Supplementary Environmental Statement
Land at North-West Haverhill

September 2010

BIDWELLS

Quality Assurance

Site name: Land at North West Haverhill

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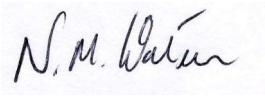
Signed  _____

Date 22nd September 2010_____

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Date 22nd September 2010_____

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1 INTRODUCTION

1.1 This Supplementary Environmental Statement (SES) has been prepared on behalf of The North West Haverhill Consortium of Landowners and relates to a planning application submitted to St Edmundsbury Borough Council (SEBC) on 30 April 2009. The planning application was formerly registered on 14 October 2009 under planning reference SE/09/1283 following the submission of additional information.

1.2 The application seeks planning permission for the development of approximately 48 hectares (ha) of land to the north west of Haverhill for a new urban extension to the town and associated relief road comprising "mixed use development including construction of relief road and associated works and landscaping buffer; residential development, a primary school, local centre including retail and community uses, public open space, landscaping, infrastructure, servicing and other associated works."

1.3 This SES has been prepared following various amendments in response to discussions and negotiations which have taken place in relation to the application since its registration on 14 October 2010. The SES is one of a number of documents which accompany the amended submissions.

1.4 The discussions and negotiations with SEBC and other consultees have resulted in the amended submissions including the following specific changes to the Proposed Development:

- Amendments and further details in relation to Relief Road planting proposals;
- Minor amendments and further details in relation to open space provision;
- Additional illustrative details in relation to the various areas of the site;
- Minor amendments to and further details in relation to surface water drainage strategy and associated impacts.
- Further environmental information in relation to contamination impacts; and,
- Further environmental information in relation ecology impacts.

1.5 Accordingly, having regard to the comments received from SEBC and statutory and other consultees, additional and amended information is provided within this SES and associated documents on the following environmental issues:

- Ecology;
- Landscape;

- Drainage and Flood Risk;
- Recreation & Open Space;
- Ground Contamination.

1.6 This SES is to be read in conjunction with the April 2009 Environmental Statement (ES) submitted with the planning application. This earlier document provides a full description of the site and surroundings, the development proposals and background to the scheme, including the consideration of the alternatives. The consideration of the environmental issues identified above is intended to supplement and update the information provided within the 2009 ES where necessary, in light of the minor amendments and further information outlined above.

1.7 In the case of ground contamination issues and impacts, these issues were not addressed within the 2009 ES. A Phase 1 Geo-environmental Assessment was submitted as further information in October 2009 following the submission of the planning application in April 2009 in response to the Council's request for additional information. The information within the Phase 1 Geo-environmental Assessment has now been formally incorporated as part of the EIA within the SES to ensure that the EIA comprehensively addresses all significant environmental issues and impacts.

1.8 For clarity, the formal documentation comprising the amended planning submission is detailed in **Table 1.1** below:

Table 1.1: Amended Planning Application Submission Documentation

Document	Location	Amendment
Application Forms	Documentation Folder	No amendment
Ownership Certificates	Documentation Folder	No amendment
Site boundary details	Documentation Folder	No amendment
Ownership Plan	Documentation Folder	No amendment
Parameter Plans	Documentation Folder	No amendment
Illustrative Masterplan	Documentation Folder	No amendment Illustrative character area plans and details are provided.
Means of Access Details	Documentation Folder	No amendment
Landscaping details	Documentation Folder	New Relief Road planting plans

Document	Location	Amendment
Design and Access Statement	Design and Access Statement	No amendment.
Environmental Assessment	Volume 1 Full Text Volume 2 Appendices to Full Text Volume 3 Non Technical Summary	Supplementary Environmental Assessment.
Transport Assessment	Volume 2, Environmental Assessment and Environmental Assessment Volume 1 Full Text	No amendment
Flood Risk Assessment	Volume 2, Environmental Assessment and Environmental Assessment Volume 1 Full Text	Addendum to Flood Risk Assessment
Contamination	Phase 1 Geo-environmental Report	SES Chapter 15
Renewable Energy Technologies	Sustainability and Energy Strategy and Environmental Assessment Volume 1 Full Text	No amendment
Biodiversity Assessment	Volume 2, Environmental Assessment and Environmental Assessment Volume 1 Full Text	No amendment
Planning Obligation Strategy	Draft Heads of Terms for s106 Agreement	Subject to further amendment
Archaeological Assessment	Environmental Assessment Volume 1 Full Text	No amendment
Statement of Community Engagement	Statement of Community Engagement	No amendment
Sustainability Appraisal	Sustainability Statement and Environmental Assessment Volume 1 Full Text	No amendment
Affordable Housing Statement	Planning Statement	No amendment
Noise Assessment	Environmental Assessment Volume 1 Full Text	No amendment
Air Quality Assessment	Environmental Assessment Volume 1 Full Text	No amendment
Water Conservation Strategy	Sustainability Statement and Environmental Assessment Volume 1 Full Text	No amendment
Lighting Strategy	Lighting Strategy	No amendment

2 METHODOLOGY

2.1 This SES proposes no changes to the methodology adopted in the 2009 ES.

2.2 The following table identifies the information which the regulations require to be included in an ES and where it may be found in the ES and SES.

Table 2.1: Information for Inclusion in Environmental Statements

Information for Inclusion in Environmental Statements	Chapter Location within ES/SES
PART I	
1 Description of the development, including in particular -	
(a) a description of the physical characteristics of the whole development and the land-use requirements during the construction and operational phases;	ES Volume 1 Chapter 5 and SES Chapter 3
(b) description of the main characteristics of the production processes, for instance, nature and quantity of the materials used;	ES Volume 1 Chapter 5 and SES Chapter 3
(c) an estimate, by type and quantity, of expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation, etc.) resulting from the operation of the proposed development.	ES - 5, 10, 12, 13, 14, 15, 20 plus ES and SES Vol 2 and SES
2 An outline of the main alternatives studied by the applicant or appellant and an indication of the main reasons for his choice, taking into account the environmental effects.	ES and SES - 2.4, 3.3, 5 - 20
3 A description of the aspects of the environment likely to be significantly affected by the development, including, in particular, population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and the inter-relationship between the above factors.	Volume 1 ES Chapters 7-20 and SES Chapters 5-16
4 A description of the likely significant effects of the development on the environment, which should cover the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the development, resulting	

Information for Inclusion in Environmental Statements		Chapter Location within ES/SES
	from:	
	(a) the existence of the development;	ES Vol 1 and SES
	(b) the use of natural resources;	ES Vol 1 and SES
	(c) the emission of pollutants, the creation of nuisances and the elimination of waste;	ES Vol 1 and SES
	and the description by the applicant of the forecasting methods used to assess the effects on the environment.	ES Vol 1 and SES
5	A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment.	ES Volume 1 and SES Topic Chapters
6	A non-technical summary of the information provided under paragraphs 1 to 5 of this Part.	Volume 3 of the ES (separate document)
7	An indication of any difficulties (technical deficiencies or lack of know-how) encountered by the applicant in compiling the required information.	ES Volume 1 Chapter 2 and individual chapters
PART II		
1	A description of the development comprising information on the site, design and size of the development.	ES Chapter 5 and SES Chapter 3 and individual chapters
2	A description of the measures envisaged in order to avoid, reduce and, if possible, remedy significant adverse effects.	Each topic chapter within ES and SES
3	The data required to identify and assess the main effects which the development is likely to have on the environment.	Each topic chapter within ES and SES and ES Volumes 2
4	An outline of the main alternatives studied by the applicant or appellant and an indication of the main reasons for his choice, taking into account the environmental effects.	ES – Volume 1 Chapter 4 and individual chapters
5	A non-technical summary of the information provided under paragraphs 1 to 4 of this Part.	Volume 3 of the ES

3 SCHEME DESCRIPTION

3.1 A number of minor amendments have been made to aspects of the Proposed Development in response to the issues raised during the application consultation process. These minor amendments are as follows:

- Amendments and further details in relation to Relief Road planting proposals;
- Minor amendments and further details in relation to open space provision;
- Additional illustrative details in relation to the various areas of the site; including the re-routing of the existing and the new BOAT and,
- Minor amendments to surface water drainage strategy.

3.2 These changes and the resulting description of development in relation to these aspects of the proposals are described below.

Landscape Buffer

3.3 The landscape buffer to be provided along either side of the proposed Relief Road will shield the visual impact of the road within the landscape and reduce noise impacts. The Relief Road planting proposals have been reviewed and the revised proposals are detailed on the following plans which are included as part of this submission:

- SW51000002–500: Relief Road Planting Proposals - Landscape Masterplan;
- SW51000002-501: Relief Road Planting Proposals - Proposed Roadside Tree Planting;
- SW51000002–502: Relief Road Planting Proposals - Woodland Planting Areas;
- SW51000002–503: Relief Road Planting Proposals - Proposed Shrub Planting Areas;
- SW51000002–504: Relief Road Planting Proposals - Grass and Meadow Areas;
- SW51000002–505: Relief Road Planting Proposals - Proposed Hedge Planting.

3.4 These changes provide more detail in relation to the specific planting density and mix along either side of the Relief Road to further minimise potential landscape and visual impacts of the Proposed Development previously identified. Nonetheless, whilst the precise planting details have changed, the overall approach and concept remains consistent with the Adopted Masterplan and the Landscape Parameter Plan. The landscape buffer will comprise a mix of woodland, shrub and grassland planting. The hedgerow network will be enhanced through provision of significant new hedgerows as part of the Relief Road planting. The buffer will

provide enclosure for the road and will separate the road from the residential development. This will also help to sensitively integrate the road into the landscape setting.

Open Space and Recreation

3.5 In the light of the comments received in relation to the proposed provision for children's play space and the proposed sports pitch provision the play and recreation space strategy for the development has been reviewed having regard to these comments and the Council's Open Space Standards. As a result of this process a number of changes have been made including:

- Reduction in the number of LEAPs provided from 5 to 2 to be located in Anne Suckling Way Park and Linear Park East;
- Provision of 1 NEAP in Ann Suckling Way Park;
- Opportunities for children's play to will be provided throughout the site the details of which will be secured through Reserved Matters applications in accordance with the principles set out in the Design Code;
- Amendments to provision within the proposed Sports Pitch Area with provision of mini sports pitches, a pavilion and changing facilities along with parking provision;
- Increase in provision for courts and greens and other miscellaneous provision.

3.6 The proposed recreation and play space provision is detailed on Drawing SW51000002–514 'Open Space Areas' provided with this submission and the table enclosed at **Appendix 1**.

3.7 These changes provide more detail in relation to the specific composition of the open space provision within the Proposed Development to address the needs of the future residents of the scheme in accordance with the Council's Open Space Standards. Nonetheless, whilst the composition of the open space and recreation provision within the scheme has changed, the overall approach and concept remains consistent with the Adopted Masterplan and the Landscape Parameter Plan and there are no changes to the layout and disposition of the open space areas.

3.8 The open space provision for the Proposed Development will continue to include a mixture of different types of green corridors and landscaped areas, including a series of parks and open spaces, providing a range of recreation experiences. The parks will contain sports pitches, landscaped areas for informal play and recreation, swales and drainage basins required by the drainage network. These areas will also help to enhance the level of biodiversity within the site as well as providing new recreational opportunities.

BOAT Details

3.9 The Ann Suckling Way Bridleway Open to All Traffic (BOAT) No. 32 which crosses the site north to south will not be formally diverted, but an alternative route will be provided to the east with a subway provided under the Relief Road to provide a continuous route for cyclists, pedestrians and horse riders via a safe means of crossing. This will link up with the existing BOAT to the north of the Relief Road to the north of the Ann Suckling Way County Wildlife Site. In addition, a pelican crossing facility will be provided across the Relief Road close to the roundabout along the existing route of the BOAT providing a continuous loop.

3.10 The indicative drawings BOAT Plan SW52000002–515 'Footpaths north of the Relief Road' and SW52000002–516 'Indicative Relief Road Crossing Points' provide further detail of the proposed routing and treatment of the new and existing bridleways in order to clarify the proposed approach to the:

- Separation of the existing BOAT from the County Wildlife Site to prevent encroachment;
- Treatment of the new and existing bridleways in terms of their surfacing and enclosure;
- The design character of the proposed underpass for the new bridleway.

3.11 The footpaths and cycle ways are to be well connected to the Ann Suckling Way public right or way which traverses the site.

3.12 It is intended that full details in relation to the bridleways will ultimately be secured through a pre-commencement planning condition. It is considered that this should give the Council sufficient comfort and control over the detailed design and implementation of the revised rights of way arrangements.

Drainage

3.13 The drainage design connects with separate outfalls to one of the three watercourses that cross the site. In order to restrict the flow significant attenuation of flows will be necessary. It is proposed to utilise various drainage attenuation, transportational and control features including:

- Ponds;
- Infiltration basins;
- Crates;

- Swales;
- Rills;
- Flow control devices; and,
- Overflows.

