected;
    - the creation of green infrastructure to provide interlinking foraging and commuting habitats, including vegetated crossing of roads;
    - sustainable drainage measures;

*(Distances are indicative and will be refined by more detailed studies)

- a woodland visitor management plan;
- any other measures which are required to ensure there is no adverse impact.

Strategic Policy S6 – New Allbrook, Bishopstoke and Fair Oak link road

- A new link road is supported from the Allbrook Link Road to the B3037 east of Fair Oak, as defined on the policies map, serving the housing allocation at Allbrook Hill (policy AL1) and the new communities north of Bishopstoke and Fair Oak (policy S5).

4.3 With regard to ecology, criteria 2 and 3 are relevant as they state each phase of the link road will meet the following criteria:

- not adversely affect (either alone or in combination with other plans or projects; and subject only to imperative reasons of overriding public interest in the absence of alternative solutions) the integrity of the River Itchen Special Area of Conservation or any other European site. This will include the provision of appropriately designed bridges across the river and its tributaries, measures to manage hydrology, and any other measures required;
- not adversely affect Sites of Importance for Nature Conservation;

Development Management Policy DM11 – Nature Conservation

4.4 The Borough Council states it will work with statutory and voluntary agencies and developers to:

- i. Protect, conserve and enhance areas subject to international, national and local nature conservation designations;
- ii. Assist in achieving national, county and local biodiversity targets as set out in Biodiversity Action Plans (BAPs);
- iii. Protect, conserve and enhance networks of natural habitats and features, including the Priority Biodiversity Areas and Priority Biodiversity Links identified in the Eastleigh Borough Biodiversity Action Plan 2012-2022, and watercourses and wetland complexes, woodland trees and hedgerows important to biodiversity and local character; and
- iv. On new development sites seek enhancement of biodiversity through the protection and connection of existing and provision of new habitats and features compatible with the native biodiversity characteristics of the Borough.

5. Ecological Impacts at The SGOs

5.1 There is no single accepted methodology to compare ecological impacts arising from proposed development between different sites. Various models were examined and it was considered that presenting the information in a table provided the most usable results for the comparison of ecological impacts at the four proposed SGOs.

5.2 To inform the perceived degree of ecological impact at each of the SGOs the reports in Appendix 1 were reviewed for information relating to: statutory designated sites (such as Special Areas of Conservation and Sites of Special Scientific Interest) and non-statutory designated sites (such as Sites of Importance for Nature Conservation); protected species; habitat fragmentation; species population fragmentation; wildlife disturbance; light pollution; air pollution; water pollution; and the spread of invasive species.

5.3 Five key questions were considered with regard to the potential ecological impacts:

- **LIKELIHOOD** Is a direct or indirect ecological impact, likely?
- **SPATIAL** What area will it affect?
- **DURATION** How long will it last?
- **BIODIVERSITY IMPACT** Will the impact on biodiversity be positive or negative?
- **BIODIVERSITY RESULT** What will the net result be for biodiversity at that site?

5.4 The possible responses to these questions were graded as follows:

- **LIKELIHOOD**
  - **NK** Not Known
  - **ULD** Unlikely Direct
  - **ULI** Unlikely Indirect
  - **LD** Likely Direct
  - **LI** Likely Indirect
- **SPATIAL**
  - **A** Area specific
  - **B** Borough specific
  - **C** Cross Borough
- **DURATION**
  - **U** Unknown
  - **STR** Short Term Reversible
  - **STP** Short Term Permanent
  - **LTR** Long Term Reversible

- **LTP** Long Term Permanent

- **BIODIVERSITY IMPACT**
  - **++** Significant Positive
  - **+** Positive
  - **N** None to Negligible
  - **?** Unknown
  - **-** Negative
  - **--** Significant Negative
  - **+-** Positive and Negative combined
- **BIODIVERSITY RESULT**
  - **SL** Significant Loss
  - **L** Loss
  - **0** No Change
  - **MIR** More Information required
  - **G** Gain
  - **SG** Significant Gain

5.5 An assessment such as this inevitably relies on an element of subjective judgement and is dependent on the accuracy of the available information. This assessment has been carried out with due regard to the available information presented in earlier reports concerning the SGOs as listed in Appendix A.

