3 Environmental issues and methodology

Introduction

3.1 This chapter explains the methodology for the identification of the environmental issues considered and assessed, and outlines the overall approach taken to the EIA. Specific methodologies for each of the specialist studies are given in the relevant topic chapters.

The scope of the EIA

3.2 Scoping is the identification of the range of significant issues potentially likely to arise as a result of the proposed development. As part of the scoping exercise, an applicant may ask the local planning authority for its formal opinion on the information to be supplied in the ES for a proposed development. Scoping also assists in ensuring that issues are addressed in the appropriate level of detail. This is an important exercise, undertaken at an early stage of the EIA process, which allows effort to be concentrated on the assessment of key potential issues.

3.3 Terence O'Rourke Ltd undertook a scoping exercise, produced an EIA scoping report and made a scoping opinion request to South Cambridgeshire District Council in July 2011. This document provided a summary of the proposed development, identified the potential key significant environmental effects to be addressed within the EIA and scoped out issues that did not require consideration.

3.4 The following factors influenced the breadth of the scoping exercise, and so the EIA:

- The scale and nature of the proposed development
- The physical characteristics of the proposed development
- Site characteristics
- Neighbouring land uses
- Environmental designations

3.5 Copies of the EIA scoping report were submitted with the EIA scoping opinion request made to South Cambridgeshire District Council. A number of statutory bodies and non-statutory organisations were also consulted (table 3.1).

Table 3.1: Scoping consultees	
South Cambridgeshire District Council	Cambridgeshire County Council
Natural England	Environment Agency
Highways Agency	English Heritage
National Planning Casework Unit	RSPB
Wildlife Trust	CPRE
National Farmers Union	Sport England
Buglife	British Horse Society
Ramblers Association	Arts Council East
Cambridgeshire Ecumenical Council of Churches	Cambridgeshire Horizons
BPHA	Cambridgeshire Primary Care Trust
East England Ambulance	Cambridgeshire Constabulary
Cambridgeshire Fire and Rescue	Bar Hill Parish Council
Cottenham Parish Council	Dry Drayton Parish Council
Girton Parish Council	Histon and Impington Parish Council
Lolworth Parish Council	Longstanton Parish Council
Oakington Parish Council	Rampton Parish Council
Swavesey Parish Council	Willingham Parish Council
Rampton Drift Residents' Association	Longstanton and District Heritage Society
Cambridge Past, Present and Future	Network Rail
Sustrans	Stagecoach
Cambridge Cycling Campaign	Anglian Water
Cambridge Water	Old Western Drainage Board
Swavesey Internal Drainage Board	EDF
BT	Councillor Burling
Councillor Bygott	Councillor Chatfield
Councillor Corney	Councillor de Lacey
Councillor Edwards	Councillor Ellington
Councillor Gymer	Councillor Hall
Councillor Harford	Councillor D. Jenkins
Councillor Johnstone	Councillor Manning
Councillor Mason	Councillor Read
Councillor J. Reynolds	Councillor K. Reynolds
Councillor Riley	Councillor H. Smith
Councillor M. Smith	Councillor Stonham
Councillor Waters	Councillor Wotherspoon

3.6 A copy of the EIA scoping report (including details of the scoping methodology) and the responses from the consultees can be found in technical appendix A.

Key potential issues identified during scoping

3.7 Responses were received from the majority of the organisations consulted and as a result a number of additional key potential issues were identified for assessment. A summary of the key issues raised is provided in table 3.2 and these are set out in full in technical appendix A.

3.8 It should be noted that the proposed development considered at the scoping stage included two potential areas of excavation and infrastructure works, one to the south of the primary development site and one to the north that extended onto the former airfield. The northern potential area of excavation and infrastructure works is no longer included in the proposed development, while the southern area (the Hatton's Road attenuation ponds area) is smaller than that considered at scoping, as subsequent refinement of the proposed earthworks and drainage strategies enabled more accurate identification of the area required for these works.