The network of green corridors will contain most of the sustainable drainage features and new drainage features which take the form of swales, ditches drainage, basins or ponds. Swales in the green corridors will act as sustainable surface water drains and will be linked to the existing watercourses crossing the site.

4 PLANNING CONTEXT

4.1 Since April 2009 when the ES was prepared for the planning application, there have been a number of changes to the Planning Policy Context for the proposals. These relate to:

- Planning Policy Statement 4 (PPS4): Planning for Sustainable Economic Development (2009);
- Planning Policy Statement 5 (PPS5): Planning for the Historic Environment (2010);
- Emerging St Edmundsbury Borough Local Development Framework;

National Planning Policy Framework

PPS4: Planning for Sustainable Economic Development (2009)

4.2 PPS4 was published by the Department for Communities and Local Government (DCLG) in December 2009 and brings together all of the Government's key planning policies relating to the economy in both urban and rural areas into a single PPS, with the overarching objective for sustainable growth. PPS4 replaces PPG4, PPG5, PPS6 and parts of PPS7 and PPG13, providing more coordinated, concise guidance in relation to all forms of economic and employment generating development.

4.3 PPS4 sets out the Government's broad policy objectives for securing prosperous economies as well as the planning policies that will help deliver these objectives. The document confirms the Government's overarching objectives of achieving sustainable economic growth. With regard to economic development Paragraph 10 confirms the Government's objectives for planning are to:

- build prosperous communities by improving the economic performance of cities, towns, regions, sub-regions and local areas, both urban and rural;
- reduce the gap in economic growth rates between regions, promoting regeneration and tackling deprivation;
- deliver more sustainable patterns of development, reduce the need to travel, especially by car and respond to climate change;
- promote the vitality and viability of town and other centres as important places for communities.

4.4 The document requires that main town centre uses should be located in accordance with the sequential approach, starting with town (or other) centre sites, followed by accessible edge of centre and then accessible out of centre sites. Paragraph 6.9 of the Government's Practice

Guidance on Need, Impact and the Sequential Approach acknowledges that whilst the sequential approach applies to all main town centre uses, local planning authorities should consider the relative priorities and needs of different town centre uses, particularly recognising their differing operational and market requirements.

4.5 Policy EC10 of PPS4 relates to the determination of applications for economic development. Since the local centre uses are classified as employment uses under the terms of PPS4, the policy is relevant to the proposals. Policy EC10.1 states that local planning authorities should adopt a positive and constructive approach to planning applications for economic development and that proposals that secure sustainable economic growth should be treated favourably.

4.6 Policy EC10.2 then sets out a series of wider impact tests against which proposals for economic development should be judged. These are:

- whether the proposal has been planned over the lifetime of the development to limit carbon dioxide emissions and minimise vulnerability and provide resilience to climate change;
- the accessibility of the proposal by a choice of means of transport including walking, cycling, public transport and the car, the effect on local traffic levels and congestion after public transport and traffic management have been secured;
- whether the proposal secures a high quality and inclusive design which takes the opportunities available for improving the character and quality of the area and the way it functions;
- the impact on economic and physical regeneration in the area including the impact on deprived areas and social inclusion objectives;
- the impact on local employment.

PPS5: Planning for the Historic Environment 2010

4.7 The PPS5 was published in March 2010 and replaces Planning Policy Guidance Note 15. It sets out the Government's guidance on all planning decisions affecting “Heritage Assets”. English Heritage has published simultaneously their “Historic Environment Planning Practice Guide” which provides Guidance to help Practitioners implement this policy, including the legislative requirements that underpin it.

4.8 Underpinning the new policy guidance is the concept of “Heritage Asset”, which is defined as a building, monument, site, place, area or landscape positively identified as having a degree of significance meriting consideration in planning decisions. Heritage Assets are the valued

components of the historic environment and include Designated Heritage Assets and assets identified by the Local Planning Authority during the process of decision-making or through the plan-making process (including local listing).

4.9 Designated Heritage Assets include World Heritage Sites, Scheduled Monuments, Listed Buildings, Protected Wreck Sites, Registered Parks and Gardens, Registered Battlefields or Conservation Areas designated as such under the relevant legislation. In addition, PPS5 also includes an unspecified category of Heritage Assets, which may only be identified during the plan making process, or potentially, at any stage during the decision-making process on an individual planning application.

4.10 Policies HE6.1 to HE.6.3 set out detailed requirements for an assessment of the Heritage Assets affected by any proposed development and the impact of that development on them, and advises that Local Planning Authorities should not validate applications where the extent of the impact of the proposal on the significance of any Heritage Assets affected cannot adequately be understood from the application and supporting documents.

4.11 Policies HE7 provides guidance for the determination of Planning, Listed Building consent and Conservation Area Consent Applications, amongst others, where a Heritage Asset is involved. HE7.4 requires that Local Planning Authorities should take into account the desirability of sustaining and enhancing the significance of Heritage Assets. This wording is then amplified by HE7.5 which requires that Local Planning Authorities should take into account the desirability of new development making a positive contribution to the character and local distinctiveness of the Historic Environment.

4.12 Policies HE8 and HE9 distinguish the planning tests to be applied where an application affects a Heritage Asset or a Designated Heritage Asset. In respect of the former, Policy HE8.1 requires that the effect of an application on the significance of such a Heritage Asset or its setting is a material consideration in determining the application. When identifying such Heritage Assets during the planning process, a Local Planning Authority should be clear that the Asset meets the Heritage Asset criteria set out in Annex 2 of the PPS.

4.13 Annex 2 defines the Heritage Asset criteria as being “a building, monument, site, place, area or landscape positively identified as having a degree of significance meriting consideration in planning decisions. Heritage assets are the valued components of the historic environment. They include designated heritage assets (as defined in the PPS) and assets identified by the local planning authority during the process of decision-making or through the plan-making process.

4.14 This test therefore relates to “significance” which is defined as "the value of a heritage asset to this and future generations because of its heritage interest. That interest may be archaeological, architectural, artistic or historic.” Significance relies in part on the identification of “Heritage Interest”. This phrase is not defined but the PPS does define “Historic Interest” as: “an interest in past lives and events (including pre-historic). Heritage assets can illustrate or be associated with them. Heritage assets with historic interest not only provide a material record of our nation’s history, but can also provide an emotional meaning for communities derived from their collective experience of a place and can symbolise wider values such as faith and cultural identity.”

4.15 Policy HE10 deals with applications affecting the setting of a designated Heritage Asset and follows generally understood criteria.

Regional Planning Policy Framework

4.16 Since the original planning application submission in April 2009, the change in Government has resulted in the revocation of the East of England Plan in June 2010. As a result, the RSS no longer forms part of the Development Plan and policies within the RSS are no longer material to the determination of the planning application.

Local Planning Policy Framework

St Edmundsbury Borough Council Local Development Framework

4.17 Since the original planning application submission in April 2009, matters have progressed with the preparation of the St Edmundsbury Local Development Framework. Of particular relevance to these amended submissions are the yet to be adopted Core Strategy Development Plan Document. The Core Strategy has been the subject of an Examination. The Inspectors have recently reported in relation to the Core Strategy Examination and the final document incorporating the Inspector's proposed changes is due to be adopted by the Council in November 2010.

4.18 The Core Strategy details a variety of policies which developments within St Edmundsbury are required to meet. Of particular relevance to this proposal continues to be the content of Policy CS12. Importantly, the residential allocation at North West Haverhill continues be identified for up to 1,150 units. The content of the amended planning submission, therefore, continues to respond to the Core Strategy policy approach.

5 LANDSCAPE AND VISUAL IMPACT

Introduction

5.1 This section provides supplementary information in relation to the potential effects that the proposed North West Haverhill development may have on the landscape and visual character of the area. As noted in Section 3 above, the revised submissions provide further specification detail and amendments in relation to the Proposed Relief Road Planting including details of planting mix, density and numbers. Consequently, the nature of these revisions to the proposed mitigation and their significance in relation to potential landscape and visual impacts are considered below. The information provided is intended to supplement the assessment of ecological impacts detailed within Chapter 7 of the 2009 ES.

Mitigation and Enhancement

5.2 The Relief Road planting proposals have been revised and amended plans are included as part of this submission to provide amendments and more detail in relation to the specific planting density and mix along either side of the Relief Road to minimise potential landscape and visual impacts of the Proposed Development previously identified.

5.3 These revised Relief Road buffer planting proposals are intended to provide enhanced screening to integrate the development into the landscape, shield the visual impact of the road within the landscape and reduce noise impacts.

5.4 The species mix has been revised to include lower-growing species on the road-side and shrubs within the woodland areas rather than solely tree species whilst there are some areas where fewer trees are now to be provided. The landscape buffer will comprise a mix of woodland, shrub and grassland planting. The hedgerow network will be enhanced through provision of significant new hedgerows as part of the Relief Road planting.

5.5 The Relief Road planting proposals also now extend further on the southern side of the Relief Road to include some of the areas within the masterplan structural planting in order to guarantee sufficient structural landscaping. The buffer will provide enclosure for the road and will separate the road from the residential development. This will also help to sensitively integrate the road into the landscape setting.

5.6 Whilst the precise planting details have changed, the overall approach and concept remains consistent with the Adopted Masterplan and the Landscape Parameter Plan.

Evaluation of Residual / Cumulative Impacts

Landscape Impacts

5.7 The development of a greenfield site for residential purposes will inherently result in the loss of openness and change in character. These are both adverse landscape impacts and cannot be mitigated against. However, it is considered that quality of design and the strong landscape framework proposed as part of the Masterplan design will result in a *reduced adverse* nature of these impacts. The proposed changes to the Relief Road planting details will further minimise potential adverse landscape impacts of the Proposed Development.

5.8 The retention and repair of neglected existing landscape features, such as hedgerows and ditches, and the addition of new areas of native tree, shrub and hedgerow planting, result in a generally **beneficial** impact upon the landscape resource and the reinforcement of local character. These beneficial impacts are further enhanced by the proposed changes to the Relief Road planting details.

Visual Impacts

5.9 The most significant adverse visual impacts remain those viewpoints within and close to the proposal site and also result from the inherent loss of openness and long distance views that result from residential development within greenfield areas.

5.10 The design of the Masterplan ensures the creation of a strong landscape framework throughout the development and the addition of new planting where possible. Although this cannot mitigate against the loss of openness or long distance views, it ensures that the residual impacts are **reduced adverse** when mitigation measures are taken into account. This means that although the character of views will change, the Proposed Development can still form a positive element within the landscape. The proposed changes to the Relief Road planting details will further minimise potential adverse visual impacts of the Proposed Development.

Conclusions

5.11 It is considered that the revised planting proposals provide a more detailed and robust planting scheme which will successfully reduce the visual impact of the Relief Road and also integrate with the surrounding landscape including the structural planting for the proposed residential area to the south.

5.12 However, none of these changes change the findings of the Landscape Chapter within the 2009 ES such that amendments are required to the conclusions in relation to potential impacts.

6 ECOLOGY

Introduction

6.1 This section provides supplementary information in relation to the potential effects that the proposed North West Haverhill development may have on ecology and features of importance for nature conservation within the area. It specifically addresses a number of issues raised by both Natural England (NE) and the Suffolk Wildlife Trust (SWT) regarding the potential impacts upon various ecological receptors and whether the mitigation measures proposed in these cases are adequate and/or appropriate. The ecological issues considered include:

- Potential impacts upon Ann Suckling Way County Wildlife Site (CWS) and the adequacy of the proposed mitigation;
- Potential impacts upon Yellowhammer and the adequacy of the proposed mitigation;
- Potential impacts upon Barbestelle Bats and the adequacy of the proposed mitigation;
- The Biodiversity / Ecological Management Plan.

6.2 These issues are addressed in turn below. The information provided is intended to supplement the assessment of ecological impacts detailed within Chapter 8 of the 2009 ES.

Mitigation and Enhancement

Ann Suckling Way County Wildlife Site

6.3 The proposals provide for the provision of an additional byway to the north of the Proposed Relief Road to provide an alternative route to Byway 32 via an underpass under the Relief Road which will be useable for horses and the disabled. This will provide a circular route and take the pressure off of Byway 32 and the adjacent CWS.

6.4 Furthermore, Byway 32 will be re-routed approximately 1m to the east of the current route between the Relief Road and the Norney Plantation to further reduce potential impacts on the CWS in terms of encroachment and impacts from nutrient enrichment from dog faeces. The re-routed Byway 32 will be separated from the CWS by a post and rail fence to prevent encroachment and will incorporate a hard bound surface (see Drawing SW5100002-515).

6.5 In addition, a range of additional measures are proposed to reduce impacts. These include:

- Erection of a temporary fence to prevent incursion of construction activities;
- Provision of a dedicated parkland area for dog walking;
- Provision of dog faeces disposal bins.