5.6 Relevant information from reviewed reports together with pertinent planning policies from Eastleigh Boroughs Local Plan 2016-2036 were used to construct a comparative table presenting the potential ecological impacts at each of the four proposed Strategic Growth Options site (see Table 1). The results in Table 1 take no account of potential or proposed mitigation.

5.7 The ecological impacts were considered and assessed in relation to the seven possibilities relating to SGOs B, C, D and E as used in the Eastleigh Borough Local Plan 2016-2036, Strategic Growth Option – Comparative assessment background paper (June 2018):

- B+C – without link road
- B+C – with link road and do something
- B+C – with link road and do more
- C
- D + development at Fair oak
- D+ development to south
- E+supplementary development at Fair oak

Table 1: Comparative table showing the biodiversity issues of each option

Possible Impacts of the proposed development on:	Criteria	B + C Without link road	B + C With link road and do something	B + C Link road and do more	C	D Supplementary development at Fair Oak	D Supplementary development to the south	E Supplementary development at Fair Oak
1. Statutory designated sites.	L	LI	LI+LD	LI+LD	LI	LD	LD	LI
	S	B	C	C	B	B	B	B
	D	LTP	LTP	LTP	LTP	LTP	LTP	LTP
	BI	- -	- -	- -	- -	- -	- -	?
	BR	SL	SL	SL	SL	SL	SL	MIR

Notes: All SGOs could have significant direct or indirect impacts on biodiversity at the River Itchen SAC/SSSI due to their proximity or concerning considerations such as reduced water quality, increased water pollution, and land take arising from the NBLR bridge footings. The impacts arising from development of SGO E are uncertain prior to obtaining further information on the design and layout of the development (Sustainability Appraisal, LUC 2018).

Possible Impacts of the proposed development on:	Criteria	B + C Without link road	B + C With link road and do something	B + C Link road and do more	C	D Supplementary development at Fair Oak	D Supplementary development to the south	E Supplementary development at Fair Oak
2. Non- statutory designated sites.	L	LD+LI	LD+LI	LD+LI	LD+LI	LD+LI	LD+LI	LD+LI
	S	A	A	A	A	A	A	A
	D	LTP	LTP	LTP	LTP	LTP	LTP	LTP
	BI	-	- -	- -	-	-	-	-
	BR	L	SL	SL	L	L	L	L

Notes: The development of all SGOs could give rise to direct negative impacts (such as recreational disturbance, water pollution, light pollution) on SINCs. These impacts are more significant where the NBLR divides woodland SINCs as this causes loss of habitat connectivity.

Possible Impacts of the proposed development on:	Criteria	B + C Without link road	B + C With link road and do something	B + C Link road and do more	C	D Supplementary development at Fair Oak	D Supplementary development to the south	E Supplementary development at Fair Oak
3. Legally protected species.	L	LI	LD+LI	LD+LI	LI	LI	LI	LI
	S	B	B	B	B	B	B	B
	D	LTP	LTP	LTP	LTP	LTP	LTP	LTP
	BI	- -	- -	- -	- -	- -	- -	- -
	BR	SL	SL	SL	SL	SL	SL	SL

Notes: Development at all SGOs could have a direct or indirect negative impact on protected species. The direct effects result from the NBLR which could cause loss of biodiversity both during its construction and operation. Many scheduled species (such as, but not restricted to, Salmon, Bullhead, white-clawed crayfish) require further data to be collected to understand their sensitivity to possible impacts arising from the NBLR and the SGO developments. There are concerns over the new bridge restricting the movement of Southern Damselfly which could result in a further population decline for this protected species. The NBLR will act as a barrier between populations of protected species such as bats, badgers, otters and dormice and could cause increased roadkill of protected and other species. Indirect effects could result from negative impacts on the habitats of these species, for example due to changes in water quality, water pollution, light pollution and human disturbance and these could in turn cause declining populations.

Possible Impacts of the proposed development on:	Criteria	B + C Without link road	B + C With link road and do something	B + C Link road and do more	C	D Supplementary development at Fair Oak	D Supplementary development to the south	E Supplementary development at Fair Oak
4. Habitat fragmentation.	L	LD	LD	LD	LD	LD	LD	LD
	S	A	C	C	A	A	A	A
	D	LTP	LTP	LTP	LTP	LTP	LTP	LTP
	BI	- -	- -	- -	- -	-	-	-
	BR	SL	SL	SL	SL	L	L	L

Notes: Negative impacts on habitat through fragmentation are most significant in relation to the development of the NBLR which will divide several areas of woodland SINCs. Even without the NBLR the development of SGOs B and C will envelop important woodland SINCs, such as Stoke Park Wood, and reduce their connectivity. The loss of connectivity could result in reduced movements between existing populations and make isolated populations more vulnerable to cumulative impacts, such as recreational disturbance, with resultant population declines. Development at D and E also has the potential to increase habitat fragmentation and negative impacts on biodiversity.