Table 3.2: Key issues identified during scoping

Topic	Key issues identified in scoping report	Additional issues raised during consultation
Air quality	• Emissions of nitrogen dioxide and particulate matter from construction and post-construction traffic • Generation of dust and particulate matter during construction	• A Low Emissions Strategy needs to be produced • Increased carbon dioxide emissions
Community, social and economic effects	• Increase in population and potential effects on local demography • Provision of new market and affordable housing • Generation of employment during and post-construction • Increased pressure on local services and facilities, provision of new facilities and loss of existing golf course • Potential for effects on demands for local businesses as a result of increased population and provision of local shops	• Effects on public rights of way • A Health Impact Assessment needs to be produced • Effect of increased lighting on residential amenity / statutory nuisance
Cultural heritage	• Impact on buried archaeological remains on site during construction • Impact on the setting of listed buildings in the vicinity of the site during and post-construction • Impact on the setting of the Longstanton conservation areas during and post-construction • Impact on the archaeology and historic land use of RAF Oakington • Impact on the historic landscape in the area of excavation for fill and infrastructure work	• Impact on the setting of Giant's Hill scheduled monument
Geology, hydrogeology and contamination	• Potential for health effects due to contact with contaminants during and post-construction • Mobilisation of contaminants into the water environment • Potential for ground gas or landfill gas to pose a risk to future site users and new structures • Potential presence of buried munitions and / or ordnance or munitions on the surface posing a risk to human health and new structures • Effects on surface water and groundwater quality from pollution due to spills during construction and from contaminated run-off post-construction	• Issue of minerals safeguarding

Topic	Key issues identified in scoping report	Additional issues raised during consultation
Land use and agriculture	• Loss of best and most versatile agricultural land • Loss of / damage to soil resources during earthworks • Loss and / or fragmentation of agricultural holdings and effects on the viability of agricultural businesses	• No additional issues raised
Landscape and visual effects	• Changes to the landform / topography of the site as a result of earthworks • Changes to local landscape character • Changes to land cover and landscape quality on site • Changes to sensitive views into the site, including from designated areas, and including changes to night time views as a result of increased lighting	• Loss and retention of trees
Natural heritage	• Loss of existing habitats, creation of new habitats on site and change in the composition of on site vegetation communities • Effects on the use of the site by animals due to habitat loss and fragmentation • Disturbance of protected species	• Indirect effects on designated sites as a result of increased recreational use and changes to water quality / hydrology
Noise and vibration	• Increase in noise from site preparation, earthworks and construction activities • Increase in noise from construction traffic associated with haul movements from the area of excavation to the primary development site along the B1050 • Increase in noise from post-construction traffic	• Effects of noise from existing sources on the proposed development
Traffic and transport	• Increased traffic flows during and post-construction leading to impacts on the highway network and associated potential for increased pedestrian severance, driver delay and accident rates • Changes to local road infrastructure, including upgrades to the B1050 • Creation of new non-motorised user pedestrian, cycle and equestrian infrastructure • Increased use of public transport and provision of part of a new bus route	• No additional issues raised for the EIA
Waste	• It is proposed that waste is not scoped into the EIA	• No additional issues raised for the EIA
Water environment	• Effects on surface water physical quality from pollution due to increased sediment during construction • Effects on the hydrology and associated flood risk of surrounding watercourses due to increased surface water run-off • Effects on groundwater hydrology on site from reduced recharge rates • Effects arising from the increased demand for potable water and wastewater treatment and the associated upgrade works required	• Effect on licensed and unlicensed abstractions

Assessment methodology

3.9 An environmental effect is an alteration, positive or negative, to some aspect of the environment that occurs as a result of a development. It is essential that the EIA methodology is comprehensive and focused to enable any potential environmental impacts to be identified and assessed. An ES is designed to predict and measure the potential effects of a proposed development and the degree of those effects, and also to identify and assess mitigation requirements in respect of any adverse effects identified. The method used should be objective, consistent and adaptable, and as free from analytical bias as possible.

3.10 The EIA focuses on identifying existing receptors and assessing the potential effects on these receptors as a result of the proposed development. It is important that the assessment methodology distinguishes between the sensitivity of the receptors and the type and size of change that will affect them, either directly or indirectly. It is also important that the ES is clear and effective in communicating the results of the assessment to the determining planning authority, the general public and professionals involved with appraising the proposed development.

Guidance and best practice

3.11 The methodologies used for the assessment of specific issues are discussed in the relevant chapters of this ES. The assessments have been informed by a range of information, including planning policy, desk-top studies, consultation with statutory bodies, surveys and monitoring. Where appropriate, use has been made of published guidance and information on best practice, including the Department of the Environment, Transport and the Regions' *Environmental Impact Assessment: a guide to procedures* (DETR, 2000) and Circular 02/99. The guidance has been considered in conjunction with the EIA Regulations.