6.6 The implementation of these measures can be secured by a planning condition.

Yellowhammer

6.7 Yellowhammer (YH) is listed within the UKBAP list. A number of measures will be adopted to mitigate any potential impacts on these species. It should be noted from the bird territory figure in the ES that all Yellowhammer territories were centred on hedgerows with grass strips. The species nests in hedgerows and forages in adjacent habitat, particularly the grassland strips and arable field margins associated with the hedgerows. The linear park features within the application site south of the proposed Relief Road will be highly unlikely to support yellowhammers.

6.8 To provide replacement Yellowhammer territories, additional hedgerow habitat will therefore be provided along the northern boundary of the application site to the north of the Relief Road. The position and planting specification for these hedgerows are detailed on Drawing SW51000002-505. As is evident from the plan, this will provide significant additional hedgerows along the boundaries between the Relief Road buffer planting and the adjacent fields and along the boundaries of the existing and re-routed BOAT to the north providing significant new Yellowhammer habitat.

6.9 Whilst planting adjacent to the Relief Road would not represent suitable habitat for Yellowhammer the revisions to the design with the siting of these hedgerows beyond the proposed buffer planting along the field boundaries would provide suitable new nesting spaces. Yellowhammer will not nest in mature woodland, so hedgerows will be provided in addition to the woodland planting proposed. In addition to the hedge, an adjacent grass strip would be provided within the arable field margin of approximately 5m.

6.10 It is considered that this additional mitigation north of the Relief Road coupled with management of adjacent arable land would provide sufficient mitigation for Yellowhammer. It is evident from the territory sizes on the bird territory ES map that more than the existing number of territories will be accommodated providing a significant benefit.

Barbastelle Bats

6.11 Barbastelle will be displaced from its former foraging area and none of the land south of the bypass would be used by Barbastelle post-development (although it should be noted that a recent journal abstract found that Barbastelles are capable of crossing motorways, although its not clear where in Europe this research was conducted).

6.12 However, it is considered that the species would instead be able to forage along the new planted woodland edge north of the proposed Relief Road (see ES para 8.2.28). The lighting

design of the carriageway is intended to minimise light spillage, which should reduce impacts on Barbastelles using this area. The mitigation design is therefore intended to provide alternative foraging hedgerow / woodland edge for Barbastelles on emergence from their likely roosting site of Norney Plantation.

6.13 In addition, additional hedgerows are proposed along the boundary with the BOAT (Byway 32 and the proposed additional Byway) adjacent to the Norney Plantation (see drawing SW51000002-505). This would provide alternative foraging hedgerow / woodland edge for Barbastelles on emergence from their likely roosting site of Norney Plantation.

Monitoring

6.14 An Ecological Management Plan document will be produced following the grant of planning permission, at the detailed design stage. This would be secured through a pre-commencement planning condition in order to ensure that appropriate measures are put in place to maximise the potential for ecological enhancement as part of the scheme.

6.15 Monitoring of the CWS will be included in the Ecological Management Plan. This could be extended to include maintenance, although it is expected that SWT would continue to manage it. However, the EMP could include details of liaison with the Trust and potential for additional management if monitoring shows a decline in site condition.

Evaluation of Residual / Cumulative Impacts

Construction Phase Effects

Ann Suckling Way CWS

6.16 A temporary fence will be erected between the Site and the CWS to minimise impacts during the construction phase. Detailed construction practices will be agreed as part of a Construction and Environmental Management Plan which would be secured by a planning condition attached to any planning permission.

6.17 Any residual indirect impacts would be of short-term duration and reversible, and therefore of negligible magnitude and **not significant**.

Operational Phase Effects

Ann Suckling Way CWS

6.18 Mitigation for adverse effects arising from increased visitor pressure on the Ann Suckling Way CWS section of Byway 32 would be provided in the form of an additional byway and the minor re-routing of Byway 32 as shown on the Masterplan, which would divert recreational pressure

away from the sensitive habitats and species within the CWS and are therefore considered to be **not significant**.

Yellowhammer

6.19 Provision of significant areas of habitat in the form of the linear parks and other green spaces should provide nesting habitat for Yellowhammer and reduce impacts of disturbance. Buffer planting along the edges of the Relief Road should provide additional attenuation for noise and visual disturbance arising from the Relief Road. Overall impacts are therefore considered to be **not significant**.

Barbastelle Bats

6.20 The site has been designed to provide habitat connectivity in the form of linear parks and green infrastructure. This will reduce any fragmentation impact of the Proposed Development, and will provide habitat for foraging and, once the planted trees mature, roosting bats.

6.21 However, it is acknowledged that Barbastelle, a woodland species more susceptible to habitat fragmentation, may be more affected by the presence of the northern Relief Road, as it is likely to prevent this species from accessing the development site. However, the new planted woodland edge north of the proposed Relief Road and the additional hedgerows are proposed along the boundary with the BOAT (Byway 32 and the proposed additional Byway) adjacent to the Norney Plantation will provide alternative foraging habitat in the form of hedgerow / woodland edge for Barbastelles north of the road on emergence from their likely roosting site of Norney Plantation, and the overall length of the buffer strip is greater than the section of Ann Suckling Way footpath hedgerow which is likely to be inaccessible to bats. Therefore, there should be no long-term loss of available foraging opportunities for Barbastelle.

6.22 Given that the majority of the site is currently arable land of little value to foraging bats, the additional hedgerows provided in the Proposed Development should provide an overall increase in foraging habitat for bats. This is to some extent balanced by the increased fragmentation provided by the roads, but overall the impacts on Barbastelle bats are therefore considered to be **not significant**.

Conclusion

6.23 Site design has included measures to mitigate impacts on the VERs, and the overall residual impact of the development on ecology is considered to be minor negative on Boyton Hall Track LWS, hedgerows and invertebrates, with all other residual impacts not considered significant.

6.24 Opportunities exist to provide overall biodiversity enhancements via the following measures:

- Woodland creation;
- Calcareous and neutral grassland creation;
- Hedgerow planting;
- Pond creation;
- Provision of enhancements such as bat boxes, bird boxes and insect bricks.

6.25 An Ecological Management Plan will be produced for the site, detailing habitat creation methods and management, and including provisions for monitoring retained and new features of ecological interest. The EMP can be secured and agreed through the imposition of an appropriate condition attached to any planning permission.

6.26 With the appropriate mitigation and enhancement measures, it is concluded that the development should have an overall **positive benefit** to biodiversity.

7 ARCHAEOLOGY AND CULTURAL HERITAGE

7.1 No changes have taken place to the content of the application which would affect the findings of the assessment within the 2009 ES and would therefore necessitate amendments to this specific chapter. The findings of the 2009 ES in respect of impacts upon cultural heritage and archaeology therefore remain valid.

8 FLOODING AND DRAINAGE

Introduction

8.1 This section provides supplementary information in relation to the potential effects that the proposed North West Haverhill development may have on drainage and flood risk within the area. This section amends and updates Chapter 10 of the 2009 ES in relation to Flooding and Drainage.

8.2 Since the 2009 ES a revised drainage strategy has been developed for the Proposed Development to demonstrate that the site can be satisfactorily drained in an acceptable manner having regard to concerns raised by SEBC, the EA and AW. The revised drainage strategy demonstrates how the Proposed Development would not pose an increased risk of flooding to adjacent areas, receiving watercourses, sewers having regard to:

- The existing topography.
- Existing ground conditions, suitability/potential for infiltration drainage systems and groundwater levels.
- Discussion of alternative drainage solutions to determine the most appropriate design to serve the Proposed Development.
- Flood risk assessment utilising the data and results from the above activities.

8.3 This section considers the mitigation strategy to attenuate surface water impacts of the Proposed Development and considers the residual impacts on flooding and drainage taking account of the surface water drainage strategy.

8.4 This assessment has been based on and should be read in conjunction with the Addendum to the Flood Risk Assessment (FRA) which forms part of this submission. This chapter gathers together the findings of the FRA Addendum.

Baseline Conditions

Surface Water Drainage

8.5 The site currently drains to three existing watercourses. Two of these ditches connect to Anglian Water (AW) sewers in Gurlings Close and Forest Glade. In response to queries from AW in relation to whether these watercourses connected and discharged into its sewers a CCTV survey was undertaken to demonstrate the connections of the two watercourses to the AW sewers. The results of this were issued to AW on 15 September 2010 and confirmed that the two watercourses do connect to the AW sewers as previously suggested.

Mitigation

Surface Water Drainage

8.6 The first option to be considered for surface water disposal for the Proposed Development must be soakage into the ground. Even when there are alternative sewer connections or watercourses available soakage must still be utilised unless it is unfeasible. To identify the suitability of the ground for soakage percolation, testing has been carried out to calculate the infiltration rate. Where the underlying soil conditions are relatively impermeable, the infiltration rate will be too low for soakaways to be designed adequately to cope with large storm events. In this case, the site is considered to be unsuitable for soakage due to the underlying clayey soils and cannot therefore be considered for traditional soakaways, filter trenches or similar as such devices are likely to fail and cause localised flooding.

8.7 The next priority for the disposal of surface water is to use an existing watercourse. It is feasible to make connections from the drainage system for the development into the existing watercourses. Flows must be restricted to the equivalent of greenfield run-off rates for up to a 1 in 100 year critical storm event, and in accordance with PPS25, allowance for 30% increase in run-off due to climate change should also be made.

8.8 Surface water discharge from the development will therefore be restricted to the equivalent greenfield run-off from the site. The National SUDS Working Group 'Interim Code of Practice for Sustainable Drainage', published July 2004 (ICP), recommends the use of Report No.124 'Flood estimation for small catchments', Institute of Hydrology (IH124), for all catchments up to 200ha. For catchments smaller than 50ha the equivalent run-off from a 50ha site must be calculated using IH124, it is then possible to pro-rata this value to give the peak run-off for the smaller site. As the Proposed Development has a total site area of 43ha, IH124 is the preferred method of calculation.

8.9 The total greenfield run-off calculated for the development and also the rate per hectare of the site is detailed in the table below.

Table 8.1 Existing Greenfield Run-off Rates

Return Period (years)	Greenfield Run-off Rate (l/s/ha)	Greenfield Run-off Rate (l/s 43 ha)
1	1.99	85.6
30	5.41	232.6
100	7.43	319.5

8.10 To establish the drainage strategy principles for the Proposed Development, analysis of 8 parcels of land has been undertaken. Using Micro Drainage Source Control and Simulation software a detailed model has been developed and analysed for a 1 in 100 year (+ 30% climate change allowance). Rainfall has been modelled using the FEH data.

8.11 The drainage design was previously split into eight networks all with separate outfalls to one of the three watercourses that cross the site and incorporated various drainage attenuation, transportational and control features including:

- Ponds;
- Crates;
- Swales;
- Rills;
- Flow control devices; and,
- Overflows.

8.12 In order to respond to concerns raised by SEBC regarding the below ground storage elements of the drainage strategy the surface water drainage system has been remodelled to achieve:

- Removal of below ground attenuation from areas of public open space generally, except beneath the allotments and at the east end of the site where additional storage should be provided to provide water for irrigation. In these particular locations the LPA are potentially willing to adopt the below ground attenuation systems.
- Below ground attenuation elsewhere to be provided in car parking areas within the residential areas, which would not require LPA adoption. Instead their maintenance would be by a management company set up to maintain shared private areas.
- Increase in the use of swales/rills across the site. These features are only practicable for storage purposes where the roads run parallel with the contours, but could be used for conveyance on steeper slopes.

8.13 The drainage designs for residential areas 1 to 5 inclusive have therefore been revised to remove below ground attenuation from areas adoptable by the local authority, except in two areas, namely the allotments and the east of the site. The attenuation in these areas will be designed to provide a water resource to the allotment users and the Local Authority. Below ground attenuation will be provided in areas which will form parking courts within each block of

housing. The discharge from each of these will be limited to a maximum of 5l/s to minimise the attenuation requirement in the drainage basins at the bottom of the drainage networks.

8.14 The micro-drainage calculations and associated drainage plans included within the FRA Addendum demonstrate that remodelled surface water drainage strategy will adequately attenuate and control surface water flows from the development in a manner such that they do not exceed the maximum allowable existing equivalent greenfield discharge rates that had been accepted by the EA in the previous drainage design. This includes for the 100 year rainfall event including allowance for climate change to discharge to the receiving watercourses at a rate not exceeding the existing 100 year greenfield run-off rate.

8.15 The revised drainage design decreases flood risk downstream of the site as the total volume discharged will be reduced by the rainwater harvesting features now incorporated in the design Through the use of rainwater harvesting within storage tanks, not least for use within the allotments but also as a source of water for the maintenance of open spaces, the volume of run-off from the site will also be reduced. The amount of attenuation proposed therefore provides a significant mitigation against the existing run-off from the site.