Possible Impacts of the proposed development on:	Criteria	B + C Without link road	B + C With link road and do something	B + C Link road and do more	C	D Supplementary development at Fair Oak	D Supplementary development to the south	E Supplementary development at Fair Oak
5. Species population fragmentation.	L	LD	LD+LI	LD+LI	LD	KN	KN	KN
	S	A	A+C	A+C	A	A	A	A
	D	LTP	LTP	LTP	LTP	LTP	LTP	LTP
	BI	- -	- -	- -	- -	?	?	?
	BR	SL	SL	SL	SL	MIR	MIR	MIR

Notes: The most significant impacts on species fragmentation would arise from the NBLR. The possible negative impact of the new bridge on movements between Southern Damselfly populations (the work of Dr Ben Rushbrook referred to by Martin Larkin, 2018). The barrier effect of the NBLR could cause significant population fragmentation between woodland SINCs for species such as bats, badgers and otters amongst others. The development of SGOs B and C alone could also have significant impacts on populations currently moving freely between SINCs resulting from factors such as loss of connecting habitat, increased recreational disturbance and increased light pollution. There is a lack of data to assess the impacts on species population fragmentation at SGOs D and E.

Possible Impacts of the proposed development on:	Criteria	B + C Without link road	B + C With link road and do something	B + C Link road and do more	C	D Supplementary development at Fair Oak	D Supplementary development to the south	E Supplementary development at Fair Oak
6. Wildlife disturbance.	L	LD+LI	LD+LI	LD+LI	LD+LI	LD+LI	LD+LI	LD+LI
	S	A	A+C	A+C	A	A	A	A
	D	LTP	LTP	LTP	LTP	LTP	LTP	LTP
	BI	- -	- -	- -	-	-	-	-
	BR	SL	SL	SL	L	L	L	L

Notes: Wildlife disturbance could result from development at all the SGOs but the impact could be more significant at option B because of the importance of the large woodland SINCs in this area which contain species sensitive to disturbance such as bats, badgers and otters. The development at SGO B adjacent to these SINCs in combination with the NBLR will have a direct negative impact on biodiversity.

Possible Impacts of the proposed development on:	Criteria	B + C Without link road	B + C With link road and do something	B + C Link road and do more	C	D Supplementary development at Fair Oak	D Supplementary development to the south	E Supplementary development at Fair Oak
7. Light pollution.	L	LD	LD	LD	LD	LD	LD	LD
	S	A	C	C	A	A	A	A
	D	LTP	LTP	LTP	LTP	LTP	LTP	LTP
	BI	-	-	-	-	-	-	-
	BR	L	L	L	L	L	L	L

Notes: Light pollution, which could arise from the development of all SGOs and the NBLR, is a particular issue for bats. The increased transport links across the developed area will be lit and this is likely to restrict the movements between existing bat communities. The development of the NBLR will have light pollution impacts beyond EBC.

Possible Impacts of the proposed development on:	Criteria	B + C Without link road	B + C With link road and do something	B + C Link road and do more	C	D Supplementary development at Fair Oak	D Supplementary development to the south	E Supplementary development at Fair Oak
8. Air pollution.	L	LD	LD	LD	LD	LD	LD	LD
	S	A	C	C	A	A	A	A
	D	LTP	LTP	LTP	LTP	LTP	LTP	LTP
	BI	-	- -	- -	-	-	-	-
	BR	L	SL	SL	L	L	L	L

Notes: There could be direct air pollution impacts resulting from the development of all the SGOs and the NBLR. The most significant impacts could arise from the NBLR on the sensitive catchment of the River Itchen and its dependent species. These impacts are viewed in light of the fact that monitoring by Natural England of the stretch of the River Itchen SSSI within the proposed development area is currently classified as 'unfavourable no change' – and by the Environment Agency as 'moderate' (Dr Nick Everall, 2018).