Determining the significance of effects

3.12 The evaluation of effect significance is fundamental to the EIA process. The degree of an effect contributes to determining the resources that should be deployed in avoiding or mitigating an adverse effect, or identifying the actual value of a beneficial effect.

3.13 As far as possible, standard words have been used to define degrees of effect (i.e. 'very substantial', 'substantial', 'moderate', 'slight' and 'negligible'), but not so rigorously as to stifle flexibility or particular individual requirements.

3.14 The degree of an effect is determined by the interaction of two factors: the magnitude, scale or severity of the effect or change, and the value, importance or sensitivity of the environmental resource being affected. This is then used to determine whether an effect is significant. If the degree of effect is moderate or above then the effect is considered to be significant. Slight or negligible effects are not considered to be significant.

3.15 Sensitivity and magnitude categories have been developed for the majority of the environmental topics, based on a combination of best practice guidance and expert judgement. These are provided in the specialist topic chapters. Any assumptions made during the assessment process have been reported in the text. Figure 3.1 shows the general matrix used to determine the degree of each identified effect, and thus whether it is significant. This matrix has been developed by Terence O'Rourke Ltd and is used in the assessment of the various environmental impacts to enable meaningful comparisons to be made. Any methodologies that differ from this approach are explained in the relevant topic chapters.

3.16 The assessment of the potential effects also takes account of timescale (differentiating between short to medium term effects that occur during construction and long term effects that arise as a result of the completed development), permanence and whether the effects are adverse or beneficial, as appropriate (for example, 'a long term but reversible, substantial, adverse effect').

Identification of mitigation measures and residual effects

3.17 Where potential adverse effects have been identified, the results of the assessment of significance have helped to guide the mitigation measures proposed. At the end of each of the environmental assessments, where relevant, there is a 'residual effects' table, which summarises the significant environmental effects remaining after implementation of any identified mitigation measures. This includes a measure of the confidence placed in the prediction of each potential residual effect, such as 'absolute', 'reasonable' or 'limited'.

General format of the topic chapters

3.18 The majority of the remaining chapters in this ES address each of the environmental issues identified during the scoping process. Each chapter is structured in general as follows:

- Introduction
- Legislation and policy
- Methodology
- Baseline
- Effects during construction
- Effects post-construction
- Mitigation
- Residual effects

Cumulative effects

3.19 The proposed development will form an initial phase of the wider Northstowe new town development. The potential for cumulative effects with the full Northstowe development has therefore been assessed for each environmental aspect (see chapter 14). The cumulative assessment was based on the 2007 master plan, as updated by the Northstowe Development Framework (2012), including consideration of an area of 'reserve land' to the north as part of the future Northstowe wider development. Details of the development principles considered in the assessment are provided in chapter 14.

3.20 The potential for cumulative effects with other developments that are consented, or for which planning permission is being sought, has been examined in the individual topic chapters, where relevant. The following developments were included in these assessments, as agreed with South Cambridgeshire District Council:

- Home Farm, Longstanton
- Orchard Park, Cambridge
- NIAB 1, Cambridge
- University site, Cambridge

3.21 Planning permission was granted in 2000 for the Home Farm scheme to the west of Longstanton, which comprised 500 dwellings, a 7.2 ha business park, a village green (including land for a local shop and surgery), an extension to Longstanton's recreation ground and a bypass (now built). As the early phases of this development have already been constructed, where appropriate this scheme has been taken into account in the individual topic chapters as part of the existing and future baseline.

3.22 The Orchard Park, NIAB 1 and University site developments are all several kilometres from the Northstowe site, on the edge of Cambridge. As a result, the potential for cumulative effects with these developments is considered to be limited to traffic and transport effects and associated effects on air quality and noise from increased traffic. Traffic movements associated with these schemes are included as committed developments within the Cambridge Sub-Regional Model, so have been taken into account in the future baseline of the traffic, air quality and noise assessments (chapters 7, 8 and 9 respectively).

3.23 The potential for cumulative effects to arise from several individual impacts on a specific receptor is inherently addressed within the assessments contained in the individual topic chapters. For example, the natural heritage assessment in chapter 6 covers the potential for effects from different sources such as noise, dust and disturbance on particular habitats and species.