8.16 Moreover, by careful planning in conjunction with the landscaping design for the development the swales and attenuation ponds could enhance the appearance of the development whilst providing a sustainable method of managing the surface water run-off from the Proposed Development.

8.17 In addition, since the site is situated in an area where the lie of the land is relatively steep, to prevent any internal flooding in the 100 year event the dwellings would be raised 150mm (good practice) above surrounding ground levels. In addition, the roads would be designed so that any flooding from the manholes, which would be in the roads, would be contained within the roads and routed along the roads towards the ponds and basins lower down the site.

8.18 As the drainage scheme for the Proposed Development is subject to detailed design the above strategy is purely intended to set the principles for the scheme. The principles of the drainage strategy are summarised on Drawing SW51000002-507 Rev A and within the FRA Addendum which form part of the revised submission.

Evaluation of Residual / Cumulative Impacts

Surface Water Drainage

8.19 No assessment has been made of the impact from the other developments but the strategy adopted is to restrict flows to existing greenfield run-off rates for the 100 year return period. The proposed discharge rates to the two watercourses that connect to the AW sewers in fact

provide betterment in that it is proposed to restrict run-off from the 100 year rainfall event with an allowance made for climate change of 30% additional run-off, thus restricting the long term flows from the development to current rates. Moreover, the revised drainage design decreases flood risk downstream of the site as the total volume discharged will be reduced by the rainwater harvesting features incorporated in the design therefore providing a significant mitigation against the existing run-off from the site.

8.20 The mitigation measures proposed are designed to prevent any major impacts arising from excessive surface water run off from the development. However a negligible residual risk remains due to either an unforeseen failure of the system or of a rainfall event so significant that the system is overloaded. The risk associated with either of these scenarios is considered to be minimal and it would be uneconomic and impracticable to provide measures to eliminate or reduce them further.

8.21 A robust maintenance regime will be put in place to manage the SUDS elements of the drainage strategy for the development. Swales shall require headwall structures cleared of debris, attenuation structures such as throttle pipes, weirs and check dams shall also need periodic inspection to ensure correct operation of the drainage system. It is proposed that the SUDS elements of the drainage strategy shall operate in parallel to a piped surface water sewer system (generally located under highways) which shall be offered for adoption to Anglian Water under Section 104 of the Water Industry Act 1991.

8.22 Taking into account the proposed mitigation measures outlined above it is therefore considered that the residual impacts would be **negligible**.

Conclusions

8.23 Surface water from the Proposed Development can be drained satisfactorily to the existing watercourses which run through the site, with an allowance for 30% climate change. Flows to the existing watercourses will be restricted to the equivalent greenfield run-off rate to minimise the risk of flooding downstream. Attenuation will be achieved by the use of below ground storage, infiltration basins and retention swales throughout the development. Therefore the Proposed Development would not create an impact on the existing drainage network or create an increased flood risk to adjacent land or properties.

9 TRAFFIC AND TRANSPORTATION

9.1 No changes have taken place to the content of the application which would affect the findings of the assessment of traffic and transportation impacts within Chapter 11 of the 2009 ES. As such, no amendments are required to this specific chapter as a result of these amendments and the findings of the 2009 ES in respect of impacts upon traffic and transportation therefore remain valid.

10 NOISE AND VIBRATION

10.1 No changes have taken place to the content of the application which would affect the findings of the assessment of noise and vibration impacts within Chapter 12 of the 2009 ES. As such, no amendments are required to this specific chapter as a result of these amendments and the findings of the 2009 ES in respect of impacts upon noise and vibration therefore remain valid.

11 AIR QUALITY

11.1 No changes have taken place to the content of the application which would affect the findings of the assessment of air quality impacts within Chapter 13 of the 2009 ES. As such, no amendments are required to this specific chapter as a result of these amendments and the findings of the 2009 ES in respect of impacts upon air quality therefore remain valid.

12 WASTE

12.1 No changes have taken place to the content of the application which would affect the findings of the assessment of waste impacts within Chapter 14 of the 2009 ES. As such, no amendments are required to this specific chapter as a result of these amendments and the findings of the 2009 ES in respect of impacts upon waste therefore remain valid.

13 ENERGY AND CLIMATE CHANGE

13.1 No changes have taken place to the content of the application which would affect the findings of the assessment of impacts on energy and climate change within Chapter 15 of the 2009 ES. As such, no amendments are required to this specific chapter as a result of these amendments and the findings of the 2009 ES in respect of impacts upon energy and climate change therefore remain valid.

14 SOCIO-ECONOMIC ISSUES

Introduction

14.1 A number of minor changes have been made to the proposals which have affected the assessment of socio-economic effects detailed within the original ES. These changes specifically relate to the recreation and open space provision within the Proposed Development. These changes to the proposed mitigation and their potential significance in terms of the residual impacts identified are considered in detail below.

Mitigation and Enhancement

14.2 The play and recreation space strategy for the Proposed Development has been revised with a number of changes to the proposed provision for children's play space and the proposed sports pitch provision. The use, classification and character of the various areas of open space has been amended to ensure that a more robust play and recreation strategy is in place which responds to the Council's standards as far as possible within the Masterplan framework. As a result of this process a number of changes have been made including:

- Provision of 1 Neighbourhood Equipped Area for Play (LEAP) in Ann Suckling Way Park;
- Reduction in the number of Local Equipped Areas for Play (LEAPs) provided from 5 to 2 to be located in Ann Suckling Way Park and Linear Park East;
- Rather than provision of formal Local Areas for Play (LAPs) opportunities for play will be provided across the development the details of which will be secured through Reserved Matters applications in accordance with the principles set out in the Design Code;
- Amendments to provision within the proposed Sports Pitch Area with provision of mini sports pitches, a pavilion and changing facilities along with parking provision. The details of this will be secured through Reserved Matters applications;
- Increase in provision for courts and greens and other miscellaneous provision.

14.3 The overall amount of open space incorporated within the Proposed Development has not been reduced and remains at 11.38 ha. The proposed recreation and play space provision is detailed on Drawing SW51000002–514 'Open Space Areas' provided with this submission and the table enclosed at **Appendix 1**.

14.4 In accordance with the Borough's requirements, the scheme continues to make provision for approximately 11.38 hectares of new open space across the development providing a suitable mix of recreational opportunities. Indeed, the overall approach and concept remains consistent with the Adopted Masterplan and the Landscape Parameter Plan.

14.5 However, whilst the total amount and disposition of open space has not changed the use of individual areas and resultant composition of the recreation and open space provision has been revised slightly and now includes provision for 6.04 hectares for amenity open space, 3.17 hectares for children's play space, 2.67 hectares for playing pitches and outdoor sports facilities and 0.35 hectares for allotments. This level of provision has been agreed with SEBC and is largely in line with the Council's adopted Open Space Standards.

14.6 However, it is acknowledged that, even taking account of the inclusion of the school playing fields and the additional areas for courts and greens proposed, there will be still be a shortfall of playing pitch provision when compared to the Council's Open Space Standards and Sport England guidelines. This is due to a range of factors including the topography of the site and the nature of the landscape approach detailed within the Adopted Masterplan with a series of green corridors running through the development. A fundamental change in the approach to the design and layout of the development and the relaxation of other landscape, open space and community facility requirements would be necessary to meet these requirements which would run contrary to the principles established within both the Adopted Concept Statement and Masterplan. This is not considered appropriate.

14.7 Accordingly, since it is not possible to meet these requirements on-site it is proposed that this deficiency would be addressed through financial payments towards improvements to existing playing pitch provision within the locality including:

- A commuted sum to drain and properly layout Puddlebrook Playing fields, Haverhill, so that four new football pitches can be accommodated;
- A commuted sum to build a new changing room provision at Puddlebrook Playing fields – To serve 4 pitches at any one time (8 pitches in total);
- The incorporation of two mini soccer pitches into the amenity/informal open spaces area.

14.8 This would be secured through the s106 Agreement.

14.9 The Proposed Development therefore responds to the aims of the Council in relation to open space meeting the immediate needs of the future residents and also helping to improve provision for nearby residents in Haverhill.

Evaluation of Residual / Cumulative Impacts

14.10 Taking into account the mitigation measures outlined above, the Proposed Development will have a **minor permanent beneficial impact** in terms of recreation and open space provision within Haverhill itself.

Conclusions

14.11 The Proposed Development therefore responds to the aims of the Council in relation to open space meeting the immediate needs of the future residents and also helping to improve provision for nearby residents in Haverhill.

14.12 No other changes have taken place to the content of the applications which necessitate further amendments to this specific chapter and the conclusions of the ES Chapter 16 in relation to socio-economic impacts otherwise remain valid.

15 GROUND CONDITIONS AND CONTAMINATION

Introduction

15.1 This Chapter considers the potential effects of the Proposed Development in relation to existing ground conditions and any land contamination already present at the site. The assessment includes a summary of the current geological and ground contamination conditions and identifies appropriate mitigation measures. The Chapter considers the likelihood of the presence of contamination that may affect the suitability of the site for the future uses which form part of the Proposed Development.

15.2 This assessment has been based on a full Phase 1 Geo-Environmental Assessment report in accordance with BS 10175:2001 which was submitted as further information to the application in October 2009. This report gathers together the findings of the Phase 1 Assessment.

Methodology

Background

15.3 The assessment of the site with respect to contamination issues has been undertaken to determine whether or not the geotechnical characteristics of the site are suitable for, and what impact they might have on the Proposed Development, and to identify any necessary mitigation measures required to design, construct and operate the Proposed Development.

15.4 In the UK there are two principal areas of legislation governing sites containing potentially contaminated land:

- Environmental Protection Act (1990) amended by the Environment Act (1995);
- Water Resources Act (1991) and The Water Act (2003).

15.5 A legal definition of contaminated land is given in section 78A(2) of Part IIA of the Environmental Protection Act 1990 as:

"Contaminated land is any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that,

(a) significant harm is being caused or there is a significant possibility of such harm being caused; or

(b) pollution of controlled waters is being, or is likely to be caused."

15.6 The relevant Local Authority for the site is St Edmundsbury Borough Council which has the primary regulatory role under Part IIA of the Environmental Protection Act. The Council's duties include inspecting sites for contaminated land; determining whether conditions at any

particular site meet the statutory definition of contaminated land; and to act as the enforcing authority for all contaminated land, unless the site meets the definition of a 'special site' (in which case the Environment Agency will act as the enforcing authority).

15.7 The definition of contaminated land is based on the principles of risk assessment. Critically, an area of land can only be designated contaminated land if a significant risk has been proven. The presence of contamination is not in itself justification for remedial action; there has to be a pollutant linkage to warrant remediation. A pollutant linkage requires all three of the following elements to be present:

- A Source - a substance that is in, on or under the land and has the potential to cause harm or to cause pollution of controlled waters, i.e. contaminants;
- A Receptor - something that could be at risk of being adversely affected by a source, such as people, an ecological system, property, or a water body; and,
- A Pathway- a route or means by which a receptor is exposed to or affected by a contaminant source, taking into account factors such as contaminant attenuation.

15.8 Each of these elements can exist independently, but they create a risk only where they are linked together, so that a particular source affects a receptor through a specific pathway. This kind of linked combination of source–pathway–receptor is described as a pollutant linkage. On any individual site, there may be only a single pollutant linkage or there may be several. Different pollutant linkages may be related, for example, the same source may be linked to two or more distinct types of receptor by different pathways, or different sources and/or pathways may affect the same receptor. Not all receptors will be relevant in every context, and new pollutant linkages may be created by changes over time. Conversely, in the absence of a plausible pollutant linkage there is no risk. Therefore, the presence of measurable concentrations of contaminants does not automatically imply that the site will cause harm.

15.9 Where a potential linkage is present the degree of risk, or significance, posed needs to be quantified in order that any potential impacts can be assessed and appropriate mitigation measures instigated to reduce the risks and hence potential impacts to acceptable levels.

15.10 In general terms risk is defined as the combination of the probability, or frequency, of a defined hazard occurring (for example, exposure to a substance which has the potential to cause harm) and the magnitude (including the seriousness) of the consequences. In this assessment the definitions adopted for the potential significance of contamination impacts are given in **Table 15.1** below.

Table 15.1 Potential Significance of Contamination Impacts

Risk rating	Definition
Negligible	No contamination present or Limited low-level contamination present with non sensitive receptors or Limited low-level contamination present with slightly sensitive receptors and attenuation possible.
Minor	Localised or low-level contamination present with slightly sensitive receptors and rapid pathways and with little likelihood of attenuation, or Localised or low-level contamination present with sensitive receptors and attenuation possible.
Moderate	Widespread or severe contamination present with slightly sensitive receptors and rapid pathways and with little likelihood of attenuation, or Widespread or severe contamination present with sensitive receptors and attenuation possible.
High	Widespread or severe contamination present with slightly sensitive receptors and rapid pathways and with little likelihood of attenuation, or

Assessment Approach

15.11 Legislation and guidance regarding contaminated land requires the landowner and/or the developer of a site, which is potentially contaminated, to undertake a site investigation which is fit for purpose. Site history is often complex and could involve several different industrial uses or activities that may have lead to ground contamination from a wide variety of different sources.