Possible Impacts of the proposed development on:	Criteria	B + C Without link road	B + C With link road and do something	B + C Link road and do more	C	D Supplementary development at Fair Oak	D Supplementary development to the south	E Supplementary development at Fair Oak
9. Water pollution.	L	LD+LI	LD+LI	LD+LI	LD+LI	LD+LI	LD+LI	LD+LI
	S	B	B	B	B	B	B	B
	D	LTR	LTR	LTR	LTR	LTR	LTR	LTR
	BI	--	--	--	--	--	--	--
	BR	SL	SL	SL	SL	SL	SL	SL

Note: Water pollution could result from development of all the SGOs and they all have the potential to have significant negative impacts on both non- protected and protected watercourses, all of which can have cumulative impacts on the sensitive ecology of the River Itchen SAC/SSSI.

Possible Impacts of the proposed development on:	Criteria	B + C Without link road	B + C With link road and do something	B + C Link road and do more	C	D Supplementary development at Fair Oak	D Supplementary development to the south	E Supplementary development at Fair Oak
10. The spread of non-native invasive species.	L	NK	NK	NK	NK	NK	NK	NK
	S	A	A	A	A	A	A	A
	D	STR/LTR	STR/LTR	STR/LTR	STR/LTR	STR/LTR	STR/LTR	STR/LTR
	BI	?	?	?	?	?	?	?
	BR	MIR	MIR	MIR	MIR	MIR	MIR	MIR

Note: The potential impact of development at SGOs on the spread of non- native species; including problem plants such as Japanese Knotweed spread with garden waste or the release into waterbodies of unwanted pets such as Goldfish which compete with native fish species, is both difficult to assess and mitigate against.

6. Mitigation Proposals

6.1 Under Policy DM11 of the draft Local Plan it is stated that,

> '*Development which is likely to adversely affect the integrity of an international or European nature conservation site will not be permitted. Development which is likely to have a direct or indirect adverse effect on a Site of Special Scientific Interest (SSSI) will not be permitted, unless the Borough Council is satisfied that there are no alternative solutions and the reasons for the development clearly outweigh the harm to the nature conservation value of the site.*'

6.2 At paragraph 5.62 they state, 'development in the Borough has the potential to affect sites of European and national nature conservation value within and beyond the Borough's boundaries, as recognised in the Eastleigh Borough Local Plan 2016 – 2036 Habitats Regulations Assessment. Under the E.U. Habitats Directive, the E.U. Birds Directive and the Ramsar convention as transmuted into British law within the Conservation of Habitats and Species Regulations 2010 (as amended) the Borough Council has a duty to give these areas the strongest protection against damaging development. If a development proposal is likely to have a significant effect on one of these sites, either alone or in combination with other projects, the Council will carry out an appropriate assessment to establish the implications of the scheme for the identified nature conservation interests of the site. The Council will seek to avoid any damage to the integrity of these areas and the species they support. This may entail the negotiation of mitigation measures or contributions to such measures from new development'.

6.3 At paragraph 5.72 they state, 'all applications affecting greenfield sites or known biodiversity interests should be accompanied by a Biodiversity Mitigation and Enhancement Plan (BMEP), agreed by the Council Ecologist at an early stage in the planning process. This will demonstrate how the proposal delivers a net gain in biodiversity'.

6.4 At this stage a Biodiversity Mitigation and Enhancement plan has not been prepared for the SGO sites.

6.5 The Habitat Regulations Assessment (HRA) (LUC, 2018) presents a Mitigation Strategy in Chapter 8. It is not practical within the scope of this review to reproduce here all the details from the Mitigation Strategy as presented and we refer you to the original document for more information. Within their strategy they consider the Solent and Southampton Water SPA/Ramsar, Solent Maritime SAC and River Itchen SAC with regard to disturbance, noise and vibration, hydrological impacts, land outside European boundaries, non- native species and site-specific hydrological impacts, water abstraction and water pollution. Under these headings a mixture of specific actions, references to policies, action plans and working groups are discussed.

6.6 This leads the HRA to state, in part of its summary, that their assessment of the Eastleigh Borough Local Plan finds that:

- There will be no adverse effect on the integrity of River Itchen SAC as a result of atmospheric pollution, either alone or in combination with other plans and projects.
- Taking account of the mitigation strategy, it can be concluded that there will be no adverse effect on the integrity of River Itchen SAC as a result of noise and vibration, hydrological impacts, impacts to land outside the SAC boundary (otter dispersal corridors), non-native species, water abstraction or water pollution, either alone or in combination with other plans and projects.
- Taking account of the mitigation strategy, it can be concluded that there will be no adverse effect on the integrity of Solent Maritime SAC as a result of non-native species, site-specific hydrological impacts or water pollution, either alone or in combination with other plans and projects.

6.7 At this stage the development of SGOs is only a possibility and the potential ecological impacts can only be assumed, with a greater or lesser degree of accuracy according to interpretation of the available existing data. Where reports concerning the proposed SGO development mention mitigation with respect to possible ecological impacts the exact nature of the mitigation is not often described in detail. Mitigation is not always achievable but it is a necessary for SACs where there would otherwise be an adverse effect on the integrity of the site.

6.8 Dr Nick Everall also makes this point in his report stating, 'much emphasis is placed throughout the Planners supporting documentation upon Mitigation of impacts although limited information is currently available on the precise form of these developments, construction methods or timeframe'. As Dr Nick Everall stated in his report with regard to mitigation of impacts, 'no SuDS (Sustainable Drainage Scheme) provides 100% pollutant removal and their efficacy can tail off over time if not well maintained such that mitigation measures will always risk impact upon the receiving fauna of the Itchen wetlands'. He later goes on to state that, 'I cannot see that building on the potentially proposed scale on a river conduit and porous chalk aquifer is not an unacceptable risk which in my opinion the current proposed mitigation measures will not address given the present condition of the river and the desired level of protection for a SAC'. He further states, 'the risks to the aquatic environment are high and the desired level of protection is high given that the River Itchen is a Special Area of Conservation'.

6.9 The Sustainability Appraisal Report (LUC, 2018) recognises that as a result of the proposed development there will be loss of biodiversity and that EBC has put in place measures to prevent this as far as possible and that they will provide mitigation which is likely to protect biodiversity to a greater extent than if development were to come forward without the Local Plan in place. However, it must be recognised that it is extremely difficult, if not impossible, to completely mitigate against undesirable ecological impacts.

7. Additional Considerations

Southern Damselfly

7.1 The Southern Damselfly (*Coenagrion mercuriale*) is the only British resident dragonfly to be listed on Annex 11 of the Habitat Species Directive. It is listed as rare in the British Red Data Book. It is also listed in Appendix 11 of the Berne Convention and on Schedule 5 of the Wildlife and Countryside Act 1981 which protects it against a variety of factors including damage or destruction of habitat.

7.2 Within Eastleigh Borough there are three strongholds of Southern Damselfly; Highbridge, Bishopstoke and Itchen Valley Country Park. Most of the population of southern Damselfly at Highbridge is within the Itchen's SAC and is the prime reason for the SAC status. At Highbridge data collected showed 130.55 males per 100 metres of transect, compared with 27.85 at Bishopstoke and 28.37 at Itchen Valley Country Park (Martin Larkin, 2018).

7.3 Under Policy DM11 of EBLP the council states it will implement a strategic approach to the protection of European site from the direct and indirect effects of development including recreational disturbance. Within Eastleigh it states this will include, 'protection of the River Itchen SAC including water quality and the southern damselfly from the impacts of nitrogen deposition'.

7.4 Under Issue G3 it states, 'the condition of the protected River Itchen is a cause of some concern, there have been declines in Southern Damselfly numbers'.

7.5 Under Strategic Policy S5 EBC state, 'a contribution towards strategic mitigation measures for any adverse effect on the southern damselfly as set out in policy DM11 will be required'.

7.6 Development at SGO B/C would directly impact the Highbridge site as this involves the re-aligning of the proposed feeder road in an effort to improve traffic flows under the Allbrook railway arch.

7.7 Under Strategic Policy S6 concerning the new link road EBC state, 'measures will be put in place to mitigate any adverse effects on southern damselfly populations so as to ensure no adverse effect on the integrity of the River Itchen SAC'.