15.12 Sites that have been used for one type of process may have become contaminated from a potentially large number of contaminants; processes change with time, chemicals are phased out of use and newer ones replace them. Similarly, the layout of operations can be altered, demolition and reconstruction can also affect the likely presence and distribution of contaminants.

15.13 The investigation of contaminated land can therefore be complex and is ideally undertaken using a phased approach as identified in BS 10175. The need for particular elements of an investigation will depend upon the findings of the previous phase. Subsequent phases can then be carefully targeted. This avoids unnecessary work being undertaken. The phased approach typically consists of four stages as detailed in **Table 15.2** below.

Table 15.2: Phased Approach to Contamination Assessment

Phase	Activity	Implementation
1	Desk Study ▪ Information gathering; ▪ Risk identification and analysis; ▪ Interpretation; ▪ Recommendation.	Recommended for all sites
2	Site Investigation ▪ If significant contamination / risk of contamination is identified during Phase 1, intrusive investigations to confirm / quantify contamination on site.	If recommended during Phase 1
3	Remediation ▪ Measures undertaken on site to mitigate the risks identified and bring them within acceptable levels.	If required during Phase 2
4	Validation ▪ On site testing to confirm contamination has been controlled as predicted.	Following on from Phase 3

15.14 A Site Investigation covers features above the ground surface including stored or building materials with some testing. A Geotechnical Investigation involves intrusive below ground sampling of soils and associated testing.

15.15 The assessment of potential impacts on ground conditions and contamination has involved a Phase 1 Assessment. The assessment provides information on the geological and environmental risks associated with the Proposed Development such that a risk assessment can be undertaken and presents mitigation measures.

15.16 The first step in preparing a risk assessment for the site is to amalgamate the research information from historic maps, statutory records and the site inspection in order to develop a Conceptual Site Model (CSM). The CSM is used to determine the presence of a plausible pollutant linkage and hence the presence of significant risk to susceptible receptors such as humans, the water environment or the built environment.

15.17 The scope of works for this assessment has been drawn together in line with the recommendations of BS 10175:2001; **Table 15.3** gives a broad outline of the scope of works for the assessment.

Table 15.3 – Scope of Phase 1 Assessment

Step	Activity
Data collection	Desk study *Documentary research:* ▪ Site history (location, surroundings, topography); ▪ Site usage (including adjacent areas); ▪ Site geology, hydrogeology, geochemistry, hydrology; ▪ Site ecology and archaeology. *Consultations*
	Site reconnaissance: ▪ Detailed inspection; ▪ Interviews; ▪ Limited ad hoc sampling and field measurements (if appropriate)
Interpretation and reporting	Formulate initial conceptual model. Undertake preliminary risk assessment. Assess need for, and scope of, further investigation. Prepare report.

15.18 The desk based assessment has been based on information obtained from the GroundSure GeoInsight and the EnviroInsight reports. Both reports were obtained on 11 September 2009.

15.19 The GroundSure GeoInsight report provides geo-environmental information such as superficial deposits and bedrock data, and also information on groundworkings, mining and extraction and natural ground subsidence. The report is based on the BGS 1:50,000 Digital Geological Map of Great Britain, BGS Geosure data; BRITPITS database; Shallow Mining data and Borehole Records, Coal Authority data, PBA non-coal mining and natural cavities database and GroundSure's geological database which includes historical surface ground and underground workings.

15.20 The EnviroInsight report compiles data from a number of sources such as the Environment Agency, BGS, The Health Protection Agency and the Coal Authority to produce data on industrial sites; recorded contamination; landfill sites; hydrogeology and hydrology; flooding and environmentally sensitive areas.

15.21 A site walkover was also conducted on 01 October 2009. The weather at the time of the assessment was mild (approximately 13°C) dry and overcast with occasional sunny spells. The purpose of the walkover was to perform a visual inspection of the site and make a record of any pertinent features.

Baseline Conditions

Site Setting and History

15.22 The site is located on the northern fringe of Haverhill in Suffolk and extends to approximately 44 hectares. The approximate grid reference of the centre of the site is TL 670 468.

15.23 The site encompasses mainly arable agricultural land comprising of open fields defined by hedgerows and with some trees and no buildings. There are a few public footpaths along the edges of the fields and crossing the site. In places, particularly along the southern edge of the site, the boundary is clearly defined by fences, hedgerows and/or ditches forming the backs to residential gardens. To the east the boundary is clearly defined by the A143 road. Much of the boundary along the northern edge of the site is not defined by features present on site, rather it is defined by the layout of the proposed Relief Road.

15.24 Surrounding the site to the north east and west are more open fields, some farm buildings and a few residential properties. A water tower is indicated just north of the site adjacent to a covered reservoir. To the south of the site are large housing estates within the northern fringes of Haverhill.

15.25 There is a distinct inclination across the site with a high point in the northeast and a low point in the southwest. As is typical with agricultural land there are various ridges and furrows across the site where fields drain into open ditches. The approximate altitude in the north and east of the site is 110m above ordnance datum, sloping downwards to the south and west at approximately 80m above ordnance datum.

15.26 Observations on the site during the walkover survey include the following:

- Where the westernmost drainage ditch crosses the existing road just to the south of the site boundary close to the existing roundabout it comprises a concrete lined open culvert. Where this ditch crosses the site it is heavily overgrown so it is unclear whether it is still culverted at this point. The majority of the site is carved up into individual fields which, at the time of the survey, appeared to have been ploughed fairly recently with no crops within the fields. Between the fields are open shallow drainage ditches within hedgerows. Most of the ditches were dry at the time of the inspection; one had a small trickle of running water;
- The water tower just north of the site identified on the historical maps is clearly evident from much of the site;
- There are overhead wires (possibly electrical or telephone) which cross the site from east to west spanning between traditional wooden poles;

- Just north of Boyton Hall is a metal pylon supporting communication aerials;
- Part way along the southern boundary there are a couple of small inspection chamber covers, roughly where one of the drainage ditches terminates suggesting these may relate to a covered drainage culvert;
- The northern extremity of the site forms a long thin strip alongside the water tower and covered reservoirs, this is a farm track and contains a number of inspection chamber covers, possibly associated with water supply or drainage;
- South of the water tower site there is a concrete headwall where a couple of approx. 300mm diameter pipes discharge into an open drainage ditch. This is likely to be drainage from the water tower site. The open ditch runs downhill through the site from north to south and terminates where a linear pond is shown on the historical maps. No pond was evident on site although the aforementioned drainage ditch (dry at the time of inspection) did widen considerably towards the south.

15.27 Utilities Appraisals have been conducted in the vicinity of the site which indicates that a major gas main crosses beneath this study site.

15.28 A review of historical mapping available for the site dating back to 1876 has been conducted to explore how the site has changed since this time. Copies of the maps are replicated in Appendix B of the Phase 1 Geo-environmental Assessment. The historic maps indicate the following features which may or may not still exist on or around the site, but which could potentially be sources of contamination:

- Farm land covering the entire site;
- Tracks crossing the site;
- A former rifle range south of the site;
- Roads and housing estates east and south of the site;
- A former railway line to the south.

Geology

15.29 There is likely to be Made Ground at the surface of the site owing to previous agricultural land uses. The BGS Digital Geological Map of Great Britain at 1:50,000 scale indicates that the whole of the site is underlain by Diamicton (poorly sorted sediment), which is further underlain by chalk. Southwest of the site is a band of River Terrace Deposits (sand and gravel) coincident with the Stour Brook river running through Haverhill.

15.30 The geological maps show historical groundworking within the proximity of the site; close to the northern boundary is a man made pond and a covered reservoir. Further ponds are recorded within 50m of the southern boundary of the site. There are no historical groundworkings on the site itself.

Hydrogeology

15.31 The entire site is underlain by a Major Aquifer with immediate leaching potential. To the south of the site is a Major Aquifer with high leaching potential which appears to overlap the southern border by just a few metres.

15.32 There is a groundwater abstraction borehole in the village of Great Wratting about 1.8km northeast of the site which is covered by a Potable Water Abstraction License. The northern and eastern portions of the site are within the Source Protection Zone (Zone 2 – Outer Catchment) for this borehole. Zone 2 covers pollution that takes up to 400 days to travel to the borehole. The 400 day travel time is the minimum amount of time that the Environment Agency considers pollutants need to be diluted, reduced in strength or delayed by the time they reach the borehole.

Hydrology

15.33 Surface water features within the site boundary include several open drainage ditches. One ditch crosses the site flowing from north to south at the western end of the site; one crosses the site flowing from northeast to southwest in the middle of the site; two further ditches cross the site flowing from northeast to southwest in the eastern half of the site which are connected in the middle of the site by a further ditch running northwest to southeast.

15.34 Surface Water features outside the site boundary include:

- A linear pond immediately adjacent to the western boundary of the northern portion of the site;
- 3No. ponds at Chapel farm about 100m south of the site;
- Drainage channels flowing away from the site about 100m to the east of the site;
- A river, "Stour Brook" running from northwest to southeast about 420m south of the site. The Environment Agency reports both the Chemical Grade and the Biological Grade of this river as B (Good).

15.35 All surface water features are considered to be potential receptors for any contamination that may be present on site. There are no Surface Water abstractions within 1km of the site.

Environmentally Sensitive Areas

15.36 The GroundSure report has shown that there are Local Nature Reserves within the vicinity of the site, these refer to "Haverhill Railway Walks" along the disused railway line over 300m to the south of the site.

15.37 The whole of the site is within a Nitrate Vulnerable Zone (as is approximately 70% of England); this puts particular constraints on farmers to implement Action Programme measures to reduce nitrate pollution.

Hazardous Materials

15.38 Although there are several features on and around the site of an "industrial" nature – the water tower, covered reservoir, telegraph poles, communications mast, etc. – which will have disturbed the ground during their construction, there is no evidence on the site of any lasting contaminative or hazardous materials. Nonetheless, farmland by its very nature should always be considered to be a low-medium risk owing to the chemicals often used on crops.

15.39 The Site Inspection revealed no further potential sources of contamination on the site and the surrounding land.

Existing Potential Sources of Contamination

15.40 Based on the recorded site history and site inspections there are various potential sources of contamination both on site and in the immediate vicinity of the site. The potential sources of contamination are summarised in the table below.

Table 15.4: Potential Existing Sources of Contamination

Potential Source	Approximate Location	Description
Historical Sources		
Historical Surface Ground Working Features	On site	The two references on site refer to a linear pond adjacent to the western boundary in the northern portion of the site – technically outside the site boundary. Three of the records close to the site refer to the covered reservoirs just to the north of the site. There are eight records around the site up to 52m away for small ponds at Boyton Hall and close to the reservoirs.
Shallow Mining	On site	There are three records of shallow mining on the site, however their hazard ratings are all 'negligible'
Historic Landfill Sites	Within 500m	The former brickworks 480m southwest of the site is recorded as an historic landfill site. 2 further sites (one with 2 records for the same site) are noted both are over 1km away from the study site and not considered a risk.

A former rail line to the south	Within 500m	There is a former rail line to the south of the site
Former Rifle Range	On site	There is a record of a former rifle range adjacent to Hales Barn within the southern part of the site.
Petrol and fuel stores	Within 500m	This refers to an obsolete filling station 483m south of the study site. Although it is obsolete it represents a potential source of contamination to the site.
Existing Sources		
Agricultural Land Uses	On site	The majority of the site has been used for arable agriculture for many years. As a result there are potential contamination risks from pesticides and other agricultural substances.
Current Industrial Sites	Within 250m	The nearest "Industrial Sites" to the study site are a communications mast and 2 industrial units adjacent to the A143 – one dealing in food and beverage machinery the other is an electrical contractor. None of these is considered to be a high risk. Further afield there are a number of references to electrical substations, the water tower to the north and industrial units such as electrical contractors and van rentals. The van rental would be deemed to be low-medium risk since it involves petrol and diesel vehicles but not the maintenance thereof.
Licensed Discharge Consents	Within 250m	The nearest discharge consent relates to treated effluent discharge from a residential property (probably a septic tank) 99m east of the site. A Storm Water Overflow discharges into a tributary of the Stour Brook 308m northeast of the site and another SWO discharges direct into the Stour Brook 457m southwest.
Major Aquifer	On site	The entire site is underlain by a Major Aquifer with intermediate leaching potential.
Potable Water Abstraction Licenses	Within 2km	Two of these records refer to a groundwater abstraction borehole 1.8km northeast of the site, the other is a borehole 1.8km east
Main rivers	Within 500m	The river Stour Brook (see above) is classified as a Main River. The river Stour Brook 308m south of the site has been rated as B-Grade (Good) on a scale of A to F for river water quality
Local nature reserves	Within 500m	These both refer to the disused railway 340m south of the site
Nitrate vulnerable zone	On-site	The report indicates that the site falls within a nitrate vulnerable zone which is an area designated by the EA as land that drains into nitrate polluted waters, or waters which could become polluted by nitrates. This is not considered to be detrimental to any proposed development.

Predicted Impacts

Ground Contamination Model

15.41 A conceptual ground contamination model of potential risks and impacts for the Proposed Development has been developed based on the findings of the baseline assessments above. This is summarised below.

Sources

15.42 A review of historical maps for the site has revealed the following potential sources of contamination on the site and the surrounding land:

- Farm land covering the entire site;
- Tracks crossing the site;
- A former rifle range south of the site;
- Roads and housing estates east and south of the site;
- A former railway line to the south.

Pathways

15.43 The main pathways that could exist on the site to link a potential source to a potential receptor include the following:

- Migration through granular soils via water or gas;
- Migration through fractured non-granular soils via water or gas;
- Passing through disused drains, above and below ground pipework and service trenches;
- Through direct skin contact with contaminated soil;
- Ingestion of soil through direct contact or eating with dirty hands;
- Airborne migration of dust or soil particles leading to inhalation;
- Surface water infiltration leading to leaching of contaminants within soils;

15.44 The construction works necessary to implement the Proposed Development could temporarily or permanently open additional pathways.

Receptors

15.45 Potential receptors on the site that may become contaminated by sources of contamination on and about the site include the following:

- Construction workers using the site during development;
- Future residents, visitors and users of the site following the completion of the development;
- Buildings and other structures;
- Future planting in gardens and open spaces.

15.46 The main targets at risk from existing contamination on site are construction workers and future residents and users of the site. Contaminated land can effect human health if adequate measures are not adopted to mitigate or remove it.

15.47 There are potential receptors off site which could be affected by contamination on site if suitable pathways exist to link the two. Receptors of significance surrounding the site include:

- Surface water features identified at paragraph 15.34 above.
- Sub-surface water (Major Aquifer).

Pollutant Linkages

15.48 Based on the information collated, a preliminary risk assessment has been formulated which identifies all possible pollutant and pollutant linkages at the site in the context of the Proposed Development of the site for residential use. In preparing the risk assessment, three scenarios are considered:

- 1. A source of contamination on site that can cause harm to a receptor off site;
- 2. A source of contamination off site that can cause harm to a receptor on site;
- 3. A source of contamination on site that can cause harm to a receptor on site.

15.49 The preliminary risk assessment is summarised in **Table 15.5** below.

Table 15.5: Summary of Conceptual Contamination Model and Potential Impacts

Source	Receptor	Pathway	Pollutant Linkage	Comments	Additional Site Investigation Requirements / Mitigation Measures
Potential contamination from chemicals used on open farmland covering and surrounding the site and/or from fuel spillage on farm tracks crossing the site	Future site users and construction workers	Through skin contact, ingestion or inhalation of contaminated soil	Possible	Site workers may become exposed particularly during groundworks to re-grade ground levels for development and in constructing foundations to new buildings.	A limited phase II Site Investigation should be undertaken to include groundwater sampling and analyses. Given the size of the site this should be a two phase approach to focus in on any suspect areas. Site workers should wear appropriate PPE. A suitable layer of clean topsoil and subsoil may be required in areas of landscaping or gardens.
	Groundwater, particularly the Major Aquifer beneath site	Infiltration through permeable deposits below the site	Likely	The aquifer beneath the site has a medium leaching potential which raises to high potential just outside the site boundary.	
	Future planting	Root uptake of contaminants	Possible	Potential contaminants could impact the growth of plants or eventually be ingested by humans.	
	Direct rainwater runoff owing to aspect of site, and drainage culverts	Residents in housing developments to the south	Possible now, unlikely under new development	Proposed redevelopment will contain increased areas of hardstanding which will not be allowed to drain into the drainage network so will be dealt with on site. If anything the proposed development will improve this situation.	
Construction activities associated with housing estates south and east of the site and the railway line to the south	Future site users and construction workers	Infiltration through permeable deposits below the site	Unlikely	Given the topography of the region with these housing estates being lower than the site, any mobile contamination within the soil can only permeate further from the site.	None
Former use as a Rifle Range, possible remnants of gunpowder and munitions.	Buildings, future site users and construction workers.	Direct ingestion, direct contact	Possible	Site workers may become exposed to buried contaminated materials during construction, risk of striking unexploded ordnance during construction.	A limited Phase 2 Site Investigation is recommended to include sampling from below made ground. Unexploded Ordnance Survey not likely to pick up small items such as unused bullets, groundworks contractors working in this part of the site to employ suitable method.

Evaluation of Impact Significance

15.50 The CSM shows that there is a possibility that contamination is likely to exist on the site, that there are potentially sensitive receptors, and that suitable pathways may exist to link these receptors to the source of the contamination. Possible pollutant linkages have been identified. The overall risk rating of the site in terms of contaminated land is therefore considered to be Medium. As a result, without mitigation the Proposed Development is likely to have a **minor adverse impact** in terms of ground contamination impacts.

15.51 Depending on the level of re-grading of ground levels for the new development, the likely founding stratum for low-rise structures is likely to be the Diamicton, which consists of poorly sorted sediment – allowable bearing pressures are not likely to be high for this material such that raft foundations may be required, or possibly piled foundations into the chalk below. The risk rating of the site in terms of foundation complexity is therefore considered to be Medium. As a result, without mitigation the Proposed Development is likely to have a **minor adverse impact** in terms of ground stability impacts.

15.52 There is a risk that the North West Haverhill site may have the attributes to be classified as a 'special site'. At this stage our preliminary assessment is that the Local Authority may chose to classify the site as contaminated land. Further investigations should prove or disprove the potential linkages identified above.

Mitigation and Enhancement

15.53 The possible pollutant linkages identified above will be investigated and tested further via a limited intrusive geotechnical investigation, including a Phase 2 qualitative risk assessment of the identified potential risks in accordance with CLR11, to confirm possible contaminated soil on the site. The investigation will include groundwater monitoring and analysis. Sampling and testing of Subsoil material will also be undertaken to determine allowable bearing pressures for foundation design. Given the size of the site the investigation is likely to form a two stage approach to focus in on any suspect areas.

15.54 Subject to the completion of the Phase 2 investigations the mitigation of ground contamination will be achieved by adopting a contamination remediation strategy based on the localised excavation and removal of hotspots of any contaminated soils that are deemed to pose a significant risk to human health or water resources. A Remediation Method Statement will be prepared in consultation with the Environmental Health Officer at St Edmundsbury Borough Council. The method statement will define appropriate soil contamination objectives to ensure protection of human health and groundwater resources.

15.55 The Environmental Consultant will supervise any excavations and undertake validation testing to ensure no residual environmental risk. After completion, the Environmental Consultant will produce a verification report on any remediation works.

15.56 In order to ensure that the potential for pollution during development works is minimised, a Construction and Environmental Management Plan (CEMP) will be submitted and agreed in writing with SEBC prior to the commencement of development.

15.57 All the proposed mitigation measures detailed above can be secured by suitably worded planning conditions.

Evaluation of Residual Impacts

15.58 Following the proposed mitigation, the removal of any localised hotspots of contamination will reduce the pollution risk to groundwater and to future residents and users of the Proposed Development. Hence there will be **no significant residual impacts** from the completed development.

15.59 Where necessary, the adoption of raft or cast-in situ foundations will minimise the risk of creating new / enhancing existing pathways for migration of contaminants down into the groundwater. Hence there would be **no significant adverse impacts** from any piling.

15.60 The short-term risk to contamination workers posed by any contaminants in the ground can be mitigated by adoption of appropriate health and safety procedures, with no significant longer term residual effects. Hence there would be **no significant adverse impacts** on construction workers.

Summary and Conclusions

15.61 **Table 15.6** below provides a summary of the likely environmental effects of the Proposed Development in relation to Ground Contamination and their potential significance taking account of the mitigation measures proposed.

Table 15.6: Summary of Impacts: Contamination

Description of Impact	Geographical Importance	Impact Before Mitigation				Mitigation	Impact After Mitigation (Residual)			
		Adverse/beneficial	Reversible/Irreversible	Short-term/Long Term	Significance		Adverse/beneficial	Reversible/Irreversible	Short-term/Long Term	Significance
Impact of existing ground contamination on groundwater in aquifer	Loc	Adv.	Irrev.	LT	Min.	Localised removal of any soil significantly contaminated.	Neu	Rev.	LT	Neg.
Impact of existing ground contamination on construction workers	Loc.	Adv.	Irrev.	ST	Min.	Apply appropriate health and safety controls.	Neu.	Rev.	ST	Neg
Impact of existing ground contamination on building materials	Loc.	Adv.	Irrev.	LT	Mod.	Localised removal of any soil significantly contaminated.	Neu.	Rev.	LT	Neg
Impact of potentially contaminated surface water and run-off on groundwater in aquifer	Loc.	Adv.	Irrev.	LT	Mod.	Minimise run-off from contaminated ground – contaminated soils not to be stockpiled on site. Water from wheel washers to be disposed of safely.	Neu.	Rev.	LT	Neg
Impact of piled foundations on groundwater in aquifer	Loc.	Adv.	Irrev.	LT	Mod	Localised removal of any soil significantly contaminated prior to piling.	Neu	Rev	LT	Neg
Impact of dust generated during construction on site workers and neighbours	Loc.	Adv.	Irrev.	ST	Mod.	Damping down exposed soils in dry weather.	Adv.	Rev.	ST	Neg.
Impact of existing below ground contamination on future residents and visitors	Loc.	Adv.	Irrev.	LT	Min.	Localised removal of any soil significantly contaminated.	Neu.	Rev.	LT	Neg.

16 SUMMARY OF ENVIRONMENTAL ASSESSMENT

16.1 Whilst there are a number of negative effects associated with construction, these are temporary and would end on completion of the development. Mitigation measures will be put in place to manage and reduce these impacts.

16.2 The most significant adverse effects of the Proposed Development relate to some visual and ecological impacts. Nonetheless some impacts of this nature are considered to be inevitable given the undeveloped, Greenfield nature of the site in seeking to achieve a policy complicit, high density, mixed use development on the application site. The adverse impacts are significantly outweighed by the positive landscape and biodiversity impacts of the scheme.

16.3 The Proposed Development is likely to have moderate positive impacts in terms of its contribution to the local economy, employment, housing provision and local traffic flows, particularly at the Cangle Junction as well as the landscape impacts.

16.4 The EIA has shown that concerns relating to air quality, noise, transport, flood risk and waste will be effectively mitigated so that residual effects are **minor or negligible**.

16.5 The following table summarises the findings of the topic chapters of the ES and SES. The table lists environmental effects identified as part of the assessment, the geographical level of impact, and the significance of the impact, taking account of mitigation.

Table 16.1 Summary of Impacts:

Description of Impact	Geographical Importance	Receptor Sensitivity	Impact Before Mitigation				Mitigation	Impact After Mitigation (Residual)			
			Adverse/Beneficial	Reversible/Irreversible	Short-Term/Long Term	Significance		Adverse/Beneficial	Reversible/Irreversible	Short-term/Long Term	Significance
Landscape & Visual											
1 View from footpath south of Withersfield	Dist.	Min.	Adv.	Irrev.	LT	Min.	Planting around the proposed Relief Road and to the north of the development.	Imp Ben	Irrev.	LT	Min.
2 View from footpath between Withersfield and Haverhill	Dist.	Min.	Adv.	Irrev.	LT	Min.	As above	Imp Ben	Irrev.	LT	Min.
3 View from point at which Withersfield footpath cross proposed Relief Road	Loc.	Mod.	Adv.	Irrev.	LT	Mod.	As above	Red Adv	Irrev.	LT	Mod.
4 View from Queen Street	Loc.	None	Neut.	N/A	N/A	N/A	N/A	Neut.	N/A	N/A	Neut.
5 View from properties around Howe Road	Loc.	Maj.	Adv.	Irrev.	LT	Maj.	Areas of open space established within development moving new buildings away from property boundaries.	Red Adv	Irrev.	LT	Major
6 View from properties on edge of Hales Barn development	Loc.	High.	Adv.	Irrev.	LT	Maj.	Proposed native planting area along boundary.	Red Adv	Irrev.	LT	Major

7 View from Ann Suckling Way looking south west	Dist.	High	Adv.	Irrev.	LT	Major	Large park beside park, buffer planting to north of Relief Road and development. Open space located along higher ground and lower densities on highest built areas.	Red Adv	Irrev.	LT	Major
8. View from Ann Suckling Way looking south	Dist.	High	Adv.	Irrev	LT	Major	As above	Red Adv	Irrev.	LT	Major
9. View from Ann Suckling Way looking east	Dist.	High	Adv.	Irrev	LT	Mod.	As above	Red Adv	Irrev.	LT	Major
10. View from Ann Suckling Way across eastern portion of site from north of Water Tower	Dist.	High	Adv.	Irrev	LT	Mod.	As above	Red Adv	Irrev.	LT	Mod
11. View from properties on Ann Suckling Road	Loc.	High	Adv.	Irrev.	LT	Major	Retention of green corridor along Ann Suckling Road, new area of open space on north side of road.	Red Adv	Irrev.	LT	Major
12. View from Withersfield Road near Paradise Farm	Loc.	Low	Neut.	N/A	N/A	Neut.	N/A	N/A	N/A	N/A	Neut.
13. View from Withersfield Road near Moor Pasture Farm	Loc	Low	Neut.	N/A	N/A	Neut.	N/A	N/A	N/A	N/A	Neut.
14 View from footpath between Great and Little Wratting	Loc	High	Neut.	N/A	N/A	Neut.	N/A	N/A	N/A	N/A	Neut.
15 View from footpath east of Great Wilsey Farm	Dist.	High	Adv	Irrev.	LT	Min.	Buffer planting around eastern roundabout, low heights and densities on eastern area of site.	Red Adv	Irrev.	LT	Neut.
16 View from B1057 near Copse Hall Farm	Loc.	Low	Neut.	N/A	N/A	Neut.	N/A	Neut.	N/A	N/A	Neut.
17 View from road near Hazel Stub Farm	Loc.	Low	Neut.	N/A	N/A	Neut.	N/A	Neut.	N/A	N/A	Neut.