7.8 EBC are aware of the protected status of the Southern Damselfly and have considered the protection of this species and its habitat in the draft EBLP. Concerns from Dr. Nick Everall and Martin Larkin relate to the lack of recognition of the importance of the Highbridge site for this species and the potentially significant impacts on this species and its habitat which would arise from the proposed development there. The HRA (LUC, 2018) describes this site as representing one of the major population centres in the UK and goes on to discuss how this area would be most impacted by increased atmospheric nitrogen deposition. They state that, 'for southern damselfly the screening report concluded that likely significant effects might occur due to potential effects of nutrient nitrogen deposition on terrestrial habitats used by the species. In the HRA modelling predicted levels of nitrogen deposition and found that the baseline load in the vicinity of Highbridge Farm (B3355 Highbridge Road), Bishopstoke (B3037 Bishopstoke Road) and Itchen Valley Country Park (M27/A27) currently exceeds the critical load of 15kg N/ha/yr. In relation to Highbridge they state, 'the structure and function of Southern Damselfly habitat within the 1% exceedance zone is overwhelmingly influenced by other external factors including river water quality, fluvial characteristics and river and land management practices. Changes in atmospheric nitrogen deposition are not likely to have a significant effect on the Southern Damselfly habitat structure and function'. They continue with regard to the Highbridge site saying, 'river and land management processes and natural succession have overwhelming influence on Southern Damselfly habitat quality. Nitrogen deposition levels are already exceeding Critical Load and likely to be in excess in aquatic environment. Increased nitrogen deposition will not have a significant effect on processes supporting the Southern Damselfly habitat'.

7.9 Dr Ben Rushbrook, who produced Eastleighs HRA paper on the Southern Damselfly, advised EBC that, 'it is considered that the increasing isolation and fragmentation of suitable sites in and around the Eastleigh Borough boundary, linked to the limited dispersal capabilities of this species, has resulted in a breakdown of its meta population dynamics, with an increased susceptibility of remaining populations to extinction and a decreasing likelihood of the species colonising or re-colonising new or historic sites respectively'. Dr Rushbrook makes the interesting point that, 'a study of a motorway and railway bridge over the River Itchen SAC found that although movement beneath/across the bridges was recorded, many individuals were observed turning back in front of the bridges. These are large bridges with an associated moderately high arch above the waterline. Road bridges associated with Highbridge road and Bishopstoke road are notably lower, therefore potentially even more likely to inhibit dispersal'. He concludes, 'it is considered that 'reasonable scientific doubt' exists and therefore an assessment of 'no likely significant effect' cannot be concluded under Habitats Regulations. Therefore, it is considered that the precautionary approach must be adopted, and that measures are required to mitigate predicted impacts of increased road traffic on the Southern Damselfly' (Martin Larkin, 2018).

7.10 Dr. Nick Everall of Aquascience Consultancy states, 'even if mitigation measures were considered in principle then this species is so rare that it is hard to believe that something as environmentally impacting as a road development is even being considered at this site'. He goes on to say, 'the paucity of the current aquatic ecological survey work or existing data analyses presented in the ecological and habitat assessment reports to date cannot fully address potential adverse effects of water pollution, physical modification, nutrient enrichment siltation or water abstraction if it does not yet fully comprehend the aquatic species rarity present and therefore the known cause and effect relationship with these variables from the scientific literature'.

Other notable species

7.11 There is some concern that the Southern Damselfly has become the focus of considerations relating to ecological impacts on the River Itchen. There are other important species to be considered, namely other Annex 11 species:

- Bullhead (*Cottus gobio*)
- White clawed crayfish
- Brook Lamprey (*Lampetra planeri*)

7.12 Other species of national and international importance within the Itchen SAC;

- Otter (*Lutra lutra*)
- Atlantic Salmon (*Salmo salar*)
- Sea Trout
- Sea Lamprey
- Southern Iron Blue (*Baetis niger*)
- Caddis (*Ylodes conspersus*)
- Water Vole

7.13 It is not just the Southern Damselfly which needs protecting but this unique assemblage of protected flora and fauna within this important habitat. There appears to be a lack of data and many reports stated the need for further surveys to inform potential ecological impacts and any resultant mitigation and enhancement proposals.

Sites of Importance for Nature (SINCs)

7.14 Sites of Importance for Nature (SINCs) are contained within and are adjacent to all 4 SGOs considered in this report. Many of the SINC's which could be affected by the proposed development at SGOs B, C, D and E are woodland blocks. Although within the areas proposed for development the intention of the EBLP is to retain all woodland blocks there will nonetheless be ecological impacts arising from reduced connectivity with the wider countryside via existing hedgerows, streams and grassland habitats as these connections become replaced with development as well as increased recreational impacts. The largest of these SINC's is Stoke Park Wood which with the development of SGO B/C will essentially become an oasis within a developed area, as will the nearby Hill Copse SINC.

7.15 The problems of reduced connectivity can be illustrated in relation to considering a species of bat. Bechstein's bat (Myotis bechsteinii) is one of the rarest bats in western Europe and one of the UK's rarest mammals, recorded from only a small number of sites in southern England and Wales and it is an Annex II species for which its roosting sites have been designated SACs. This bat is closely associated with mature deciduous woodland but it also occurs in coniferous woodland in some areas. Bechstein's bat is considered to be at the edge of its range in the Eastleigh area and it has been recorded in Stoke Park Wood SINC (Sustainability Appraisal Report, LUC, 2018). It is a species with a very localised foraging range of around 1.5km. Bechstein's bat has been seen to use small well connected woodland blocks (Bat Conservation Trust, 2011). As the Bat Conservation Trust note in their report groups of small woodland blocks are more likely to be vulnerable to change and therefore management plans should consider all of the connected woodland blocks within an area used by Bechstein's bat.

8. Summary and Conclusions

8.1 ADD (Action Against Destructive Development - Eastleigh) appointed Phlorum Ltd. to prepare an ecological report examining the draft Eastleigh Borough Local Plan 2016-2036 and presenting a comparative review of their proposed Strategic Growth Option (SGO) sites B, C, D and E (as shown in Maps 1, 2, 3, and 4 on pages 13, 15, 17, 18 and 20 of the Strategic Growth Option Comparative Assessment Background Paper, Eastleigh Borough Council, June 2018).

8.2 An overview of information concerning the ecology in the areas of the SGOs for Eastleigh Borough Councils draft Local Plan (see Appendix A) found that development at all of the four SGOs has the potential for significant ecological impacts and could result in significant loss of biodiversity at SGOs B, C, D and E and in the wider surroundings including the River Itchen Special Area of Conservation (SAC), the River Itchen Site of Special Scientific Interest (SSSI) and the Solent and Southampton Special Protection Area (SPA) and Ramsar and the Solent Maritime SAC.

8.3 The development of Eastleigh Boroughs Council's preferred option of B+C together with the proposed North of Bishopstoke link road has the potential for the most significant negative ecological impact.

8.4 The development of SGO C alone potentially has a reduced ecological impact in relation to B+C.

8.5 The two variations of SGO D potentially have a lower ecological impact than B+C or C alone.

8.6 The development of SGO E potentially has the lowest ecological impact of the four SGOs considered here.

8.7 Taking account of mitigation strategy, the Habitat Regulations Assessment, (by Urban Edge Environmental Consulting for Eastleigh Borough Council, June 2018) found that there would be no adverse impacts on the integrity of areas protected under European legislation for nature conservation reasons arising from the development of SGOs B+C and the proposed North of Bishopstoke link road.

8.8 The Sustainability Appraisal Report carried out by Land Use Consultants (June 2018) concluded that there could be potentially significant negative effects on areas protected under European legislation arising from the development of SGO B. They state, 'any proposal which involved land take from the SAC would almost certainly result in an adverse effect on the integrity of that site and would therefore need to be able to demonstrate that there were a) No Alternatives and b) Imperative Reasons of Over-Riding Interest as to why such a project should nonetheless proceed (as well as compensation to preserve the overall Natura 2000 network). It could prove very challenging to meet those tests.'

8.9 For the proposed development of SGO C the Sustainability Appraisal Report carried out by Land Use Consultants (June 2018) found that generally minor potential negative effects would arise with regard to biodiversity. They do however discuss cumulative effects which could result in significant negative effects on biodiversity resulting from the isolation of habitats and state that more information is required.

8.10 The Sustainability Appraisal Report carried out by Land Use Consultants (June 2018) found that the proposed development of SGO D could have potentially significant negative effects with regard to increasing pollution, individually and collectively, however the details of these potential effects are currently uncertain and further information is required.

8.11 At SGO E the Sustainability Appraisal Report (LUC, 2018) found a mixture of negligible or potential minor effects with regard to biodiversity, although this is noted as being uncertain prior to obtaining further information on design and layout of potential development here.