18 View from Residential Properties on Spindle Road	Loc.	High	Adv.	Irrev.	LT	Min.	Creation of strong landscape and planting framework, no building on highest areas of land.	Red Adv	Irrev.	LT	Minor
19 View from junction of A1307 with A1017	Dist.	Low	Neut.	N/A	N/A	Neut.	NA	Neut.	N/A	N/A	Neut.
20 View from footpath north of Fox public house	Dist.	High	Adv.	Irrev.	LT	Minor	Buffer planting around eastern roundabout, low heights and densities on eastern area of site.	Red Adv	Irrev.	LT	Neut.
21 View from footpath north of Great Wilsey Farm	Dist.	High	Adv.	Irrev.	LT	Minor	Buffer planting around eastern roundabout, low heights and densities on eastern area of site.	Red Adv	Irrev.	LT	Neut.
22 View from road near Horseham Hall	Loc.	Low	Neut.	N/A	N/A	Neut.	N/A	Neut.	N/A	N/A	Neut.
23 View from footpath west of Calford Green	Dist.	High	Neut.	N/A	N/A	Neut.	N/A	Neut.	N/A	N/A	Neut.
24 View from Little Wratting	Loc	Low	Neut.	N/A	N/A	Neut.	N/A	Neut.	NA	NA	Neut.
Impact upon hedgerow network	Reg. / Coun.	Med / High	Ben.	Rev	LT	Minor	Repair of hedgerow network and addition of new hedgerows integral to design.	Ben.	Rev.	LT	Minor
Impact upon drainage ditch network	Loc.	Low	Ben.	Rev.	LT	Minor	Retention and preservation of drainage ditch network integral to masterplan design.	Ben.	Rev.	LT	Minor
Impact upon tree cover	Reg. / Coun.	Med / High	Ben.	Rev.	LT	Mod.	Retention of existing trees and addition of new tree planting areas on higher ground integral to masterplan design.	Ben.	Rev.	LT	Mod.
Impact upon Ann Suckling Way	Dist.	Med.	Neut.	N/A	N/A	Neut.	Existing path of footpath retained.	Neut.	N/A	N/A	Neut.
Impact upon County Wildlife Sites	Reg. / Coun.	High	Neut.	N/A	N/A	Neut.	NA – New alternative footpath route proposed to east of ASW CWS.	Neut.	N/A	N/A	Neut.
Impact upon listed properties	Reg. / Coun.	High	Adv.	Irrev.	LT	Minor	New are of open space created to south west of property and additional hedge and tree planting.	Adv.	Irrev.	LT	Minor

Impact upon field pattern	Dist.	Med / Low	Ben.	Rev.	LT	Minor	Retention of existing field pattern integral to masterplan design.	Ben.	Rev.	LT	Minor
Impact upon Countryside Character locally	Reg. / Coun.	Med / High	Ben.	Rev.	LT	Maj.	Retention of characteristic features and promotion of built characteristics integral to design.	Ben.	Rev.	LT	Maj.
Loss of open countryside	Dist.	Med.	Adv.	Irrev.	LT	Mod.	Creation of strong landscape framework to reduce mass of built area and to reduce visual impact. Retention of most important areas and features.	Adv.	Irrev.	LT	Mod.
Loss of townscape character	Dist.	Med.	Ben.	Rev.	LT	Min.	Promotion of characteristic features, materials and building typologies.	Ben.	Rev.	LT	Minor
Ecology											
Pollution from Construction Activities on Ann Suckling Way CWS	Count	Low	Adv.	Rev.	ST	Min.	Construction best practice to avoid spillages and minimise dust generation	Neut.	N/A	N/A	Neg.
Disturbance from increased visitor pressure on Ann Suckling Way CWS	Count	High	Adv.	Irrev.	LT	Maj.	Diversion of public footpath to avoid CWS	Neut.	N/A	N/A	Neg.
Increased airborne nutrient enrichment on Ann Suckling Way CWS	Count	Low	Neut.	Irrev.	LT	Min.	Design of site to give maximum possible distance between road and CWS	Neut.	N/A.	N/A	Neg.
Pollution from Construction Activities on Norney Plantation CWS	Count	Low	Adv.	Rev.	ST	Min.	Construction best practice to avoid spillages and minimise dust generation	Neut.	N/A	N/A	Neg.
Increased airborne nutrient enrichment on Norney Plantation CWS	Count	Low	Neut.	Irrev.	LT	Neg.	Design of site to give maximum possible distance between road and CWS	Neut.	N/A	N/A	Neg.
Noise disturbance on Norney Plantation CWS	Count	Low	Neut.	Rev.	LT	Neg.	Design of site to give maximum possible distance between road and CWS Buffer planting	Adv.	Rev.	LT	Min.

Trampling from recreational users, nutrient enrichment from dogs on Boyton Hall Track CWS	Dist.	High	Adv.	Irrev.	LT	Mod.	Additional habitat creation Provision of facilities for disposal of dog faeces and appropriate signage	Adv.	Irrev.	LT	Min.
Loss of hedgerows for construction	Nat.	High	Adv.	Irrev.	LT	Maj.	Design of site to minimise hedgerow losses Planting of new hedgerows Management of retained hedgerows	Adv.	Irrev.	ST	Min.
Damage to retained hedgerows during construction	Nat.	Mod.	Adv.	Rev.	ST	Mod.	Erection of protected fencing Construction best practice to avoid spillages and minimise dust generation	Adv.	Rev.	ST	Min.
Disturbance from increased visitor pressure on Ancient and / or species-rich hedgerows	Nat.	Low	Adv.	Irrev.	LT	Mod.	Design of site to minimise disturbance to hedgerows Provision of facilities for disposal of litter and dog faeces Management of retained hedgerows	Adv.	Rev.	LT	Min.
Pollution from construction activities on Crested Cow-wheat	Nat.	Med.	Adv.	Irrev	ST	Mod.	Construction best practice to avoid spillages and minimise dust generation	Neut.	N/A	N/A	Neg.
Disturbance from increased visitor pressure on Crested Cow-wheat	Nat.	High	Adv.	Irrev.	LT	Maj.	Diversion of public footpath to avoid CWS	Neut.	N/A	N/A	Neg.
Pollution from construction activities on Sulphur Clover	Nat.	Low	Adv.	Irrev.	ST	Min.	Construction best practice to avoid spillages and minimise dust generation	Neut.	N/A	N/A	Neg.
Loss of one population for construction	Nat.	High	Adv.	Irrev.	LT	Maj.	Translocation of affected population	Neut.	N/A	N/A	Neg.
Disturbance from increased visitor pressure on Sulphur Clover	Nat.	High	Adv.	Irrev.	LT	Maj.	Diversion of public footpath to avoid CWS	Neut.	N/A	N/A	Neg.
Loss of hedgerow habitat for construction on Invertebrates	Nat.	High	Adv.	Irrev.	LT	Maj.	Design of site to minimise hedgerow losses Planting of new hedgerows Management of retained hedgerows	Adv	Irrev.	ST	Min.

Pollution from construction activities on Invertebrates	Nat.	Low	Adv.	Rev.	ST	Min.	Construction best practice to avoid spillages and minimise dust generation	Adv.	Rev.	ST	Neg.
Disturbance from increased visitor pressure on Invertebrates	Count	High	Adv.	Irrev.	LT	Min.	Design of site to minimise disturbance to hedgerows Provision of facilities for disposal of litter and dog faeces Management of retained hedgerows	Adv.	Rev.	LT	Min.
Loss of Slow-worm habitat	Par.	High	Adv.	Irrev.	ST	Maj.	Design of site to minimise hedgerow losses Creation of areas of new reptile habitat	Ben.	Rev.	ST	Min.
Slow –worm mortality during construction	Par.	Low	Adv.	Irrev.	ST	Min.	Erection of fencing to prevent Slow-worm from entering the construction site	Neut.	N/A	N/A	Neg.
Slow-worm mortality from predation by pets	Par.	Med.	Adv.	Irrev.	LT	Min.	Provision of refuges in areas of new habitat	Neut.	N/A	N/A	Neg.
Slow-worm mortality from construction traffic	Par.	Med.	Adv.	Irrev.	ST	Min.	Design of site to maximise habitat connectivity Provision of crossing points under roads in key areas	Neut.	N/A	N/A	Neg.
Loss of Breeding Bird Habitats	Dist.	Low	Adv.	Irrev.	LT	Min.	Design of site to minimise hedgerow losses Provision of additional breeding bird habitat	Ben.	Rev.	LT	Min.
Breeding Bird mortality during construction	Dist.	Low	Adv.	Irrev.	ST	Min.	Timing of vegetation clearance to avoid breeding season	Neut.	N/A.	N/A	Neg.
Disturbance during construction	Dist.	Low	Adv.	Rev.	LT	Min.	Construction best practice	Adv.	Rev.	ST	Neg.
Mortality from predation by cats on breeding birds	Dist.	Low	Adv.	Irrev.	LT	Min.	Provision of safe nesting sites (bird boxes)	Neut.	N/A	N/A	Neg.
Noise and visual disturbance on breeding birds	Dist.	Low	Adv.	Irrev.	LT	Min.	Design of site to maximise habitat connectivity Woodland buffer planting	Adv.	Irrev.	LT	Neg.
Noise and lighting from construction	Dist.	Low	Adv.	Rev.	ST	Min.	Restriction of construction working hours	Adv.	Rev.	ST	Neg.

Bat habitat loss	Dist.	Low	Adv.	Irrev.	ST	Min.	Design of site to minimise hedgerow losses Creation of areas for new foraging / roosting habitat	Adv.	Irrev.	LT	Neg.
Habitat severance on Bats	Dist.	Min.	Adv.	Irrev.	LT	Min.	Woodland and hedgerow planting north of Relief Road	Adv.	Neut.	LT	Neg.
Light disturbance on Bats	Dist.	Min.	Neut.	Rev.	LT	Neg.	Design of site to maximise habitat connectivity Woodland buffer planting	Neut.	N/A	N/A	Neg.
Archaeology											
Soil Stripping	Loc.		Adv.	Irrev.	ST.	Mod. / Min.	Archaeological excavation prior to construction phase	Neut.	N/A	N/A	Neut.
Cutting of footings	Loc.		Adv.	Irrev.	ST	Mod. / Min.	Archaeological excavation prior to construction phase	Neut.	N/A	N/A	Neut.
Cutting of Service Trenches	Loc.		Adv.	Irrev	ST	Mod. / Min.	Archaeological excavation prior to construction phase	Neut.	N/A	N/A	Neut.
Road Cutting	Loc.		Adv.	Irrev.	ST	Min.	Archaeological evaluation and excavation prior to construction phase	Neut.	N/A	N/A	Neut.
Flooding & Drainage											
Discharge rate of surface water run-off from site.	Loc.	Med.	Adv.	Rev.	ST.	Min.	Control discharge rate from attenuation areas to receiving watercourses to no more than corresponding greenfield run-off rates.	Ben.	Rev.	LT	Min.
Pollutants entering watercourses.	Loc.	Med.	Adv.	Rev.	ST.	Neut.	Use of Sustainable Drainage Techniques to remove potential pollutants before discharge to watercourse.	Ben.	Rev.	LT	Neg.
Discharge of 'muddy' water from site during construction phase.	Loc.	Low.	Adv.	Rev.	ST.	Neut.	Utilise temporary settlement ponds to allow particles to settle out before discharge.	Ben.	Rev.	ST	Neg.

Anglian Water foul sewers not having sufficient capacity for additional flows beyond 755 properties.	Dist.	Med.	Adv.	Rev.	ST.	Min.	Pre-development application to determine and whether capacity any upgrade to system is required.	Ben.	Rev.	LT	Min.
Traffic and Transportation											
Impact of Construction traffic - dust and delays to peak hour flows.	Dist.	Med.	Adv.	Irrev.	ST.	Min.	Construction traffic on and off site during various phases of work. Construction and Environmental Management Plan	Adv.	Rev.	ST	Min.
Traffic volumes on existing highway network	Dist.	Med.	Ben.	Irrev.	LT	Min.	None proposed. Construction of relief road will enable HGV traffic to avoid town entre. Signing HGV's to industrial areas avoiding the town centre will also be provided.	Ben.	Irrev.	LT	Minor
Performance of The Cangle junction, before Relief Road constructed.	Loc.	Med.	Adv.	Rev.	LT	Min.	Construction of Relief Road to reduce traffic on Wratting Road and Withersfield Road and delays to traffic using The Cangle Junction.	Ben.	Irrev.	LT	Minor
Public transport	Loc.	Med.	Ben.	Rev.	LT	Min.	Proactive measures to improve public transport links to serve established passengers and encourage overall public transport usage. Travel Plan initiatives including bus stop improvements.	Ben.	Rev.	LT	Minor
Walking	Loc.	Med.	Neut.	N/A	LT	Min.	Encourage increased journeys on foot. Provide connectivity to existing established routes. Grade separated link across Relief Road. Travel Plan initiatives.	Ben.	Irrev.	LT	Minor
Cycling	Loc.	Med.	Neut.	N/A	LT	Min.	Increased cycle usage in Home Zone environment and on dedicated cycle routes. Reduced traffic flows on local roads.	Ben.	Irrev.	LT	Minor
Noise											
Impact of Construction Noise	Loc.	Low	Adv.	Irrev.	ST.	Min.	Implement 'best practices', as recommended by BS 5228: 1997	Adv.	Irrev.	ST.	Minor

Impact of Traffic Noise (Withersfield Road, Wratting Road, Howe Road)	Loc.	Low.	Neut.	Irrev.	LT.	Neut.	No mitigation is deemed necessary	Neut.	Irrev.	LT.	Neut.
Impact of Traffic Noise (new relief road)	Loc.	low	Adv.	Irrev.	LT.	Min.	Glazing and ventilation specs.	Adv.	Irrev.	LT.	Minor
Impact of Plant at Local Centre	Loc.	Low	Adv.	Irrev.	LT.	Min	Use careful layout design and plant choice to minimise impact	Neut. to Adv.	Irrev.	LT.	Neut. to Minor
Impact of noise from Primary School	Loc.	Low	Adv.	Irrev.	Lt.	Min.	Use careful layout design to minimise impact	Neut. to Adv.	Irrev.	LT.	Neut. to Minor
Impact of HGV/LGV traffic at Local Centre	Loc	Low	Adv.	Irrev.	LT.	Min.	Location of loading bays, limitation on delivery hours	Neut. to Adv.	Irrev.	LT.	Neut. to Minor
Air Quality											
Impact of Construction Dust and PM_{10}	Loc.	Low	Adv.	Irrev.	ST	Min.	Sheeting of material delivery, damping of roads, temporary surface and work areas; regular sweeping of both public and internal tarred roads. All plant to be well maintained. No burning of waste on site.	Ben.	Rev.	ST	Neg.
NO_2 and PM_{10} pollution concentrations within Haverhill Town Centre	Loc	Med.	Ben.	Irrev.	LT	Mod.	None required	Ben.	Rev.	LT	Mod.
NO_2 and PM_{10} pollution concentrations along Ann Suckling Road	Loc.	Med.	Adv.	Irrev.	LT	Mod.	Implementing better sustainable form of transport to minimise journeys	Ben.	Rev.	LT	Mod.
NO_2 and PM_{10} pollution concentrations at Withersfield roundabout	Loc.	High	Adv.	Irrev.	LT	Maj.	Implementing better sustainable form of transport to minimise journeys	Ben.	Rev.	LT	Mod.
NO_2 and PM_{10} pollution concentrations at New Road	Loc	High	Adv.	Irrev.	LT	Maj.	Implementing better sustainable form of transport to minimise journeys	Ben.	Rev.	LT	Mod.

Waste											
Generation of dust from re-profiling and loading lorries for off-site disposal of soils.	Loc.	Low	Adv.	Irrev.	ST	Min.	Use of dust suppression during re-profiling activities and loading lorries.	Ben.	Rev.	ST	Neut.
Generation of dust from un-sheeted lorries transporting soil to landfill.	Dis.	Low	Adv.	Irrev.	ST	Min.	Sheeting lorries before they leave site; regular inspection and cleaning of local highways.	Ben.	Rev.	ST	Neut.
Pressure on transport network from bulk soil-removal off-site resulting from re-profiling activities.	Reg.	Low	Adv.	Irrev.	LT	Min.	Re-use as much material on-site as possible, e.g. building and subgrade, re-use of topsoil, re-use of soil in earthworks such as bunding.	Adv.	Rev.	ST	Neut.
Impact on landfill capacity from bulk soil-removal off-site resulting from re-profiling activities.	Reg.	Med.	Adv.	Irrev.	LT	Mod.	Reduce quantity of soil to be removed off site by increasing site levels or re-using soil on site in earthworks such as bunding.	Adv.	Rev.	LT	Min.
Impact on landfill capacity from bulk soil-removal off-site resulting from re-profiling activities.	Reg.	Med.	Adv.	Irrev.	LT	Mod.	In addition to reducing quantity for off-site disposal, ship soil off-site to spread on local exempt sites that require levels to be increased, thus diverting soil from landfill.	Ben.	Rev.	LT	Neut.
Impact on landfill capacity from disposal of construction-materials	Reg.	Low	Adv.	Irrev.	LT	Min.	Reduce amount of waste produced by selection of materials to reduce waste	Adv.	Rev.	LT	Min.
Impact on landfill capacity from disposal of construction-materials	Reg.	Low	Adv.	Irrev.	LT	Min.	In addition to reducing amount of waste produced, increase levels of recycling over and above targets	Ben.	Rev.	LT	Neut.

Pressure on the Local Authority's waste management infrastructure resulting from the increase in the amount of municipal waste produced in the borough.	Reg.	Low.	Adv.	Rev.	LT	Min.	Design recycling facilities on site in an effort to assist with the achievement of the target of recycling 70% waste in the borough.	Ben.	Rev.	LT	Neut.
Energy and Climate Change											
Carbon Emissions	Nat.	Low	Adv.	Rev.	LT	Min.	Proposed 25% emission rate improvement over Building Regs. 10% renewables on site- Solar thermal, solar PV or biomass district heating viable. Passive solar gain and shelter belts maximised within masterplan Code Level 3*** achieved as minimum for dwellings	Adv.	Rev.	LT	Neg.
Water use	Loc.	Med.	Adv.	Rev.	ST	Mod.	Water consumption reduced to 105 litres per person per day.	Adv.	Rev.	LT	Neg.
Loss of ecological habitat	Loc.	Low	Adv.	Irrev.	LT	Min.	Creation of green corridors creates new habitat areas and potentially improves biodiversity.	Ben.	Rev.	LT	Mod.
NOx emissions	Loc.	Low	Adv.	Rev.	LT	Mod.	Materials rated A-C used. Class 4 boilers incorporated.	Adv.	Rev.	LT	Neg.
Socio-economic Impacts											
Population	Reg.	Low	Neut.	Irrev.	LT.	Min.	N/A	Ben.	Rev.	ST	Neg.
Housing	Loc.	Med.	Ben.	Irrev.	LT	Mod.	Provision of a mix of house types and provision of affordable housing	Ben.	Irrev.	LT	Maj.
Primary Education	Loc.	Low.	Adv.	Rev.	LT	Min.	Provision of 1FE Primary School	Neut.	Irrev.	LT	Neg.
Secondary Education	Loc.	Low.	Neut.	Rev.	LT	Neg.	None	Neut.	Rev.	LT	Neg.
Open Space	Loc	Low.	Adv.	Irrev.	LT	Min.	Provision of 11.38 ha Open Space	Ben.	Irrev.	LT	Min.

Community Facilities	Loc.	Low	Adv.	Rev.	LT	Min.	Provision of 300 sq m floorspace within local centre for community facilities	Ben.	Irrev.	LT	Min.
Construction Employment	Reg.	Low	Ben.	Rev.	ST	Min.	Maximising local employment opportunities	Ben.	Rev.	ST	Min.
Operational Employment	Loc.	Low	Ben.	Rev.	LT	Min.	Maximising local employment opportunities	Ben.	Rev.	LT	Min.
Centres	Loc.	Low	Neut.	Rev.	LT	Neg.	Conditions to control amount of floorspace	Neut.	Rev.	LT	Neg.
Ground Contamination											
Impact of existing ground contamination on groundwater in aquifer	Loc	Low	Adv.	Irrev.	LT	Min.	Localised removal of any soil significantly contaminated.	Neut.	Rev.	LT	Neg.
Impact of existing ground contamination on construction workers	Loc.	Low	Adv.	Irrev.	ST	Min.	Apply appropriate health and safety controls.	Neut.	Rev.	ST	Neg.
Impact of existing ground contamination on building materials	Loc.	Low	Adv.	Irrev.	LT	Mod.	Localised removal of any soil significantly contaminated.	Neut.	Rev.	LT	Neg.
Impact of potentially contaminated surface water and run-off on groundwater in aquifer	Loc.	Med	Adv.	Irrev.	LT	Mod.	Minimise run-off from contaminated ground – contaminated soils not to be stockpiled on site. Water from wheel washers to be disposed of safely.	Neut.	Rev.	LT	Neg.
Impact of piled foundations on groundwater in aquifer	Loc.	Med	Adv.	Irrev.	LT	Mod.	Localised removal of any soil significantly contaminated prior to piling.	Neut.	Rev	LT	Neg.
Impact of dust generated during construction on site workers and neighbours	Loc.	Low	Adv.	Irrev.	ST	Mod.	Damping down exposed soils in dry weather.	Adv.	Rev.	ST	Neg.
Impact of existing below ground contamination on future residents and visitors	Loc.	Low	Adv.	Irrev.	LT	Min.	Localised removal of any soil significantly contaminated.	Neut.	Rev.	LT	Neg.

BIDWELLS

Appendix 1

Open Space Provision

North West Haverhill - Open Space Provision

Open Space Type		Open Space Standard	Baseline	Open Space Standards Requirement - NW Haverhill	Masterplan Provision	Masterplan Space Provision (ha)	Masterplan total space provision (ha)	Notes / Comments
Informal Open Space		N/A	1,150 dwellings	N/A				
Amenity Open Space		25m^2 per dwelling	1,150 dwellings	2.875 Ha			6.04	Overprovision of Amenity/Informal Open Space
Children's Play Space		1.02 ha per 1000	2,714 people	2.768			3.17	Overprovision of Children's Play Space
	LAPs	0.6 ha per 1000	2,714 people	1.62	40 LAP's	0.4 activity zone 1.2 buffer zone 1.6 total		Provision meets standard.
	LEAPs	0.3ha per 1000	2,714 people	0.81	2 LEAP's	0.08 activity zone 0.64 buffer zone 0.73 total		Slight underprovision of LEAP due to considerable overprovision of NEAP. Facilities to be spread evenly throughout the proposed development. Local Landscaped Areas of Play LLAP could be considered as per Fields in Trust Guidance 2008.
	NEAPs	0.12 ha per 1000	2,714 people	0.33	1 NEAP	0.1 activity zone 0.74 buffer zone 0.84 total		Overprovision of NEAP. Proposed location of NEAP allows its use by existing population.
Sports Provision / Playing Pitches		2.2 ha per 1,000 people	2,714 people	5.94			2.67	Underprovision.
	Playing Pitches	1.6 Ha per 1,000 people	2,714 people	4.32	2 playing pitches	1.82		Underprovision. It is difficult to accommodate pitches within the site's rolling terrain.
	Courts, greens & miscellaneous	0.6 Ha per 1,000 people	2,714 people	1.62		0.85		Underprovision.
Allotments		0.2 Ha per 1,000 people		0.54		0.5	0.5	Provision meets standard. Community gardens could be considered.
Total				**11.88 ***			**11.38**	

* The Council's standards are based on a person per dwelling figure of 2.4 whereas we have assumed 2.36 in line with the national average within the 2001 Census which produces a lower figure. The calculations used within the Masterplan assume an average density for the site equivalent to 1096 dwellings.

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