8.12 The differences between these sites may be affected by the different information available for them, in the reviewed information there was often more detailed consideration of SGO B/C as this is the preferred option of Eastleigh Borough Council and they have initiated reports to examine this option in more detail.

8.13 Reliance on mitigation proposals to reduce these impacts on biodiversity to an insignificant level seems premature and most of the reports recognise the need for further surveys to inform decisions.

8.14 Further survey work is required before ecological impacts on the assemblage of flora and fauna within the River Itchen SAC and SSSI can be realistically assessed.

Conclusions

8.15 In conclusion the proposed development arising from the draft Eastleigh Borough Local Plan 2016-2036 could potentially result in significant negative ecological impacts which could cause a significant loss of biodiversity within the borough. The degree of ecological impact will depend enormously of the robustness of the proposed mitigation strategy and opinion is divided as to whether the data and surveys used to assess the potential ecological impacts and inform proposed mitigation are sufficiently detailed and also as to whether the mitigation measures proposed will be sufficiently effective to negate the foreseen negative ecological impacts. An ecological review of the available information regarding the proposed development of Eastleigh Borough Councils Strategic Growth Options, B, C, D and E finds that more surveys are needed to truly assess the ecological impacts and deduce any net result for the biodiversity in Eastleigh Borough.

8.16 On the basis of the existing information it would appear that SGO E offers the least ecological impact followed by D and then C. The councils preferred option of SGO B/C together with the north of Bishopstoke link road has the greatest potential for significant ecological impact. Whilst acknowledging there are many planning considerations to be taken into account, but here on ecological grounds alone, it is difficult to agree that the draft Eastleigh Borough Local Plan 2016-36 can be justified in accordance with NPPF with regard to the development of SGO B/C and the associated North of Bishopstoke link road.

9. Glossary of Terms

PUSH	Partnership for Urban South Hampshire
EBC	Eastleigh Borough Council
EBLP	Eastleigh Borough Local Plan
NBLR	North of Bishopstoke link road
SuDS	Sustainable Drainage Scheme
SGO	Strategic Growth Option
HRA	Habitat Regulation Assessment
SA	Sustainability Appraisal
cSAC	Candidate Special Area of Conservation
dSAC	Draft Special Area of Conservation
EN	English Nature (now Natural England)
EPS	European Protected Species
EPSM	European Protected Species Mitigation
EU	European Union
Habitats Directive	Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora
IUCN	The World Conservation Union (International Union for the Conservation of Nature)
LNR	Local Nature Reserve
NERC Act 2006	The Natural Environment and Rural Communities Act 2006
NNR	National Nature Reserve
Nomenclature	The system of devising of names for plants
NPPF	National Planning Policy Framework
NVC	National Vegetation Classification
PPG	Planning Policy Guidance

PPS	Planning Policy Statement
pSAC	Possible Special Area of Conservation
SAC	Special Area of Conservation
SBI	Sites of Biological Importance
SCI	Site of Community Importance
SEA	Strategic Environmental Assessment
SINC	Sites of Importance for Nature Conservation
SNCI	Site of Nature Conservation Importance
SNH	Scottish Nature Heritage
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest

Appendix A
Reviewed Reports

- Potential aquatic ecological threats to the river Itchen from the draft Eastleigh Borough Local Plans – Final Report by Dr. Nick Everall, Aquascience Consultancy Limited, July 2018.
- The Southern damselfly and the Itchen Special Area of Conservation – Martin Larkin, July 2018.
- Sustainability Appraisal Report – Land Use Consultants, 2015.
- Eastleigh Borough Local Plan 2016-2036 (Appendix 7 Supplementary Site Selection Process, December 2017)
- Eastleigh Borough Local Plan – Strategic Growth Option Comparative Assessment background Paper – Eastleigh Borough Council, August 2017.
- Strategic Eastleigh Site – Bat Trapping and Radio-tracking Baseline Report and Evaluation, August 2017.
- Strategic Eastleigh Site – Ecological Appraisal – WYG/The Highwood Group and Drew Smith Group, August 2017.
- National Planning Policy Framework - Department for Communities and Local Government March, 2012.
- Eastleigh Borough Local Plan 2016-2036 – Habitat Regulations Assessment, Urban Edge Environmental Consulting for Eastleigh Borough Council, June 2018.
- Bechsteins Bat Survey – Final report 2007-2011 -Bat Conservation Trust, 2011.

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